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AND CULTURAL POLICY**

**Doctoral program**

**„Book studies, library studies and bibliography“**

**Theme: „Electronic archiving - challenges facing the archive  
system in Bulgaria“**

**ABSTRACT**

**on**

**DISSERTATION**

**for awarding the educational and scientific degree „Doctor“ on  
professional direction: 3.5. Public Communications and Information Sciences  
(Book studies, library studies and bibliography)**

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The doctoral student's dissertation was developed, discussed and admitted to public defense with the decision of the Department of Library Science, Scientific Information and Cultural Policy at the Faculty of Philosophy of the Sofia University „St. Kliment Ohridski”. Its author is a doctoral student in the same department.

The public defense of the dissertation work will take place on the following date: ..... d. from .... : .... h. in the Department of Library Science, Scientific Information and Cultural Policy, at the Faculty of Philosophy of the Sofia University „St. Kliment Ohridski”. It is located at „Tsarigradsko Shose” Blvd. No. 125, block No. 1, floor No. 4, aud. No. 45, where the meeting of the Scientific Jury appointed by Order No. .... will be held. of the Rector of Sofia University „St. Kliment Ohridski”.

The defense materials are available at the Department of Library Science, Scientific Information and Cultural Policy, Faculty of Philosophy of the University of „St. Kliment Ohridski”.

<b>Scientific jury:</b>
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## Chapter I. General characteristics of the dissertation

### Relevance and importance of the problem

The increasing attention that the central government, society, business, academic community, etc. separate from the issues related to the Bulgarian archival system, which is already an established factor in our social and cultural development from the moment of the restoration of the Bulgarian independence, inevitably creates the need for an interdisciplinary study of its historical development. This is necessary in order to create a wider view and more complete awareness of the archival work in the country. The reasons for this are the presence of contradictory moments in the archive history, which necessitates a two-sided illumination of the events. Especially in relation to the development of information and communication technologies (ICT) and the diverse and wide-ranging influence exerted on the archival system and the profession itself (noticeably distinct from the mid-20th century). The mere fact that for over four decades the Bulgarian archives have been in a mutual relationship with digital technologies, which have become an integral part of their activity, adjusting the traditional archival rules, according to them and remodulating according to its specific rules, is enough to highlight the need for - in-depth research and familiarization with the archival mission in the 21st century.

Technological progress in the 21st century and the possibilities of „free” access to a significant amount of data in scientific periodicals, literature, magazines and millions of articles, certainly represents both an advantage and a challenge. The professional approach of any scientific researcher with a similar mission will require him to make a thorough assessment and interpretation of the information, which will be the key to the objective presentation of institutional and national achievements (top and weak) in one field. For this reason, the dissertation argued in support of the opinion that „regardless of the historical period, every scientific researcher relies on

the achievements and discoveries of his colleagues...”<sup>1</sup> The scientist is obliged to prove the „legitimacy” of his work through citations based on information obtained from scientific publications of other researchers. It is an indisputable fact that one of the main characteristics of modern research is the survey of diverse and relevant sources of information.

The topic of this dissertation was chosen for several specific reasons. First of all is its relevance and significance, which has intrigued the academic community worldwide for two decades. The development of information and communication technologies in combination with the modern concept of „open” and „digita” society, as well as their current application in archival activity from the middle of the 20th century to the 21st century, in themselves show the relevance of the research and the intensified necessity of its implementation. It seeks answers to questions from problem areas and challenges in a national and international aspect. The subject can be conditionally called an empty „white” field of archives, respectively in the state, society and business, which tomorrow may turn into a kind of „desert of knowledge”, which the current study aims to highlight.

Based on the analyzes performed and the observed trends in the country and other countries, the dissertation student formulated the following working hypotheses:

- 1) users of archival information are reorienting themselves and increasingly prefer to use the electronic services provided by the archives - preparation of references and copies, rather than personally visiting the reading rooms and searching for the information and documents of interest by themselves;

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<sup>1</sup> **Stefanov**, Rosen. Systems for tracking and analyzing scientific citations as a tool for evaluating the development of academic research. Dissertation abstract for the award of the educational and scientific degree „Doctor” by professional field: 3.5. Public communications and information sciences (Book studies, library studies and bibliography). Sofia, 2020, p. 4.

- 2) the introduction of an e-Archiving model, as an important and integral part of e-Government, will be successful only after the unification of the rules for archiving electronic documents in the state and municipal administration;
- 3) the introduction of new technologies and the general state of the information industry will require archives to have huge storage resources, which will be alleviated only by creating a unified archive format;
- 4) technological innovations will change not only the regulations and the work of archives, but will require archivists to constantly improve their professional qualifications;
- 5) the general tendency to expand the boundaries of the archival system to go beyond national-state spaces.

### **Object and subject of the research**

The main object of the research are the digital creation models used for long-term data storage through the technological and informational means created over time by and for the Bulgarian archives. Significant moments in their historical development are highlighted, and their main advantages and disadvantages during implementation are pointed out. The definition of an electronic document (e-document), which is one of the main objects of the study, is also presented to them. Completed with new terms such as: electronic archiving, electronic archive, etc. The scope includes examples of both national and international software products and tools to provide a more general picture of the state of the archive network.

The subject of the study are the specific information systems and technological models that have been developed and implemented in the Bulgarian archival system.

The focus is on their actual implementation and interaction with the state administration.

## Research methodology

It is accepted that scientists apply a system of scientific methods as the main engine in their research. The scientific method (the word is of Greek origin and means „research, study, path of knowledge”) is a system of principles (which develop and change) and with the help of which an objective knowledge of reality is reached. Research based on personal observations, inspiration or insight (intuition) is highly likely to be perceived as subjective, frivolous and unprofessional behaviour. However, as the German writer Erich Maria Remarque noted: „a person lives 75% with his fantasy and only 25% with the facts - this is his strength and weakness.”.

In the present case, the following research and empirical methods have been applied for the needs of the specific research: observation, search, synthesis and analysis of national normative and sub-normative acts, as well as other methodological documents and instructions, acting and regulating the matter. The main strategic documents of the European Union, of EU member states and other countries, revealed through a selective review, were also not omitted.

Examples of good practices and experiences in the field of e-Governance (e-Governance) and electronic archiving (e-Archiving) are attached, with a justification of studied problems and basic theoretical concepts based on modern archival practices. Survey of scientific literature, editions and publications in the field of archival and documentary studies.

Last but not least, the results of empirical research are drawn - online survey, internal inquiries and online monitoring, establishing facts from available "empiricus" in archival practice.

For the needs of the study, the following research and empirical methods were also applied: search, synthesis and analysis of national normative and sub-normative acts, as well as other methodological documents and instructions, acting and regulating the matter. Without omitting the main strategic documents of the European Union (EU), EU member states and other countries revealed through a selective review. Examples of good practices and experiences in the field of e-Governance (e-Governance)<sup>2</sup> and electronic archiving (e-Archiving)<sup>3</sup> are attached with justification of studied problems and basic theoretical concepts based on modern archival practices. Survey of scientific literature, editions and publications in the field of archival and documentary studies. Last but not least, the results of empirical research are drawn - online survey, internal inquiries and online observation, establishing facts from available experience in archival practice.

### **Aims and objectives of the research**

The main goal of the present scientific study is the presentation of certain specific connections from the historical development of the archival work<sup>4</sup>, coming to the new rules and definitions set by ICT and the „digital” transformation of society. Among the set additional goals, we will find the definition of basic axioms for the „modern” mission of the archives, their transformation into „digital” ones, as well as

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<sup>2</sup> „e-Governance” should be understood as - management in an electronic environment of normative interconnections, administrative processes and user service using information, statistical and mathematical models and methods of processing data, information and knowledge. The concept should be distinguished from Electronic Government (e-Government). E-Government refers to national directives, models and rules for the development and maintenance of electronic systems, solutions and practical methods in the administration for internal and external administrative service and interaction with ensured horizontal and vertical coordination, standardization and efficiency of electronic services (e- services) in the administration. In this context, it is necessary to reveal the meaning and concept of „e-service” - administrative service in an electronic format, which is not only parallel, but can also replace a corresponding (administrative) process using documents on paper or other media. Administrative processes are optimized so that the administration provides the most efficient service with minimum administrative resources (applicants, recipients, time, technical/financial means, etc.).

<sup>3</sup> It includes the processes of creation, management, expertise, protection and storage of electronic documents in state institutions, as well as transmission, protection, storage and use of valuable electronic documents in state archives.

<sup>4</sup> Archival work is a sector in the development of the state and society, covering legal, theoretical, methodological and practical activities and policies related to the organization and management of archival institutions and archival documents.



the specifics of interaction with the state administration, the information network society and innovative business environments. The focus is on examples of these relationships that have called into question and revised the existence of archives at all.

To achieve the set goals, the following research tasks have been identified:

1) Carrying out a detailed study of the scientific literature covering the specified topic;

2) To determine and analyze the complex of factors influencing the development and improvement of archival work in a time of almost unlimited technological possibilities;

3) To analyze the historical development of the archival system and information and resources;

4) To reveal the specific features characteristic of the technological environment in which the electronic documents themselves are created;

5) To highlight examples of advantages and disadvantages in the implementation of e-Archiving, as well as in the creation of digital archives.

6) To analyze the strengths and weaknesses of the digitization of archival documents;

7) To conduct empirical research (survey and online observation) in international national archives;

8) To conduct empirical research (internal/public inquiries and online monitoring) in the Bulgarian archival system.

The ultimate goal is aimed at the possibility of providing a field for a broad discussion on the series of challenges that information development, the state and public expectations have placed on archival science.

The total volume of the development is 204 pages, of which 177 pages are the main text. Used literature has a volume of 26 pages, which starts with 3 unpublished sources; 57 in number of normative and strategic documents; 68 publications by

Bulgarian and foreign researchers; and 35 links with hyperactive links to various online sources related to the topic. A glossary of terms with definitions and abbreviations is included. It notes the 75 Bulgarian acronyms used and 31 in English; and 10 technological definitions on two pages. The text contains 7 tables and 43 figures are attached. Completed with a graphic appendix presenting chronologically important moments of the automation of the archive system in Bulgaria.

### **Limitaions of the study**

The dissertation has its own special limitations. They are imposed for several reasons. The first is to distract the reader with too many topics, data and information about them. The second is to comply with layout requirements.

That is why the experience and achievements of other departmental and scientific archives in Bulgaria are not considered in the dissertation. Similarly, questions related to 3D digitization, artificial intelligence (AI), cyber security and working with classified documents are excluded, primarily because of their complexity and because they are a field for future research missions.

## Chapter II. Structure and content of the dissertation

### Structure of dissertation

Structurally, the content of the dissertation is grouped into four separate chapters with a common chronological boundary from the end of the 19th century to the present day.

**The introduction** of the dissertation defines the goals, tasks, subject, object, methodology of the conducted scientific research and offers the main working hypotheses of the dissertation.

**The first chapter**, as a starting point in the research, aims to study the historical development of the archival work in the country and its normative regulation, examining the information resource or the so-called „memory of the nation”, which the Bulgarian archives as an institution and administration with public rights collect, preserve and make available for use. Similarly, in its first subsection (**item 1.1**), it presents the main aspects of the organization and the main principles of the archival work in the country. A place has been allocated for the historical development and improvement of the scientific reference apparatus of the archives.

For the archival college in Bulgaria, this chapter will probably be a journey back through the years to professional self-knowledge, and for the humanities, students and the wider audience – an opportunity to touch the unknown or at least the little known.

The next structural point (**item 1.2**) is related to „automation” in the Bulgarian archives and related international programs, and experience carried out in the field. Details of the historical and technical provision of the archives for more than four decades have been announced. Practical examples of information products created over time for the needs of the Bulgarian archives are presented - the Information

System of the Archives (ISA) and the Automated Information System of the Archives (AISA), the Information System of the State Archives (ISDA) and the National Electronic Register of Archives (NERA), to reveal as many details as possible that are important to them. Attention has been paid to the changes in the traditional work of archivists and the resource provision of the overall process of building these systems. Various internal departmental documents (strategies, reports, plans, programs, etc.) were examined in order to reveal the most precise steps in these processes.

Logically, the structure of the chapter continues with point (**item 1.3**), which is entirely assigned to the currently existing Information System of State Archives (ISDA). The systematic efforts that led to its creation are presented. Also, the steps taken in improving the scientific reference apparatus of the archives, increasing its informational value by refining the data.

Practically until 1993, more attempts were made to create an electronic array of catalog descriptions with the help of the UPDML, and then also thematic card files in an automated form in the Central State Archives (CSA). The following year, 1994, was also special for the archives as they received their first equipment (a total of 33 personal computers of the "Intel 486" class), helping to implement the initial version of AISA. The following year, it adopted a long-term strategy for the implementation of ICT in the state archives system, including three main stages:

1. Complete construction of AISA;
2. Construction of an Automated System for the Management of Archive Processes (ASUAP);
3. Construction of a Machine Readable Archive (MAA).

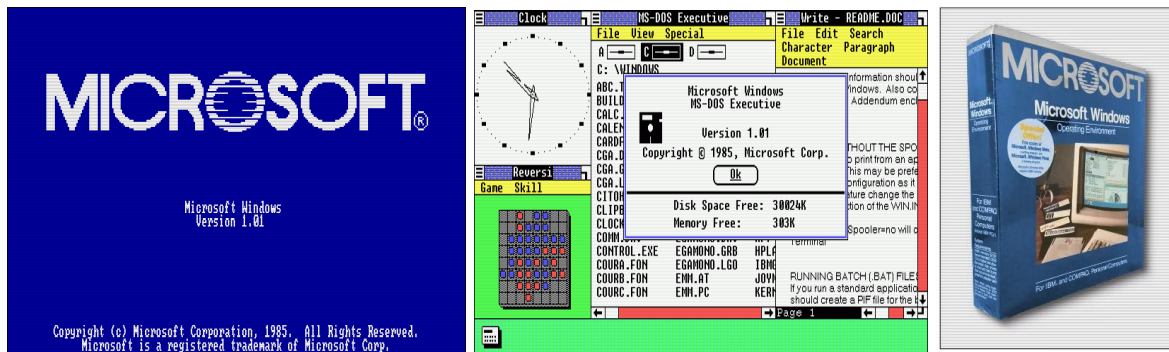
The work on the first stage generated the centralized database (CBD) of AISA on three main archival directories: "Fund availability", "Inventories" and "Catalogs",

continued by building new ones such as "Partial receipts", "Memories" and "Personal funds". Naturally, all this determines the urgent need to develop sub-normative regulations (working instructions) for the storage, preservation and use of the information arrays of AISA and the exchange of data with the Central Bank. In fact, since 1997, the archives have abandoned the adopted strategy, due to its lack of vision for the development of ICT.

It cannot be assumed that this is related to the political crisis in Bulgaria (the January events) of 1996-1997. We remind you that this is a period of modern Bulgarian history related to mass protest marches in Sofia, which turned into riots and storming of the building of the National Assembly. In fact, Bulgaria is falling into a deep political and financial crisis. Hyperinflation in the country led to the bankruptcy of 15 banks and the destruction of the savings of the vast majority of Bulgarians.

Archives do not remain unaffected by this internal "collapse" of the state. In practice, this leads to a decrease in the intensity of data entry in the following two years, and in 1999, the main IT structure in the archive system - the Center for Archive Information (CAI), established in Veliko Tarnovo - was closed. The activity was inherited by the "Automation" department created the following year in the CDA and a working group in the Central Military Archive (CVA) until its restructuring. A small breakthrough was achieved in 2001 with the implementation of a complex project of the Ministry of Finance for the automation of financial and accounting activities, including the delivery of over 30 pcs. computers with Windows 1.0 operating system and „AsWin 1.0” accounting program. Cabling and equipment with 2 servers to start a local computer network with 17 workstations in Sofia and antivirus software.

The marking of all this was imperative, because this moment can be perceived as the beginning of the gradual provision of Internet access in the system of state archives in Bulgaria. Traveling back in time, it would be appropriate to present a graphical view of the user interface from this period (see **fig. 1**).

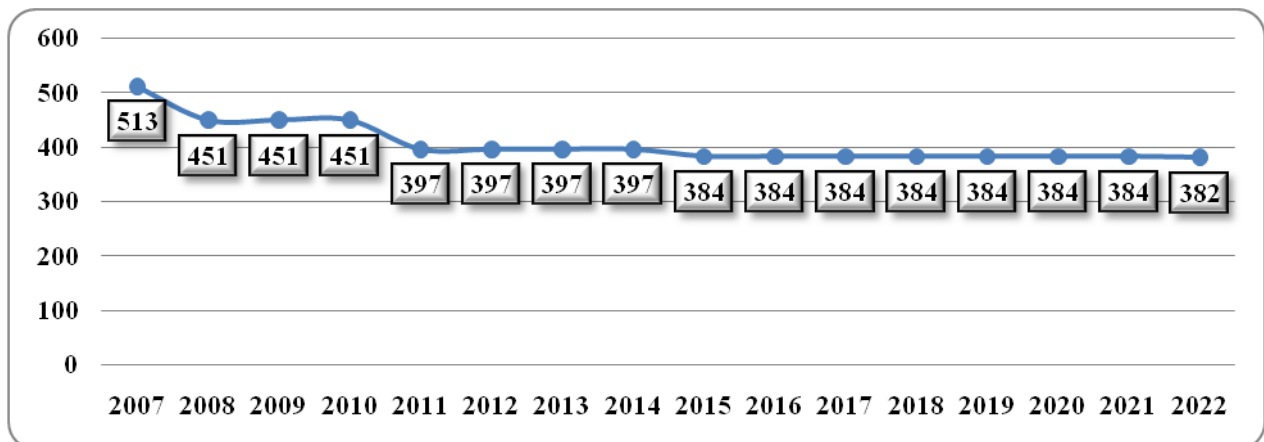


**Figure 1. Screenshots from Windows 1.0**

From the moment of implementation of AISA in 1994 until the termination of the activity of introduction into its database, more than 5 million records of reference archival information have been accumulated, which constitutes 74% of their stock availability. Transferred and adapted recordings from previous periods are also included in this number. It is no coincidence that the archivists' most important condition for the future developers of ISDA was the inclusion of all the data accumulated so far by AISA. A large part (over 90%) has been successfully migrated to the new information system and is used for expeditious service to citizens and support for the direct official activities of the archive department. According to this priority task, all state archives in the country have carried out an inspection of their archival funds in order to refine and supplement the relevant data from the reporting registration.

The recordings went through another stage of internal verification as planned, but due to the lack of sufficient personnel resources, the activity was initially reduced and then terminated. I note this because human resources in the archives have been progressively reduced over the years. From 513 full-time employees in 2007, it will reach 382 people in 2022, which was achieved with rhythmic reductions in personnel and reducing them to a „sanitary minimum”. According to elementary mathematics, this is 131 experts, specialists or technical persons, or an average decrease of 8 people per year. An ideal example in this regard is the regional State Archive in Vidin, which during this period has undergone a reduction of its staff by an enviable 75%. The

overall picture of this indicator is clearly expressed with the following attached graph (figure no. 2):



**Figure 2. Distribution of staff numbers in the archives**

Other problem areas that hinder the development of this system are also outlined. The analysis shows that among the weaknesses in this aspect are the long period for the complete filling of the database, insufficient personnel for systematic filling in the system, working under pressure to meet deadlines and severely limited technological resources. This indicates that there are still weaknesses in the organization, updating and ongoing maintenance of this database. Strengths include examples such as accumulated professional experience with information systems; the possibility of online access of users to the centralized database of the reference apparatus of all archives; carrying out an independent search for information in ISDA; structuring your descriptive data, according to the international standard „General International Standard Archival Description” (ISAD (G)) in five hierarchical levels with different degrees of detail and interrelation between them. For accuracy, I will indicate that the levels are: „Archive”, „Funds”, „Inventory”, „Archive Entity” and „Items” and last but not least with further development of its functional features (movement and storage of documents) to meet the requirements of an information society (IS) for service in „electronic reading rooms” and „one service”.

In this context, the European practice of retroconversion of the available reference apparatus has been widely commented. Converting existing printed, typewritten or manuscript sources into digital forms has long been a top priority in many countries. In order to get to using the scientific reference apparatus on the Internet, one has to go through the long and sometimes too monotonous way of working on inventories, directories and catalogs.

The chapter continues with a new point (**item 1.4**), tracking the processes of building a digital archive of the Archives State Agency. Analytical and factual data and results of the activities of the archives in the field of digitization are presented as the last step of their automation. The digital archive is logically connected to ISDA and is based on uniform criteria, principles, requirements and instructions for the selection, preparation, verification and correction of digital objects, regulating the work processes in detail.

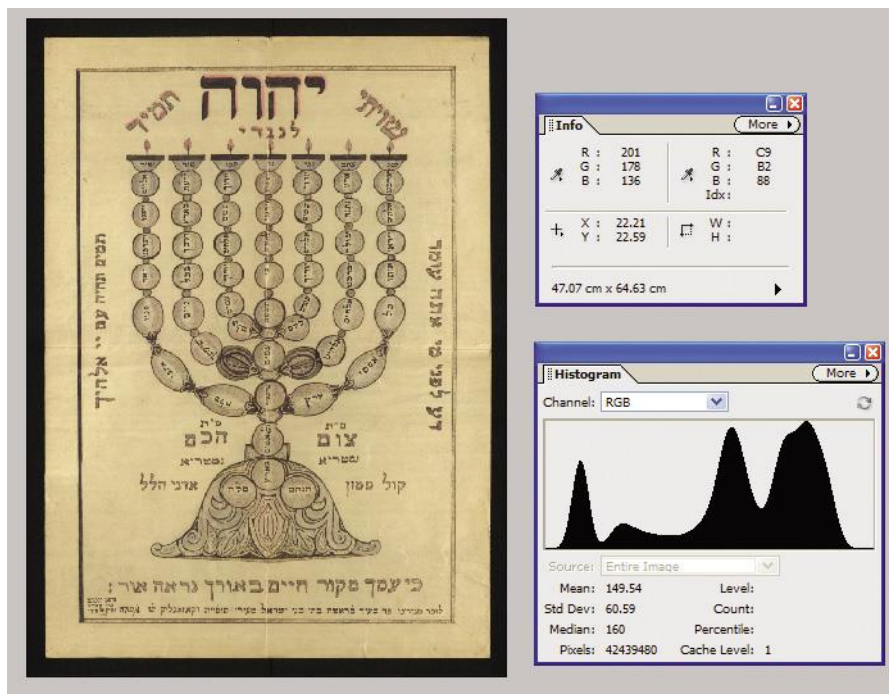
The digital archive is logically connected to ISDA and is based on uniform criteria, principles, requirements and instructions for the selection, preparation, verification and correction of digital objects, regulating the work processes in detail. It is no accident that the external research assessment that I find objective is „What is more important in this case is that the archives operate according to clear rules and they are spelled out in deliberate documents that are completely public.” The entire group of instructions, as well as the very concept of building a digital archive of the ASA, were precisely prepared by the archivist Nikolay Markov. The documents are "a clear testimony to the methodology adopted in the state archives."

For the purposes of this paper, the definition of a digital object given by the archives in the 2013 Code of Practice will be used, according to which a 'digital object' is 'the totality of all digital image files representing a single source in its entirety. A digital object may consist of one or more digital image files. Regarding the definition of "digital image", it is "a digitally encoded representation of the visual characteristics of a source".



In this thesis, the definition is used to refer to a separate image file of a constituent part of the source (eg, a separate page). A digital master image is a high-quality object for long-term preservation from which derivative digital images can be made.

One of the many objective indicators of digital image quality is in terms of the tonality of the image histogram. For clarity and better visualization, a figure will be presented with a digital image prepared in the archives, meeting the specified standards. For the narrower digitization specialists, the distribution of pixels in the attached figure below and histogram will be visible:



**Figure 3. Digital image with good tonal range**

The analysis is indicative of the fact that the Digital Archive has actually consolidated the „foundation”, both the creation of the public image of the Bulgarian archives through the digital collections in the „Archives Speak” platform and the public part of ISDA, as well as the implementation of e-Archiving itself. Although in certain archival circles digitization is still today defined as the „boutique activity”, it was precisely this that led to the complete automation of the scientific reference apparatus in the archives and ensured online access to the „originals”. The fact that the

role of conservative institutions such as archives has changed is also demonstrated by the fact that in the last decade such institutions have transformed from passive guardians to active „points” of access to digital cultural heritage. The need for the archivist to find a balance between access to documents and the protection of privacy, national interest and copyright is emphasized.

Several main problem areas that hinder the development of digitization at the central level in archives are outlined and they are: the lack of appropriate infrastructure; the insufficient provision of scanning equipment and the lack of personnel that individual archives can devote to this activity, as well as the need for their training, because it is a specialized activity unrelated to standard work methods.

Various data, diagrams and graphs are included in the text in graphical and tabular form, revealing the digitization of archival documents as a relevant modern stage in the development of the technological and information base of the archives in Bulgaria.

**The second chapter** presents in historical terms the normative provision of e-Governance and its sub-level - e-Archiving, as well as their impact on archival work (**item 2.1**). Chronologically, generally valid and specific normative and sub-normative acts, regulating in detail the specifics of the matter, have been examined and presented. The emphasis here is on the new moments that have occurred as a result of the technological progress of the modern IO. In this part (**item 2.2**), a series of examples of the analysis in the text are demonstrated, as well as links to each piece of information. The aim is to represent and reflect all changes, expectations and requirements in this area.

Its main conclusion is that technological progress requires the continuous and high-speed evolution of technical systems in their entirety. The changes have a direct impact on the regulatory framework, educational qualifications, financial resources, energy efficiency, ethical norms, etc., which must necessarily be improved at a

corresponding pace. That is why it is argued that the permanent preservation, storage and use of our main information resource - the document, will always need archivists.

Questions about archival training, the competencies modern archivists must possess given the challenges of new technologies and the increasing expectations of management and society at large also find a place in this chapter.

**The third chapter** is the most voluminous because it is specifically dedicated to e-Archiving at the dawn of the new „digital era”. The focus is on its historical development and its future role. The starting point is electronic documents (**item 3.1**) as the main challenge facing the Bulgarian archival system and the need for a technological model for them. A definition of an electronic document and its characteristics is derived, and the author's thesis on this issue is also presented. Their beginning, development over time has been studied and the future vision of the Bulgarian archives in this direction has been outlined, based on their strategic documents.

It is important to note that in Bulgarian document studies, the topics of electronic documents and electronic archiving are still poorly researched problems. Their underestimation or neglect has the power to turn them into so called „white spots” for our society. Probably in this we can find the incentives of the management of the Bulgarian archives to implement e-Archiving. This archival priority is easily traceable in the archives' strategic documents. Examples are in the Strategy of the Archives State Agency (2013-2015), the Strategy of the Archives State Agency (2016-2020), as well as in its latest version with a horizon from 01/06/2021 to 31/12/2026. The list these documents must be supplemented with the first archival draft of the Strategy of the Archives State Agency for e-Archiving (2014-2016), which was prepared on the basis of Art. 9, para. 2 of the Law on the National Archives Fund (NAF) and in implementation of Order No. 15789/06.08.2020 of the Chairman of the State Agency „Electronic Government” (DAEU). The interdepartmental working group of employees of the two departments prepared and published on the Public Consultation Portal of the Council of Ministers (MC) a draft Ordinance on the terms

and conditions for the preservation, storage, access and use of valuable electronic documents in the state archives, which further develops the provisions of the Law for the National Archives Fund regarding the terms and conditions for storage and use of the valuable electronic documents, but it remains unaccepted. We will find the probable reason in its final provisions, which declare its implementation only after the provision of targeted funding by the Council of Ministers.

The latest example in this direction can be seen in 2021, when the work on activity 1 „Creating a unified normative and methodological base for e-archiving” was launched. In fulfillment of sub-activities 1.1 and 1.6, new working groups of internal experts, supported and consulted by external experts, were formed - to prepare a draft amendment and supplement to the Ordinance on e-documents and a draft Strategy for the Development of e-Archiving in the Republic of Bulgaria with horizon until 2030, in accordance with the Updated Strategy for the Development of e-Government in the Republic of Bulgaria 2019-2025. The result of their targeted policy will await its legalization this year.

The draft Ordinance pursuant to Art. 52 of the ZNAF aims to create a unified normative regulation for the organization, processing, expertise, storage and use of documents in the institutional archives of state and municipal institutions. Also to reach the legal definition of the criteria for determining their value, the concepts of „electronic archive” and „electronic archiving of documents”, as well as the required attributes for the transfer of valuable documents, including electronic ones, to a state archive.

With the new ordinance, the scope of the methodological and control activity of the state archives in state and municipal institutions has been expanded to include electronic documents.

According to the information on the Portal for Public Consultations of the Ministry of Justice, its target group is „all interested parties”, and its scope covers the

entire state administration. The implementation of the regulation itself will be expected to lead to the organization and tracking of the entire life cycle of electronic documents (creation, management, storage, use, transmission or destruction), in order to guarantee their authenticity, reliability and usability, both by of state and municipal institutions, as well as from the archives themselves.

From the attached draft report to Mrs. Maria Gabriel, Deputy Prime Minister and Minister of Foreign Affairs, it appears that the draft Decree of the Council of Ministers does not foresee the introduction of norms from European legislation, therefore there is no need to prepare a reference for compliance with European law. This is a mandatory condition according to Art. 35, para. 2, item 5 of the Administrative Regulations of the Council of Ministers and its Administration (UPMSNA). Also, that a partial preliminary impact assessment was carried out on the project of the act. According to her, the proposed project does not lead to an impact on the state budget. It is possible to argue about the latter, especially since there is no electronic institutional archive created in the administration, or their connection with the archives. Let's hope there is no „ficto iuris” or legal fiction, i.e. taking as existing something that does not exist, based on a legal order.

The specific topic that the third chapter of the dissertation explores is continued from that of the Electronic Archiving System (ESA) - **item 3.2**. It can easily be defined as the other main one in the dissertation. Paying more attention to the implementation of each information product will initiate new IT initiatives in an institution related to the improvement or its construction from scratch (in the worst-case scenarios) of the information infrastructure. At a minimum, it will include the computer network, server equipment, methods for migrating large databases and increasing information security. This is a risk that should be carefully assessed because it may lead to the suspension of other activities due to the redirection of finances or other material resources. The balance is delicate, especially with an unstable domestic political situation, chronic lack of financial resources and constant staff turnover.

To provide a complete picture of the attitudes of archives employees, examples from two internal archives surveys conducted in 2022 are presented.

First, DAA's participation in the third national survey of public administration employees' attitudes conducted by the Institute of Public Administration (IPA). Or the „Commitment Barometer”, modeled after The Civil Service People Survey - a questionnaire for assessing commitment, which has been used in the British public administration for more than 10 years. The study is representative in terms of all demographic and organizational-administrative variables. A review of the data from the DAA indicators report shows that they are close to the baseline values in the state administration. The data presented shows a decline in the level of highly engaged employees over the past two years (2020 – 74, 2022 – 70).

Commendably, the 2022 DAA Global Engagement Index (70) is close to the administration-wide average (73), indicating that the level of engagement and motivation among staff is satisfactory. Most of the other indices have a similar or slightly lower value to the average indicators for the administration, which, however, does not represent a serious deviation. A statistically significant difference was found only for the factors „Leadership” (-13) and „Resources and workload” (-7), which is probably due to the lower remuneration of archives staff compared to other administrations.

In 2022, the well-being index was included and measured in the study. The idea behind this index is that engaged people feel happier and more satisfied with their lives in general. The index covers 5 different aspects of well-being, and its name is PERMA2. The well-being index (80) marks only three points difference with the average of the whole administration (77), which shows the satisfactory level of motivation in the work activity in the Agency.

The above will be supplemented with examples from the introduced Common Assessment Framework (CAF) in the Bulgarian archives. According to the data for

2023, the survey was completed by 162 employees, which is practically only 45% of the entire staff. Just for comparison – the one in 2019 was filled by 227 or 60%. This is a clear first indicator of the mood of Bulgarian archivists. The survey is completely anonymous. The total number of questions is 66, which is an additional factor for the decrease in the number of respondents.

When asked whether the archives are „modernized technologically?” results are indicated that speak volumes for the internal self-evaluation of archivists (see **figure no. 4**).



**Figure 4. Responses from the 2023 CAF survey in the DAA**

Also, a specific line of opinion is defined when asking whether "Archives are managed with a vision for the future?". On it, the archivists "boldly" indicate their self-assessment. See below (**figure no. 5**).



**Figure 5. Responses from the 2023 CAF survey in the DAA**

The other empirical data from the survey are included in the dissertation and also represent interesting material for research with the possibility to trace more internal interrelationships in the archival system of Bulgaria.

However, there is also specificity, the manifestation of which can generally be traced in the following directions (**item 3.3**): „What should we guard?”; „How to reflect?”; „How to store?”; „How do we prove it?” and „How to access it the future (**item 3.4**)?” It is they who question the professional competence and the idea of the existence of an eternal deposit of value from which to restore the products of human intelligence and the achievements of our predecessors. Moreover, the need to deepen the research on the genesis and essence of an e-document is considered. From the point of view of preserving the cultural heritage of the Bulgarian state, it is important to note that this necessitated its more detailed presentation in the dissertation.

It should also be taken into account the fact that the implementation of e-Archiving is supposed to reveal the specific features characteristic of the technological environment with which the e-documents themselves are created. This would allow to link the meaning of the information more effectively and to reconstruct the reality reflected in the documents. Despite the general tendency for the boundaries of the archival system to expand and exceed national-state spaces, the principle of oral and



written unity is immanently embedded in society and its organizations. Can there be consciousness if there is no memory? The question posed by the topic is to what extent this is realized - both as a scientific discussion of already built social and cultural (information) models, and as purposeful actions for the development and growth of information globalization. That is why all this is highlighted in a separate point of the last thesis chapter (**item 3.6**).

The transition to an information society affects all major areas – standards, technological and communication tools, attitudes, expectations and skills of users. The way in which the public participates in document creation processes and how it relates to them is changing. Stand-alone initiatives in one of the core areas of activity will be of no use if they are not linked to strategies and practices for change in the others – for example, to develop new means of long-term conservation in the absence of new strategies and criteria for identification and selection of „valuable” documents and no means have been developed for their adequate transfer to archival institutions and vice versa. Also, it is of little use to develop new technological means to provide appropriate access to new documents if they are not received and preserved in the way they need to be. This, in turn, requires effective forms of cooperation between archival institutions, national governments, information and communication technology professionals, businesses and consumers. Sporadic initiatives of individual institutions are aimed at solving one or another problem from the specified areas, which are not carefully planned within the framework of comprehensive strategies and policies, do not comply with modern requirements and standards, do not take into account changes in the object of activity and in the profile to users. In addition, they are not sufficiently resourced, they can be not only useless, but also prevent the archives from fulfilling their tasks.

**The fourth chapter** was developed in order to present the electronic services in the Bulgarian archive system in their specific relationship with electronic documents and electronic archiving. The first point of it (**item 4.1**) examines the types of automated services, tracks user attitudes (**item 4.2**), presents the new tools for

accessibility (**item 4.3**), the means of publicity and advertising (**item 4.4**). Addressing how they have changed the archivist profession over the past decade. In support, various sources of information are attached, with the aim of creating a more comprehensive view of what the Bulgarian archives provide as a result in the Internet space.

The first step in the direction of using an information resource from the archives will be to perform a search. In this connection, a figure is attached (**figure no. 6**), which gives an idea of the possibilities in this direction. Obtained results can be ordered as digital copies for which certain government fees are payable.



**Figure 6. Scheme with the search options from the DAA page**

The main ordering capabilities are related to a portal providing timely information, access to electronic services and ways of electronic communication. It was created in 2014 within the framework of the project „Improving the quality of complex administrative services, by introducing electronic services to provide specialized services to the users of archival information - the administration, individuals and legal entities by upgrading the existing information system of the state

archives (ISDA)”, in fulfillment of a contract for the provision of non-grant financial assistance under OPAC No. 13-32-5/24.02.2014.

Its key points are revealed in the thesis, but the one that will be addressed here is the introduction of an online possibility to pay for services with a bank card through a virtual POS terminal. This greatly facilitates on-the-spot payments for people who are used to a paperless way of paying for the services they use. Also the possibility of remote access and ordering of nine e-services of the archives.

The internal process of processing the e-service practically starts after the successful registration of an application in the records system of the archivist. The applicant receives a message to the e-mail address he specified, containing information about: unique register identifier (URI) of the application in the records system of the DAA, the date of registration of the application and a unique digital access code. With this information, the applicant can track the progress of their document from the Service Status section of the portal. The subsequent actions during the processing of the application are regulated in ZNAF, the Ordinance on the procedure for the use of documents from the national archive fund and the Regulation on the order and organization of the use of archival documents in the DAA. In the event that the application has deficiencies (incorrectly completed text, lack of data for the preparation of the service, etc.), the applicant is notified, with an instruction to remove the deficiencies within three days (Article 30 of the APC). On the next page (**Figure no.7**) below are two screenshots.

The one on the left shows the possibility to check the status of the service, and the one on the right shows the names of 9 electronic services.

**Услуги**

Услуги    Состояние на услуга    Тест на подписване

Начало / Состояние на услуга / ДА "Архиви"

### Състояние на услуга

Доставчик на услугата: ДА "Архиви", ЕИК/БУЛСТАТ 000697600

За да проследите работата по своя документ, въведете следната информация:

Номер на документа:

Дата на документа:

Код за достъп:

[Търси](#)

Наименование	
<a href="#">Издаване на читателска карта - 2891</a>	<input type="checkbox"/>
<a href="#">Издирване на архивни документи и изготвяне на писмена справка - 220</a>	<input type="checkbox"/>
<a href="#">Изготвяне на експертиза на документи за консервация и реставрация - 2448</a>	<input type="checkbox"/>
<a href="#">Микрофилмиране на документи съхранявани извън Националния архивен фонд - 2449</a>	<input type="checkbox"/>
<a href="#">Използване на архивни документи в читалня - 284</a>	<input type="checkbox"/>
<a href="#">Изготвяне на препис-извлечение от архивни документи - 1280</a>	<input type="checkbox"/>
<a href="#">Изготвяне на копия на архивни документи - 1049</a>	<input type="checkbox"/>
<a href="#">Възпроизвеждане на архивни документи - 423</a>	<input type="checkbox"/>
<a href="#">Издаване на удостоверение от Държавния военноисторически архив - 1509</a>	<input type="checkbox"/>

**Figure 7. Scheme with the DAA e-services portal**

It is logical to expect that user attitudes towards archives will be aimed at ensuring easy access to public information content and of course that it is free. If we look for technical weaknesses and errors, we will find them in the electronic services system, which will be the main tool for ordering electronic documents. Complaints from external users about failed attempts to open the platform are already in the archives; visualization of errors when viewing registered applications; the impossibility of routing registered applications for e-services through the record keeping system of the archives if there are attachments in them; and last but not least, the need for certificates to use the virtual POS terminal.

Other challenges related to user access is the integration of server infrastructure to back up the databases hosted on it and manage security systems. Application servers, communication servers, etc. are also a key element in providing this activity. Through this technological framework, users will most certainly reach the information they need located on databases through web browsers in the Internet environment.

**The final chapter** of this dissertation sets itself the task of presenting the main conclusions of the conducted research and confirming the main working hypotheses. The work defines and analyzes a complex of factors affecting the development and improvement of archival work in a time of almost unlimited technological possibilities in the modern information society.

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The **Appendices** present the collected empirical data revealed in various forms, which are an integral part of the dissertation. The total number of applications is seven and they are listed as follows:

- Appendix 1. Table with comparative data by reported indicators;
- Appendix 2. Graph presenting a chronological section of the automation in the archives;
- Appendix 3. Table with acronyms used in Bulgarian;
- Appendix 4. Table with acronyms used in English;
- Appendix 5. Table of terms and technological definitions;
- Appendix 6. Definitions of levels of e-services in DAA;
- Appendix 7. General assessment of archivists' attitudes.

## **Content of dissertation**

The in-depth analysis of the essence and characteristics of e-Archiving, the idea of its origin and the modern technological solutions for its implementation (presented in the third chapter) provide us with a safe reason to assume that the first working hypothesis in the dissertation is confirmed, namely that the users of archival information are reorienting themselves and increasingly prefer to use the electronic services provided by the archives - preparation of references and copies, rather than personally visiting the reading rooms and searching for the information and documents they are interested by themselves.

The analysis of good and negative practices, as well as on the basis of own observations on the tracking of these changes, contribute to the easy definition of the

main challenges facing the archival system in Bulgaria. On the other hand, it also presents us with sample solutions for solving these problems.

The second research hypothesis, referring to the introduction of new technologies and the general state of the information industry will require archives to have huge resources for data storage, which can only be alleviated by creating a unified archive format, is also put forward. Undoubtedly, a „change under pressure” can only ricochet back on archives' ambitions to transform themselves from passive „custodians” of information into active „points” of access to digital cultural heritage.

The online observations conducted and the archival survey analyzed reflect the general opinion that archives are recognized as the main regulator only when the state provides them with sufficient horizontal and vertical institutional support.

The conclusions drawn during the study of good practices in administrative bodies subject to the National Archive Fund, creating and storing electronic documents, as well as the study of international experience, only justify the need for the creation of a high-tech model for e-Archiving in the Bulgarian archive system. He must:

1. Define requirements for the information systems creating and storing electronic documents in administrative bodies, objects of the National Archives Fund (NAF);
2. Define requirements for the electronic documents themselves, created and stored in the administrative bodies;
3. Provides society with the widest possible, easy and sufficiently effective access to electronic services.

Due to the specific conditions, any action of the Bulgarian archive system in the mentioned direction would face great difficulties, and some of them have just started. At the same time, archives openly hope for some success if only they can impose their demands on the behavior of the creators of electronic documents.

Electronic archiving in our country, as well as internationally, has become a determining factor for the further development of archival work. Theoretically, this new and modern approach to the preservation of digital information is increasingly consolidating its place in the general archival problematic of the beginning of the XXI century. It will be increasingly difficult for archives to guarantee the good preservation of the documentary memory of society, which is a guarantee for its preservation from yesterday and today for the future. The mission of archives to provide authentic information about societal development and achievements, promoting greater accountability and good governance, is being put to a serious test. Time will prove the vision of the Bulgarian archives.

In conclusion, if we accept that the contemporary research environment is characterized by its competitive nature, then scientific research success is equated with how often it is cited as a clear sign of quality work. At the risk of sounding immodest, the ultimate goal of this one is to provide a forum for discussion on the series of challenges that information development, the state and public expectations have placed on archival work in the country.

## Chapter III. Reference for Dissertation Contributions

### Scientific contributions of a theoretical nature

The main contribution of the scientific research is the overall analysis of the development of the automation of the archive system in Bulgaria. Emphasis is also placed on the challenges that this process has generated over time, both nationally and internationally.

A comprehensive analysis was conducted and problematic and weak points related to the implementation of a new technological model for management and access to electronic documents were outlined, as well as the influence exerted on the development of the central government and the administrative organization of the document circulation in them.

Various practices in the field of digitization, e-Archiving and access to the cultural and historical heritage stored in the archives have been studied, summarized and analyzed. The overview includes a number of normative, strategic and internal institutional documents. Various statistical data - graphs and tables are provided to reveal specific and interrelated actions in the above mentioned areas.

For the first time, the dependence between e-Archiving and the change in the paradigm of the archival institution and the archival profession is brought out.

### Scientific contributions of a practical-applied nature

The conducted study of the international practice has helped the dissertationer to develop his own theoretical-applied model for the construction of e-Archiving in Bulgaria. The detailed analysis has also outlined the scientific fields of social sciences and humanities that will be subject to these technological changes.



The main technical concepts related to the topic of the study are systematized in a terminological Bulgarian-English dictionary. It covers both archival terms and purely technical ones. Some of them are related to the implementation of a new technological model for management and access to electronic documents, which the dissertation brings for the first time in the Bulgarian scientific and information space.

#### **Independent publications:**

1. **Iliev, O.** The archive behind e-Archiving. In: Libraries, cultural heritage and memory: Collection in honor of Prof. Tsvetanka Pancheva. Libraries, cultural heritage and memory. Sofia: „St. Kliment Ohridski”, 2023, pp. 312-339. ISBN: 978-954-07-5840-4

2. **Iliev, O.** Technologies in the archival system – development and trends. In: Fifth International Scientific Conference „Modernization trends in economic and cultural life in Vidin and Timoshko (18th-20th centuries)”, Vidin, 2023. [in print]

3. **Iliev, O.** E-Archiving – expectations and reality. In: BBIA magazine online, year XIII, no. 3. [online] Sofia, 2023, pp. 3-7. [Reviewed 01/01/2024]. Available from: [BBIA2023-3-online.pdf](#) ISSN - 1314-7285 (печатно издание); ISSN - 1314-4944 (електронно издание)

4. **Iliev, O.** E-Archiving – between fiction and axiom. In: Collection of materials from X international museum readings „Contemporary problems of museology” [online] Orel-Sofia, 2021, pp. 76-90. [Reviewed 01/01/2024]. Available from: [Museum Readings 2021.pdf](#) ISBN: 5-МУ-БИ-АР-21

5. **Iliev, O.** Basic perspectives before e-Archiving. In: Collection of materials from the IX international museum readings „Contemporary problems of museology” [online] Orel-Sofia, 2020, pp. 33-49. [Reviewed 01/01/2024]. Available from: [Museum readings 2020.pdf](#) ISBN 978-954-07-5213-6.

6. **Report** on the topic „From machine-readable to e-documents in the state archives” and publication for the Scientific Conference on the occasion of the 70th anniversary of the Archives State Agency (08.10 - 09.10.2021). In: Archival Review, 2021, no. 2. ISSN - 0204-8132

In the second and last place, participation in the preparation of a shared publication in co-authorship with a fellow archivist will be counted. She is:

#### **Shared publications:**

7. **Iliev, O. & Popkovacheva-Terzieva, Maria.** 2012, Participation in the first regular meeting of European archivists under the APEx project (Archive Portal of Europe). In: Arch. review, vol. 1, pp. 11-14. ISSN - 0204-8132