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The figure of Atlant taken from:
ATLAS NOUVEAU, Contenant toutes les parties du monde, Ou sont exactement Remarquées les Empires, Monarchies, Royaumes, Etats, Republiques etc. Par Guillame dl'Isle, a Amsterdam, Chez Jean Covens & Corneille Morties, 1733.

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FOREWORD OF THE EDITOR-IN-CHIEF

The international scientific journal for modern archival theory and practice, Atlanti+, publishes articles that prove, among other things, that the archival science today is indeed an independent, academic, multidisciplinary, and interdisciplinary science. This has been proven again and again in recent years by articles published in most domestic and international archival publications, and above all by dissertation proposals prepared by doctoral students of archival sciences at Alma mater Europaea. The breadth of knowledge covering a variety of issues is evident at all levels of operations of professional archives and archival services for creators.

While introducing new technologies and approaches to the managing, safe-keeping, publishing, and accessibility of archival material, we must not forget the previous development. We must therefore acknowledge the historical past and the principles of the original arrangement as well as integrity of the archives' operations. It is evident that blockchain technology today represents certain possibilities and solutions for archiving records regardless of whether they are in classic or digital form. Current trends indicate the usage of blockchain as perhaps the best solution for archiving records in the way as keeping only the hashes of records necessary to confirm their authenticity and continuance.

Research of online applications for accessing archival material can be added to this issue, following the practice of some more developed European national or regional archives.

Different levels of computerization of individual archives or archival collections play a special role in this field, causing changes in the definition of archival science that I mentioned above.

The aforementioned breadth of knowledge is shown in research in which we follow memory as a form of restoring dignity of persons with help of descriptors in archival fonds, collections and in projects about the contexts of injustice. Here, I must draw attention to the reviews of the histories of various institutions because these must be of assistance to users and researchers in the use of archival material.

Let me finish with "Cuilibet in arte sua credendum", which means that everyone must be believed in their profession... of course also archivists.

Assoc. prof. dr. Peter Pavel Klasinc, Archival councillor

Ivančica Sabadin[1]

ANALYSIS OF WEB APPLICATIONS FOR ACCESS TO ARCHIVAL MATERIAL IN A SAMPLE OF EUROPEAN NATIONAL AND REGIONAL ARCHIVES

Abstract:

***Purpose**: The purpose of this article is to analyse the web applications of the European national and regional archives focusing on the user interface and elements of description necessary for international information exchange.*

***Method/approach**: The analysis method was used to collect data. The occurrence of elements of description in archives was processed using statistical methods.*

***Results**: Based on the results, we can see that the functionality of user interfaces is quite high, as the percentage of compliance for all the criteria is above 50%., except for direct communication. The analysed elements of description have an average compatibility with the ISAD(g)2 standard of 77%*

***Conclusions/findings**: Archives should enable direct communication with users for a given unit of description using a user interface. The compatibility of elements of description would have been better if the information about the creators and the extent of the unit of descriptions had been available.*

***Keywords**: web applications, national archives, regional archives, elements of description*

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1 INTRODUCTION

More and more archives are using web-based applications to communicate with users. These applications allow users to access archive collections and digitised material, as well as to order material for viewing online or in the reading room. For the same purpose, a Virtual Archive Reading Room, or "VAČ" (slo. *Virtualna arhivska čitalnica*), has been developed in Slovenia. as part of the e-ARH.si: ESS 2016-2021 project.[2]

The purpose of this paper is to analyse the web application from two aspects: the user interface and the units of description. The user interface represents the first contact between the user and the application and has a great impact on the user's experience of a given application. The user interface should be functional and user-friendly. This paper will analyse the functionality of the user interfaces in relation to the functionalities already offered by VAČ to its users, such as user registration, ordering of materials and communication with the user.

Another aspect of the analysis is the information about the material that the user receives through the user interface. The criteria for the analysis are the elements of description that are mandatory for the international exchange of information according to the ISAD(g)2[3] standard: reference code, title, creator, time of creation, extent and level of description.

2 METHODOLOGY

The two main methods used in this research are the analytical method for collecting data about archives and the statistical method for processing data on the occurrence of units of description in individual archives. The statistical method was used to present graphically the data on the number of archives in each category. The synthesis method was used for comparing data from national and regional archives, which has later been further evaluated using the valorisation method. The evaluation criteria for the analysis by country were defined and a specific scale of values was created. The analysed archives were selected using the empirical method. The core content method was used for defining the criteria for functionality-analysis of the user interfaces and units of description. The analytical method was used to collect and systematically record data according to each criterion. The descriptive method was used to describe the user interfaces of the web applications of each archive.

One of the limitations of this research paper stems from the organisation of the data on the European Archive Portal. The presentation and organisation of data varies from country to country due to different administrative arrangements and/or other factors unknown to the public. Some archives do not have defined categories, which made the survey difficult. Another limitation is language, as not all archives have web interfaces in English, which would make the research easier. For this reason, research was conducted by using an automatic translation of the website and comparing each term in the ISAD(g)2 standard in a specific language. A third limitation is the fact that not all regional archives have web applications for accessing archival inventories.

3 LITERATURE OR THEORETICAL BACKGROUND OVERIEW

Archives are institutions that take care of archival materials. Preservation is not the only function of archives; they also provide access to archival materials. *"Archival descriptions created by archivists during the processing of archival materials are intended for users and*

2 Project for establishing a Slovenian public electronic archive. More information available at: https://www.gov.si/en/registries/projects/e-arh-si-project/

3 General International Standard Archival Description, Second edition

archivists. Based on archival descriptions, users can search through archival materials and archival information collections." (Semlič Rajh, 2016, 86).

"It is well known that on the Web, users tend to search archival descriptions the same way they search a topic on Google or via other portals. They expect archival descriptions to be more searchable because non-searchable archival descriptions make it difficult to find what they (users) want to search for on the Web." (Zou, 2019, 199)

Several authors mentioned the importance of a user-friendly interface. *"When materials are accessible online, it means that the user interface replaces the conversation with an archivist."* (Šauperl et al., 2014, 172). *"The main requirement of a quality interface is simplicity for the user. It must enable effective, simple, and pleasant use of computer software. All these features are included in two terms we use to describe a user interface: usability and user-friendliness."* (Vilar & Žumer, 2008, 42). *"Good software should provide an intuitive interface, that is, it should be intuitive. It should also be clear in terms of the navigation and should give explicit and unambiguous messages and descriptions, including in the terminology of the dialogue between program and user."* (Sobczak, 2013, 72).

A prerequisite for the quality design of computer applications and user interfaces are archival descriptions created in accordance with applicable standards. The current standard for archives is ISAD(g)2, which was translated into Slovenian in 2000. *"The purpose of archival description is to identify and explain the context and content of archival material in order to promote its accessibility"* (ISAD(g)2, 2000, 7). *"All 26 elements covered by these general rules are available for use, but only a subset needs to be used in any given description.*

A very few elements are considered essential for international exchange of descriptive information:

a. reference code;
b. title;
c. creator;
d. date(s);
e. extent of the unit of description; and
f. level of description." (ISAD(g)2, 2000, 9).

"The reference code is a unique identifier of a given unit of description and provides a link to the description of archival materials." (Novak, 2012, 620). Novak (2018) reported that the title as an element of description should provide a relative recognition of content of unit of description in any set of comparable entities.

Date as an element of description is very important, Novak (2018a) believes that date makes archival material more accessible, date and time make information more comparable and understandable and allow for establishment of temporal contextual relationships of archival material through the prism of time domain identifiers. Novak (2016) emphasised the importance of the extent of the description unit for archives, he showed that it is important for planning and applying the material and technical conditions relevant to the business and professional operation of archives. The description of the archival material by level is specified in Decree on the protection of documentary and archive material[4] (further UVDAG) (2017) in Article 60:*"Archival material should be described according to levels reflecting the position of the unit of description in the structure of the fonds or collection. The levels are: fonds or collection, sub-fond, series, sub-series, file (e.g., file, case, dossier) and document*."

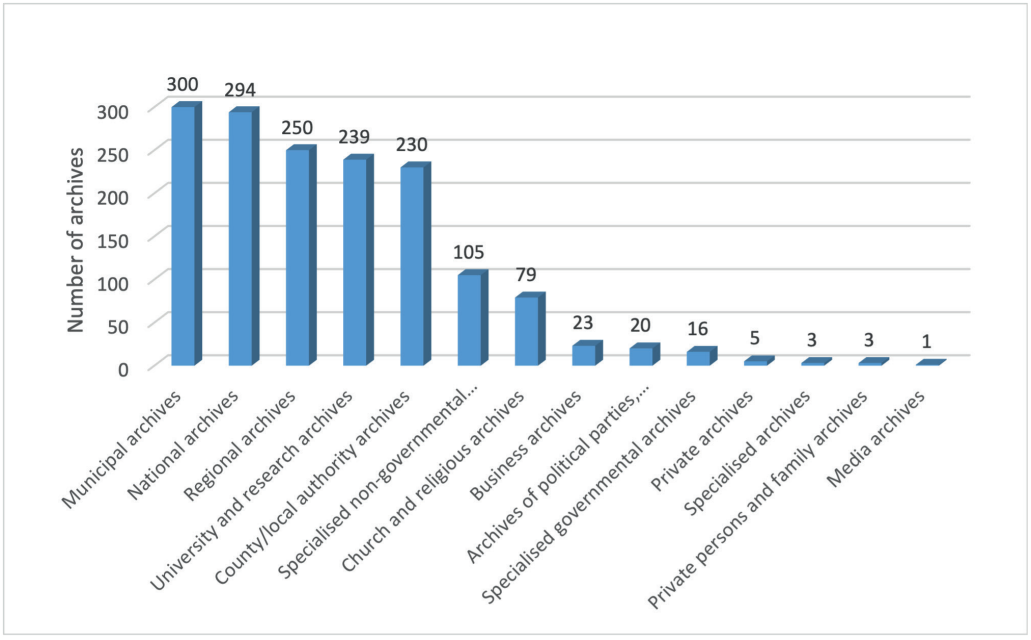
4 slo. *Uredba o varstvu dokumentarnega in arhivskega gradiva (UVDAG).*

4 RESULTS

4.1 ARCHIVES IN EUROPE

According to the Archives Portal Europe, there are currently 2290 archives in 38 countries in Europe. A closer look reveals that many more organisations are accessible in the hierarchical structure of the Archives Portal Europe directory. For Italy alone, there is data available for about 5000 creators. For the purposes of this paper, the total number of archives in Europe includes organisations from the following categories: *County/local authority archives; Archives of political parties; Popular/labour-movement and other non-governmental organisations, associations, agencies and foundations; Church and religious archives; National archives; Media archives; Municipal archives; Business archives; Regional archives; Specialised archives; Specialised governmental archives; Specialised non-governmental archives and archives of other cultural (heritage) institutions; University and research archives; Private persons and family archives; Private archives.* The aim of the analysis is to determine how many national and regional archives are there in the European area. There are still many organisations that do not have defined categories of archives. If the category was not defined or not reflected in the title, the archive was not taken into account in order to avoid incorrect results. For this reason, 1571 archives were included in the analysis (Chart 1).

Chart 1: Number of archives by category



There are currently 294 national and 250 regional archives in Europe. When analysing the categories, it is important to consider the different administrative organisation of each country, as some countries do not have regional archives at all but have municipal and/or county archives. Some countries have a very detailed hierarchical structure (United Kingdom, Germany, France, etc.), while others do not have a clear hierarchical structure (Slovenia, Croatia, Norway, etc.). In addition to the number of archives, two other criteria were used to select countries for analysis: whether the scopeArchive tool is used for the inventory and whether the country borders to Slovenia. The data obtained are

weighted according to the formula: stA*0.5[5] + scA*0.25[6] + mjS*0.252[7] (Table 1). If the country uses scopeArchive for the inventory and/or the country borders Slovenia, 100 points are awarded. All countries with a score of 32 or higher are selected. Data on the use of scopeArchive are obtained from the official website of scope A.G. Data about the use of scopeArchive in national archives is taken into account. For the purposes of this paper, the following national archives were analysed: the Bundesarchiv (Germany), The National Archives (United Kingdom), Archives Nationales (France), Archivio Centrale dello Stato (Italy), Magyar Nemzeti Levéltár (Hungary), Hrvatski državni arhiv (Croatia) and regional archives: Niedersächsisches Landesarchiv (Germany), Archivio di Stato di Trieste (Italy), Magyar Nemzeti Levéltár Baranya Megyei Levéltára (Hungary), Archivo del Reino de Valencia (Spain), Staatsarchiv Luzern (Switzerland) and Wiener Stadt- und Landesarchiv (Austria). The selection of regional archives was a major challenge, as there are still many regional archives that do not have web applications for accessing the material.

Table 1: Selection of countries for analysis

No.	Country	stA	scA	mjS	Result
1	Germany	339	0	0	169,5
2	United Kingdom	333	0	0	166,5
3	Hungary	94	100	100	97
4	Italy	135	0	100	92,5
5	France	136	0	0	68
6	Austria	14	100	100	57
7	Switzerland	25	100	0	37,5
8	Croatia	19	0	100	34,5
9	Spain	64	0	0	32
10	Romania	13	100	0	31,5
11	Norway	61	0	0	30,5
12	Luxembourg	3	100	0	26,5
13	Albania	1	100	0	25,5
14	Georgia	50	0	0	25
15	Swedem	47	0	0	23,5
16	Poland	46	0	0	23
17	Portugal	42	0	0	21
18	Belgium	34	0	0	17
19	Bulgaria	29	0	0	14,5
20	Netherlands	26	0	0	13
21	Latvia	16	0	0	8
22	Czech Republic	11	0	0	5,5
23	Slovakia	5	0	0	2,5
24	Estonia	3	0	0	1,5
25	Greece	3	0	0	1,5

5 stA – Number of Archives
6 scA – Usage of scopeArchive
7 mjS – border with Slovenia

26	Serbia	2	0	0	1
27	Isle of man	2	0	0	1
28	Lithuania	2	0	0	1
29	Iceland	1	0	0	0,5
30	Denmark	1	0	0	0,5
31	Malta	1	0	0	0,5
32	Israel	1	0	0	0,5
33	Turkey	1	0	0	0,5
34	Finland	1	0	0	0,5
35	Ukraine	1	0	0	0,5
36	Ireland	1	0	0	0,5

4.2 USER INTERFACES

The user interfaces of web applications used by archives for browsing and accessing material were analysed. The following web applications were analysed:

- Bundesarchiv (Germany) - Invenio
- The National Archives (United Kingdom) - Discovery
- Archivio Centrale dello Stato (Italy) - Arianna4View
- Magyar Nemzeti Levéltár (Hungary) - Digital Archives Portal
- Archives Nationales (France)
- Croatian National Archives (Croatia) - HAIS
- Niedersächsisches Landesarchiv (Germany) - Arcinsys
- Archivio di Stato di Trieste (Italy) - Arianna4View
- Magyar Nemzeti Levéltár Baranya Megyei Levéltára (Hungary) - Digital Archives Portal
- Archivo del Reino de Valencia (Spain) - SAVEX
- Staatsarchiv Luzern (Switzerland) - scopeQuery
- Wiener Stadt- und Landesarchiv (Austria) – WAIS

4.2.1 User interfaces functionalities

The criteria for the analysis of the functionalities available to the users were selected based on the functionalities available to the users of the Virtual Archive Reading Room of the Slovenian Public Archives Service: user registration, basic material search, advanced material search, material search by tectonics, material ordering, and user communication with the archive regarding the unit of description. The results of the analysis are presented in Table 2.

Table 2: User interfaces functionalities

Functionality	Number of archives	Percentage
User registration	8	67%
Basic material search	12	100%
Advanced material search	11	92%
Material search by tectonics	10	83%
Material ordering	8	67%
User communication with the archive	2	17%
Hyperlink creation	7	58%

Of the 12 archives analysed, four archives do not have the possibility to register users: the Archivio Centrale dello Stato (Italy), the Archivio di Stato di Trieste (Italy), the Archivo del Reino de Valencia (Spain) and the Croatian State Archives (Croatia). The Italian Archivio Centrale dello Stato only allows users to view the archival inventories in the *Arianna4View* application, but another application is used to browse the digitised material: the *La Teca Digitale* application, which allows users to register. In the Croatian State Archives, there is a *"registration option for creators and owners of archival and documentary material"* (Hrvatski državni arhiv, 2020.).

All archives offer a basic search-functionality, while 92% of archives offer advanced search. The Austrian Wiener Stadt- und Landesarchiv does not offer advanced search. Users can use tectonics or hierarchical structure in 83% of the archives analysed, in all archives except The National Archives of the United Kingdom and the Croatian National Archives of Croatia. The National Archives in the United Kingdom allows alphabetical searches, and a partial hierarchical view is possible by selecting a specific letter.

Ordering of material is possible in 67% of the archives, but not in Archivio Centrale dello Stato (Italy), Archivio di Stato di Trieste (Italy), Archivo del Reino de Valencia (Spain) and Croatian National Archives (Croatia).

Direct communication between the user and the archive regarding the unit of description is possible in only 17% of the archives, namely Niedersächsisches Landesarchiv (Germany) and The National Archives (United Kingdom). Most archives allow users to copy a link to a particular unit of description and in this way, the user can send information about the unit of description to the archive: Bundesarchiv (Germany), The National Archives (United Kingdom), Archives Nationales (France), Niedersächsisches Landesarchiv (Germany), Archivo del Reino de Valencia (Spain), Staatsarchiv Luzern (Switzerland) and Wiener Stadt- und Landesarchiv (Austria).

4.3 ANALYSIS AND COMPARISON OF THE CONTENT OF UNITS OF DESCRIPTION

An overview of the individual elements of description is given below. The elements of description that are essential for the international exchange of information according to the ISAD(g)2 standard were analysed: reference code, title, creator, date of creation, extent, and level of description. For each archive, 20 units of description on different levels of description were analysed in a coherent ratio, which means that 240 units of description were analysed.

Table 3: Occurrence of elements of description

Element of description	Occurrence in percentage
Reference code	82%
Title	98%
Creator	48%
Date of creation	97%
Extent	63%
Level of description	74%

The frequency of the element *reference code* in the examined units of description is 82%. The main reason for this result (Table 3) is the absence of a reference code in the database of the two Italian archives. The other countries have a rather high incidence of *reference code* (95% - 100%). The elements of the description with the highest occurrence are *title* and *time of creation*. All the analysed units of description had a title and only seven out of the 240 units of description analysed did not have a time of creation. It is unclear wheth-

er this is due to a mistake or if the time of creation is unknown; this situation is referred to as "b.d."[8] in Slovenian archives. The next element in terms of occurrence is *level* with 74%; however, one must be aware of the fact that three of the archives analysed do not even have the unit *level* in their descriptions. The element *extent* is represented in 63% of the analysed units of description and is used by all archives. The element of description *creator* has the lowest frequency and was not visible in one archive.

4.3.1 Compliance with the ISAD(g)2 standard

The results of the analysis of the compliance of the units of description with the ISAD(g)2 standard are shown in Table 4. In the German State Archive Bundesarchiv, all the units of description analysed contain a reference code and a title, and only one unit of description does not have a specific date of creation. The creator field is part of the provenance information and was found in 30% of the units of description analysed. The extent is defined for all fonds but not for lower levels of units of description. The Invenio application does not display the level of description according to the ISAD(g)2 standard. It is possible to determine whether a unit of description is a fond based on basic elements, because some elements begin with the word "Bestand", which is what a fond means according to the ISAD(g)2 standard, e.g. Bestandssignatur (e.g. the reference code of a fond), but the other levels of the units (series, sub-series, file, item) are not visible. If we calculate the average value of all occurrence percentages, we can conclude that the compliance of the German Bundesarchiv with the ISAD(g)2 standard is 63%.

Archive	Reference code	Title	Creator	Date(s)	**Extent**	**Level of description**	**Compliance with the ISAD(g)2 standard**
Bundesarchiv	20	20	0	19	10	0	58%
	100%	100%	0%	95%	50%	0%	
Niedersächsisches Landesarchiv	20	20	0	18	3	20	68%
	100%	100%	0%	90%	15%	100%	
The National Archives	20	16	15	20	16	0	73%
	100%	80%	75%	100%	80%	0%	
Archives Nationales	19	20	20	20	19	0	82%
	95%	100%	100%	100%	95%	0%	
Archivio Centrale dello Stato	0	20	2	19	19	20	67%
	0%	100%	10%	95%	95%	100%	
Archivio di Stato di Trieste	0	20	5	19	4	20	57%
	0%	100%	25%	95%	20%	100%	
National Archives of Hungary	20	20	17	20	20	20	98%
	100%	100%	85%	100%	100%	100%	
Magyar Nemzeti Levéltár Baranya Megyei Levéltára	20	20	20	20	20	20	100%
	100%	100%	100%	100%	100%	100%	
Archivo del Reino de Valencia	20	20	11	18	14	20	86%
	100%	100%	55%	90%	70%	100%	

8 slo. »Brez datuma« (b. d.); eng. *»No Date« (n. d.)*

Staatsarchiv Luzern	20	20	2	20	9	20	76%
	100%	100%	10%	100%	45%	100%	
Hrvatski državni arhiv	18	20	12	20	7	18	79%
	90%	100%	60%	100%	35%	90%	
Wiener Stadt- und Landesarchiv	20	20	11	20	10	20	84%
	100%	100%	55%	100%	50%	100%	

The Niedersächsisches Landesarchiv, the regional archive in Germany, has a compliance rate of 68% with the ISAD(g)2 standard. The situation is quite similar to that of the national archive (germ. Bundesarchiv), but in the case of the regional archive the levels of the units of description are visible in all the records. In the units of description analysed, the occurrence of the element *extent* was very low in three out of the twenty units of description.

The National Archives of the United Kingdom has a 76% compliance with the ISAD(g)2 standard in the twenty units of description analysed. The *reference code*, *title* and *time of creation* are present in all the units of description examined. The *creator* element was not present in five of the twenty units of description, which is similar to the *extent* not contained in four units. In the UK National Archives, the units of description do not contain any information about the *level*. Terms such as Division, Series, Subseries and Item are used in the descriptions of the units but are not visible as a separate element.

The online catalogue of the French "Archives Nationales", allows users to search for archival material and access digitised material. One of the 20 units of description analysed did not contain a *reference code*. In all the units, the elements *title*, *time of creation* and *creator* are used for descriptions. One unit did not include a *volume*. Similarly, to the UK, the French units of descriptions did not contain any information about the *level*. Based on the units of description analysed, the compliance of the Archives Nationales with the ISAD(g)2 standard is 82%.

The National Archives of Italy, the Archivio Centrale dello Stato has a very good occurrence of the elements *title, time of creation, extent*, and *level*. The occurrence of these elements was 95% or 100% for the units analysed. The Arianna4View application does not use a *reference code* in the display of the units of description. Of the 20 units of description analysed, two contained information about the *creator* of the archival material, but the descriptions of the units are very detailed, and the user can use the *descrizione* field to get more information about the *creator* of the archival material. The compliance with the ISAD(g)2 standard is 67%.

The same application (Arianna4View) is used by the regional archive Archivio di Stato di Trieste, but the situation regarding the use of elements is different. The compliance with the ISAD(g)2 standard is 57%. All the elements analysed contained a *title* and a *level* and only one unit of description did not specify the *time of creation*. Like the national archives, the regional archives do not use *reference codes*. Five of the units analysed contained information about the *creator* of the archival material and four contained information about the *volume*.

The compliance with the ISAD(g)2 standard for the analysed units of description of the Hungarian State Archives was 98%. All elements except the *creator* have a 100% occurrence rate. No information about the *creator* was found in the three analysed units of description at the level of the file, or the item.

The best result of the analysis was in the regional archive "Magyar Nemzeti Levéltár Baranya Megyei Levéltára" in Hungary. The occurrence of all elements of description in the units analysed was 100% and therefore the compliance with the ISAD(g)2 standard is 100%.

The Spanish regional archive Archivo del Reino de Valencia, which uses the SAVEX application, has a compliance with the ISAD(g)2 standard of 86%. The *reference code*, *title* and *level* are included in all the units of description analysed. Eleven of the units contained information about the *creator* with a link to additional information. The incidence of *extent* is 14% in the units of description at the level fonds and series.

The Staatsarchiv Luzern is a regional archive in Switzerland that uses the scopeQuery tool to display information about archival material. Until a few years ago, the same tool was used by the Slovenian Public Archives Service. The Swiss archive has 100% occurrence of the elements: *reference code*, *title*, *time of creation* and *level*. The occurrence rate is 45% for the nine units of description at the level of fonds and series. The compliance of the Staatsarchiv Luzern with the ISAD(g)2 standard is 76%.

The Croatian State Archives uses the HAIS application, which allows searching for material by keyword, archive, catalogue, and year. The *reference code* and the *level* were not visible in the two units of description analysed. The occurrence of the title and the time of creation was 100%. Twelve of the units analysed contained information about the *creator*. There is no separate field for the *extent*, but it is part of the information on the arrangement of the material (cro. Stupanj sređenosti[9], Plan sređivanja[10]). Based on the analysed data, the compliance rate of the Croatian State Archives with the ISAD(g)2 standard is 79%.

Among the Austrian archives, the regional archive "Wiener Stadt und Landesarchiv" was analysed, which has a compliance rate with the ISAD(g)2 standard of 84%. With the exception of the elements *creator* and *extent*, all other units have an occurrence rate of 100%. Similarly to other archives, the *creator* and *extent* information is contained in the units of description at the fonds and series level.

5 CONCLUSION

The first objective of the present research was to find out what functionalities are included in the user interfaces of web applications for accessing archival material. The functionalities used for the analysis were those offered to users by the Virtual Archive Reading Room of the Slovenian Public Archives Service: user registration, basic material search, advanced material search, material search by tectonics, material ordering and user communication with the archive regarding the inventory unit. The results show that the functionality of the user interfaces is relatively high, with percentages above 50% for all criteria except direct communication. As only 17% of the archives analysed allowed direct communication with the archive regarding the unit of description, an additional functionality observed in the archives was analysed, namely the creation of a web hyperlink to the individual unit.

The second objective of the study was to assess the compliance of the archival inventories published online with the ISAD(g)2 standard. The occurrence of certain elements of the inventory was analysed in a sample of 240 inventory units. The highest occurrence was for the elements *title* (100%) and *date of creation* (97%) and the lowest for *creator* (50%) and *extent* (63%). In the archives analysis, the archives with the highest compliance with the ISAD(g)2 standard were the Hungarian archives: Magyar Nemzeti Levéltár Baranya Megyei Levéltára (100%) and Magyar Nemzeti Levéltár (98%). The Bundesarchiv (63%) and Archivio di Stato di Trieste (57%) had the lowest compliance with the ISAD(g)2 standard among the archives analysed. The average compliance with the ISAD(g)2 standard of the analysed sample of national and regional archives is 77%.

9 eng. *Level of arrangement*
10 eng. *Plan of arrangement*

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TIPOLOGY: 1.01 Original scientific research

Tina Plevnik[1]

BLOCKCHAIN AND ARCHIVING IN CLINICAL TRIALS

Abstract

Purpose: *As blockchain is presented as a potential tool for archiving purposes, the aim of the research was to investigate blockchain technology as a possible solution for archiving of clinical trial records, considering that many clinical researchers and sponsors have problems with documentation.*

Method/approach: *The approach taken in this research builds on the literature review and the content analysis method for the selected literature focusing on blockchain technology for archiving in clinical trials.*

Results: *Clinical trial documentation must remain complete, legible, authentic, and available for review during the required archiving period. The properties of blockchain represent a possible solution in all phases of a clinical trial, from their inception to trial completion and in the archival period. Current trends indicate the use of blockchain throughout the entire period of clinical research, including data archival and storage.*

Conclusion/findings: *Currently, the best solution for archiving clinical trial e-records would be that only hashes of clinical trial e-records are stored on the blockchain to confirm the authenticity and immutability of the original e-records. Further research should be conducted to ensure long-term accessibility of blockchain and compliance with GDPR, EMA and other regulatory agencies. Appropriate measures related to the challenges and limitations of blockchain should be addressed.*

Keywords: *blockchain, archiving, clinical trials*

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1 INTRODUCTION

Clinical trials are part of the process of bringing a new medicinal product to the market (Akhondzadeh, 2016). Archiving of the created documentation is an important part of the clinical trial process, being also a legal and regulatory requirement which must be executed with the same attention to detail as any other part of the clinical trial. It can also be a very expensive and labour-intensive activity (Dinnett et al., 2011).

The purpose of the research was to investigate blockchain technology as a possible solution for archiving of the records generated in clinical trials, considering that many clinical researchers and sponsors of clinical trials have problems with documentation, including data storage and document management systems (Rogers et al., 2020), which is also evident from the most common inspection and audit findings during inspections of good clinical practice (Annual Report, 2022).

As blockchain is presented as a potential tool for archiving purposes, which is not only secure, but also meets archival standards of authenticity, reliability, and trustworthiness (Woodall and Ringel, 2020), the aim of the research was to investigate blockchain for applications in clinical trials, advantages of blockchain solutions, possible challenges, and use cases of blockchain in clinical trials.

2 LITERATURE OR THEORETICAL BACKGROUND OVERVIEW

2.1 CLINICAL TRIALS

Clinical trials are clinical studies on humans that determine or verify clinical, pharmacological or other pharmacodynamic effects, determine possible side effects and study the absorption, distribution, metabolism and excretion of the medicinal product under trial (Regulation, 2014). A clinical trial is a process that consists of several steps i.e., protocol design, recruitment, follow-up, data collection, analysis, final results and archiving, as the final stage of the clinical trial. Archiving is the secure storage of essential documents in clinical research (Dinnett et al., 2011). The Trial Master File (TMF) is the repository of all essential documents related to the management and conduct of clinical trials, from their inception to the end of the archival period. The legislation does not differentiate between paper and electronic TMF (eTMF) (Guideline, 2018).

2.2 BLOCKCHAIN

Blockchain consists of decentralized ledgers located on a system of peer-to-peer (P2P) computers where all changes must be approved by various authorized nodes. It is called a distributed ledger system because every participant in the network has a copy of all transactions (Pence, 2021). The implementation of blockchain technology provides many advantages (see Figure 1) such as auditability, decentralization, anonymity, and transparency (Omar et al., 2021).

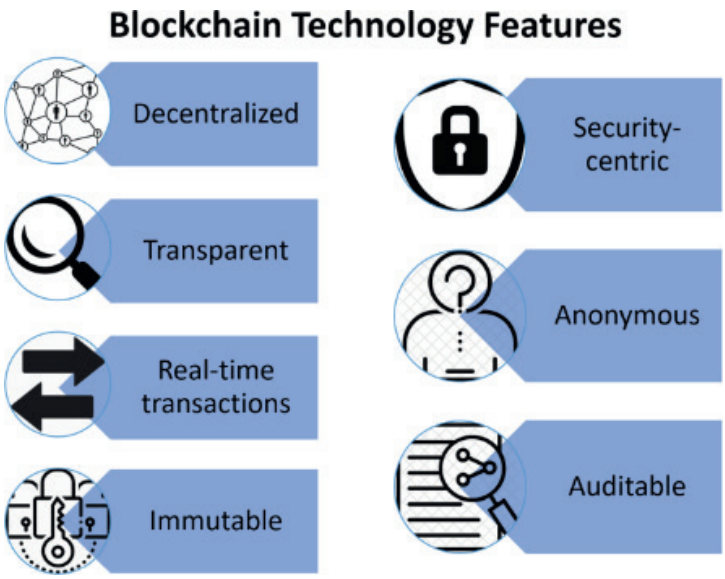

Figure 1: Blockchain Technology Features (Omar et al., 2021)

Researchers have proposed a way to modify the operation of Bitcoin, especially its mining function, to achieve distributed storage of archival data (Miller et al., 2014). By checking or hash validation, the authenticity of e-records can be confirmed as well as whether any changes or corrections have been made (Bhatia et al., 2020). Various pilot projects are introducing blockchain technology into the processes of ensuring reliable long-term e-storage. To protect the integrity of e-records in the e-health project, the government of Estonia has introduced a mirror blockchain system for e-record storage which uses the Guardtime system. The pilot Swedish land registration system uses a blockchain system for e-recordkeeping, where e-records are no longer just mirrored on-chain but are actively created on-chain in the form of smart contracts (Lemieux, 2017). Many current and proposed applications of blockchain technology are also tied to solving e-record-keeping challenges in property rights transfers (Lemieux, 2016). ARCHANGEL proposes using distributed ledger technology to cryptographically guarantee the provenance, immutability and so the integrity of archived documents (Collomosse et al., 2018). Mediterranean Hospital in Cyprus has adopted the E-HCert application, that provides an archival solution based on the VeChain Thor blockchain for laboratory test results and vaccination certificates (E-HCert, 2020).

3 RESEARCH DESIGN

The approach taken in this research builds on the available literature focusing on blockchain technology as a possible solution for archiving in clinical trials.

We conducted a literature review from April to May 2023, using selected combinations of keywords and reviewing the summaries of the relevant literature. To explore the topic under investigation we additionally used the content analysis method for the selected literature.

The paper addresses the following research questions:

- RQ1: What are the requirements for archiving of clinical trial records?
- RQ2: What are the applications of blockchain technology in clinical trials?
- RQ3: Which blockchain types can be used in clinical trials?

- RQ4: What are the challenges for the usage of blockchain technology in clinical trials?
- RQ5: Which are the use cases of blockchain in clinical trials?

4 RESULTS

4.1 ARCHIVING REQUEREMENTS FOR CLINICAL TRIALS

TMF should be immediately available and directly accessible to auditors and inspectors, which can review and verify that the sponsor and investigators/institutions have conducted the trial in accordance with applicable regulatory requirements and principles and Good Clinical Practice standards. With the new regulation, applicable from 31 January 2022, the archiving times for the TMF have been extended to at least 25 years after the end of the clinical trial or for the trial documentation relating to the full traceability of the ATIMP (Advanced Therapy Investigational Medicinal Product) to 30 years after the expiry date of the product or longer if required by the clinical trial authorisation (Regulation, 2014).

Sponsors of clinical trials should take appropriate actions to ensure that the TMF remains available for inspection for the required archiving time. The media used to archive TMF shall be such that the content remains complete, legible and maintains authenticity throughout the archiving period. Any alteration to the content of the TMF should be traceable (Regulation, 2014; Guideline, 2018). The bit level integrity of the archived data should be verified periodically using checksums. The guidance of the use of such checksums is provided in ISO 16363 (Stiles et.al., 2014).

4.2 APPLICATIONS OF BLOCKCHAIN IN CLINICAL TRIALS

There are several applications of blockchain technology in clinical trials. The use of blockchain can reduce the time of the enrolment of the patient for a clinical trial (Zhuang et al., 2019), improve the traceability of the consents from the patients (Benchoufi et al., 2018) and transparency (Nugent et al., 2016), maintain the confidentiality of the patient's data (Manish et al., 2021), ensure persistent monitoring and data integrity (Omar et al., 2021). The integration of blockchain technology could also be used for big data analytics (Zheng et al., 2017) and clinical data management from initiation to the submission and archiving of the study (Gazali et al., 2017).

4.3 BLOCKCHAIN TYPES FOR CLINICAL TRIALS

Blockchain technologies can be mainly divided into three types: Public blockchain, Private blockchain and Consortium blockchains (Iuon-Chang & Tzu-Chun, 2017).

Public blockchains are of permissionless type e.g., Bitcoin, Ethereum and Litecoin (Baalamurugan et al., 2022). Security and transparency are the key advantage of this type of blockchain. Some of the limitations of public blockchains are extremely slow transaction processing time, scalability, and energy consumption (Omar et al., 2021). Private blockchains are permissioned blockchains (Baalamurugan et al., 2022). Data privacy and security compliance can easily be achieved, because clinal trial data is stored on authorized nodes (Kosba et al., 2016) and it is possible to use computationally inexpensive protocols to verify transactions (Omar et al., 2021). Platforms that use the private blockchain concept include Hyperledger, Hashgraph, and Corda (Baalamurugan et al., 2022). The consortium is known as a hybrid or semi-private blockchain and has almost the same advantages as private blockchains. However, they operate within different groups rather than a single entity. One of the key problems with the consortium blockchain is that its centralized structure makes it vulnerable to malicious players (Omar et al., 2021).

4.4 CHALENGES FOR THE USAGE OF BLOCKCHAIN TECHNOLOGY IN CLINICAL TRIALS

Due to the limitation of the block size and required duration to create a new block (Zheng et al., 2018) scalability is a challenge, especially in clinical trials, as they involve a large number of participants and will make a large number of transactions per second (Manish et al., 2021). There is no guarantee of transactional anonymity of blockchain-based networks because each public key's balances and transactions are available to all network users (Watanabe, 2016). Privacy leakage is critical in the medical industry because protecting sensitive patient data is crucial (Omar et al., 2021). While blockchain frameworks increase the storage capacity, they also present many challenges in terms of large volumes, variety, and speed of e-records, also recognized as big data (Omar et al., 2021). Not only is this data expensive to store, but data access operations can also fail if/when the cost exceeds the data size limit set by the Blockchain network (Soltanisehat et al., 2023). Many clinical trial companies still rely on paperwork for some procedures. Immediate adoption of blockchain-based clinical trials would not be easy, since changing the behaviour and habit roles of individuals is extremely difficult for any industry (Omar et al., 2021). The immutable nature of blockchain technology is a double-edged sword. The data attached to the chain cannot be changed, even if there is a valid reason. In complex data systems, updates and data changes are inevitable and no one can be sure that the original data is uploaded to the blockchain correctly (Hang et al., 2022). Selfish mining poses a major security risk for clinical trial applications (Manish et al., 2021), since the blockchain is susceptible to attacks by colluding selfish miners. Nodes with more than 51% computing power could reverse the blockchain and the performed transaction. Based on selfish mining, many other attacks have been proposed to show that blockchain is not so secure (Zheng et al., 2018).

4.5 USE CASES OF BLOCKCHAIN IN CLINICAL TRIALS

This section outlines the recent trends of blockchain applications in clinical trials.

Clinical Trials Intelligence is a distributed technology platform, targeted to address the critical pain points of clinical trials, e.g., data analytics, patient recruitment, vendor management, risk monitoring and clinical data visualization. Clinical Trials Intelligence uses Ethereum-based smart contracts to facilitate access control, reimbursement payments and clinical data hash storage (Clintex Whitepaper, 2020.)

TriNetX is a global health research network that connects the world of medicinal product discovery and development from pharmaceutical companies to the study site and investigator to patient. TriNetX optimizes protocol design and feasibility, site selection, patient recruitment, and enables discovery by generating real-world evidence (TriNetX, 2023).

Innoplexus provides advanced artificial intelligence (AI) and blockchain solutions that support all stages of medicinal product development from pipeline to market. This constantly updated data repository is serving pharmaceutical companies, the biotech industry, and contract research organizations (Innoplexus, n.d.).

Data collection and study management platform Triall's eClinical solutions are designed to support any therapeutic area, study design and study phase, from study initiation to completion and beyond. Triall's product Triall eTMF provides a single, secure environment for managing trial-related documents and ensuring inspection readiness throughout the clinical trial lifecycle (Triall, 2023).

Embleema helps healthcare professionals construct clinical trials, including patient recruiting and study design, and also supports long-term storage of scientific data, data analytics, and methods to interpret it (Embleema, 2022).

Biopharma Ledger is a Blockchain platform that provides data management and clinical solutions throughout the entire period of clinical research, including data archival and storage, to improve biopharma processes and data management (ACL Digital, 2023).

TCS ADD™ enables digital ecosystems, simplifies data complexity, and drives innovation in clinical trials to bring medicines to market faster and it also offers a metadata repository that automates study construction, enables robust governance, and is quickly transformed and generated for submission datasets (TATA, 2023).

5 DISCUSSION

Documentation generated in a clinical trial must remain complete, legible, authentic, and available for review during the required archiving period. Any changes to the content must be traceable. The properties of blockchain represent a possible solution in all phases of a clinical trial, from their inception to trial completion and in the archival period. The use of blockchain can reduce the time for patient recruitment, improve the traceability of the consents from the patients, maintain the confidentiality of the patient's data, ensure data integrity, and can also be used for big data analytics and clinical data management from initiation to archiving. A private blockchain is more appropriate for clinical trials as data privacy and security compliance can easily be achieved, because clinal trial data is stored on authorized nodes and it's also less vulnerable to malicious players.

Besides to the archiving of clinical trial-phase-compilable metadata on the Blockchain, different clinical trial steps can also be chained together so that each step depends on its predecessor, using smart contracts, that can enforce the level of transparency, traceability, and control over clinical trial sequences (Benchoufi & Ravaud, 2017). Regulations and application submission requirements can be seen as a set of business rules that can be managed on a blockchain. The regulatory audits and validation of the recorded trial data are slow, expensive, and labour-intensive. Introduction of the blockchain can reduce this burden, as organizations can quickly prove the validity of data due to the immutability of collected e-records and the fact that the authorities' specifications have been incorporated and executed by the implemented smart contracts (Glover & Hermans, 2017).

The use of blockchain also brings some challenges such as scalability, privacy leakage, storage of big data and high costs, the immutability of the data, problems with the transition to blockchain technology, and selfish mining. Zheng et al. (2018) proposed some solutions for the scalability problem, privacy leakage and the selfish mining problem. Decentralized storage mechanisms are potential solutions to be explored and implemented by blockchain-based companies, since currently storing data on a blockchain is expensive and limited (Omar et al., 2021). The InterPlanetary File System (IPFS) is an example of this decentralized storage technology (Benet, 2014). Each file stored on the IPFS network is assigned a unique cryptographic hash, making each file's history immutable and traceable. In this system, the downloading speed is higher since the files are distributed over the network. As a result, IPFS links stored on the blockchain directly refer to information stored on the IPFS network without storing the actual data on the blockchain (Benet, 2014). Another example of this decentralized storage technology is FileCoin (FileCoin, n. d.).

Current trends indicate the use of blockchain throughout the entire period of clinical research, including data archive and storage (e.g., BioPharma Ledger and Triall) or address the critical points of clinical trials and clinical data hash storage (e.g., Clinical trials intelligence and Embleema). But if only hashes of the e-records are stored on the blockchain, the requirements for preserving the originals (or digitized copies) do not change significantly (Lemieux, 2017) and the e-records still have to be archived in an appropriate system for long-term e-storage. It is also not certain that in the future blockchain technology

e-records will be accessible or usable outside of their original system or platform (Bhatia et al., 2020) for example in 25 or 30 years, as required for the eTMF in clinical trials.

6 CONCLUSIONS

The best solution for archiving clinical trial e-records would be, that the original e-records are archived outside of the blockchain (e.g., in a trusted e-repository) and only hashes of these e-records are stored on the blockchain to confirm the authenticity and immutability of the original. Decentralized storage technology such as IPFS and FileCoin can also be explored. Further research should be conducted to ensure the long-term accessibility of blockchain and the compliance with GDPR, EMA and other regulatory agencies. Appropriate measures related to the challenges and limitations of blockchain should be addressed.

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TIPOLOGY: 1.01 Original scientific research

Mirjam Jezeršek[1]

INFORMATISATION STATE OF THE ARCHAEOLOGICAL RESEARCH ARCHIVE

Abstract

Purpose: *The Slovenian archaeological and museum profession is confronted with informatisation in all areas of work, including preservation of archives of archaeological research, which is the focus of the present study. The aim of the paper is to provide a systematic overview of the development of informatisation and the current state of the art in this field, to identify current issues and to point out suggestions for further activities. The main question is how, in what way and by whom, if at all, the informatisation of the archive of archaeological research is being carried out in the relevant institutions. The literature review in the context of research showed that the archaeological profession only started to deal with the informatisation of the archaeological research archive in the 1980s. It then continued to develop several in-house information systems in the 1990s, as the sectoral legislation, including archaeological, archival and museum legislation, did not have clearly defined guidelines. The need for an integrated approach to data management was highlighted at the Slovenian Museum Society Assembly in 2010.*

Method: *In the first phase of the research, a compilation/description method is used. In the second phase of the research, a survey/interview method is used, and the analysis evaluates the results of this method.*

Results: *The survey showed that the current state of informatisation of the archives of archaeological research in competent institutions is sufficient, with various information systems in use. The Ministry of Culture made the eArchaeology application mandatory in 2022, but it does not provide an integrated solution.*

Conclusions: *The research shows that, in order to reach an optimal level, the archaeological, museum and archival disciplines need to work together. At present, the most work being done is in the field of archives. This research raises several issues in the field of informatisation of the archives of archaeological research. These are as follows: weaknesses of the number of IS (information system) in use, the lack of uniformity of code lists, the possibilities of integrating IS into the central information system, the standardisation of processes, the adherence to ISO standards, and uniform technological requirements. All of these will have to be answered in the future.*

Keywords*: archaeological research archive, informatisation, archaeology, archival science, museology.*

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1 INTRODUCTION

The concept of an archaeological research archive is relatively recent. The first official definition is found in the Protection of Cultural Heritage Act (ZVKD-1, 2008, 2019) and in the Rules of Archaeological Research (PAR, 2013, 2022). According to the sectoral legislation, the archive of archaeological research is kept in its entirety in the competent museum and has a defined composition. In contrast, the two sectoral acts do not clearly define the manner and form of storage. The matter is more or less left to the competent institutions.

Article 2 of the PAR (2013) defines the term archaeological research archive as *„ the result of a single archaeological site, together with all archaeological finds, samples and all documentation accompanying the archaeological research and excavation or post-excavation treatment, and must be permanently preserved as a collection in a way that allows access to the professional and general public."*

Novaković et al. (2007) note that before the adoption of the PAR, Slovenian archaeology did not have a comprehensive system of standards and similar regulations governing archaeological field documentation, finds and samples, and archiving.

The documentation that archaeologists produced in their work was more or less up to them to decide what and how to document and what and how to archive, as can be seen in the documentation of ancient archaeological research held by museums. The situation is different with finds and samples that were part of the museums' collections, which were inventoried and kept in an accession book. A good example is Kranjski deželni muzej, today the National Museum of Slovenia, founded in 1821, where all the material excavated and acquired by Karel Dežman (curator 1852 – 1889) was inventoried under the direction of Alfonz Müllner (curator 1889 – 1903) (Bitenc, 2010). As Bitenc (2010) states, he diligently kept an accession book, illustrating the entries with sketches of the objects. Under the direction of Rajko Ložar (curator 1928 – 1940), they also produced card files on the finds in addition to the inventory and accession books. After World War II, individual departments were organised within the museum, including the Department of Archaeology, headed by Stane Gabrovec (head of department 1948 – 1975). Archaeology thus caught up with developments in Europe and this is reflected in the documentation of the department (object files with all available data, numbering of negatives and archival material, the creation of registers linking data, a register of images, etc.). As the quantity of acquired objects increased, so did the amount of documentation relating to them. Thus, at the beginning of the 1980s, the need for digitisation arose, namely the creation of basic databases (Bitenc, 2010). As Stančič (1989) states, the need for the use of computers in archaeology was growing and was a consequence of the continuous increase in data. Computer data processing thus covered the field of archaeological field research, archaeological cabinet work, and the documentation of finds in museums. However, at that time, Stančič (1989) expressed the fear that due to limited communication between the individual research institutions themselves, there was a high probability that they would develop their own computer applications in a completely disconnected way.

His fears were justified. Indeed, this is what happened in the late 1980s and 1990s. *„Mass storage and electronic data processing was made possible by the widespread use of information systems tailored to museums or created for museums. We can discuss the information revolution that informatics brought to museums."*(Perko, 2010, 8)

Grosman (1991) notes that in the early 1990s, a proposal was made for a Project for the Formation of a Museum Documentation Centre (INDOC). The legal basis for this was the previous Social Information System Act, which projected standards (classification, nomenclature, identification) and a unified methodology for collecting, processing and

displaying data. The aim was to establish a national documentation system. This would make it possible to find information on museum inventories, including archaeological finds and samples with documentation in one place for research purposes. The goal was to harmonise and standardise scientific documentation on cultural heritage.

The biggest problem was that the disciplines, including archaeology, did not have their own standards, terminology or a properly defined relationship between the old databases and the new machine-based methodologies. The archaeological profession highlighted the following issues: readability of data, the possibilities and speed of data processing, the possibility of direct machine capture of data, the question of the choice of computing media.

A survey of the state of documentation and its informatisation in Slovenian museums, with an emphasis on the documentation of archaeological objects from the early 1990s yielded the following data.

Mikuž (1991) notes that the following issues were already being raised at that time regarding documentation arrangements: interest, common standards (aligned with ISO and national standards), terminology standards, and classifications. All these items are the basis for the creation of an IS. Compatibility with other disciplines was also highlighted (Mikuž, 1991), which is justified, as archaeology is seen as multidisciplinary discipline.

Mikuž (1991) notes that museums have used various information systems (IS) to document archaeological objects: MODES, dBase III, dBase III+, dBase IV, NUMIZ, SITULA and BELO. We can deduct from what was stated above that the archaeological material hasn't been precisely defined. This is possibly due to the fact that the finds and samples have been documented in different museums with similar IS, incorporating different standards. In terms of usage percentage, the most used was MODES, which is aligned with international standards, and ICOM recommendations for CIDOC documentation. All of these were adapted to Slovenian specifications. NUMIZ is also an interesting IS. According to Kos (1991), this system is the result of the own development of the Numismatic Cabinet of the National Museum of Slovenia in cooperation with an external collaborator. It was made for the specific field of numismatics.

The most advanced in the field of informatisation or digitisation was the National Museum of Slovenia, which developed its own IS SITULA in cooperation with external experts for the needs of the archaeological department. This IS contains the Archive module, which contains several levels: written documents; drawings, plans, maps; photographs and a hémérothèque (Bitenc, 1991). It can be said that for the first time, we are encountering the basic idea of informatisation of archiving archaeological research.

In the mid-1990s, the need arose for an IS that would serve as a kind of a register of archaeological sites and would be accessible to the entire professional community. The aforementioned IS are of a closed type and were intended exclusively for a single institution. This gap should be covered by the Catalogue of Archaeological Sites of Slovenia (Arkas), the design of which was prepared by the Institute of Archaeology of the Slovenian Archaeological Centre (Hvala Tecco, 1991). According to Hvala Tecco (1991), this involves an IS or a database on the immovable archaeological heritage of Slovenia, which contains basic information on archaeological sites and the collected material and literature. The Documentation module also contains archival material. The basic idea is that the Catalogue is the primary cell to which the secondary cells are attached, i.e., museums, the Institute for the Protection of Cultural Heritage of Slovenia (ZVKDS, Zavod za varstvo kulturne dediščine Slovenije) the Department of Archaeology of the Faculty of Arts in Ljubljana (FF, Oddelek za arheologijo, Filozofska fakulteta v Ljubljani) and the

Institute of Archaeology of the Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU, Znanstvenoraziskovalni center Slovenske akademije znanosti in umetnosti) (Inštitut za arheologijo ZRC SAZU).

According to Mlekuž Vrhovnik (2019), the Centre for Preventive Archaeology of the ZVKDS has developed an IS that brings together all data on archaeological traces and interventions in Slovenia. It comprises several databases, namely a catalogue of sites, which builds on the archaeological topography project and was created by merging other databases, e.g., Arkas and the Register of Immovable Cultural Heritage. The second database contains digitised site plans; the third represents archaeological research records. The IS also collects the results of systematic archaeological interpretation of airborne laser scanning and interpretation of cyclic aerial photography of Slovenia.

In 2009, the Service for Movable Cultural Heritage and Museums carried out an evaluation of Slovenian museums for the period 2006–2008 (Stančič Oven, 2010). Stančič Oven (2010) summarises that the analysis showed a very poor state of documentation, with only 30% of museum material being documented in analogue form, and only 10% in digital form. The evaluation showed that not all museums use IS; some still use WORD, EXCEL and ACCESS. The most widely used museum IS is GALIS, a minority use FUNDUS, MINOK and Museum Collections (now KRONOS). Some museums have their own IS, e.g., SITULA and PATINA, which they use for archaeological collections.

Until 2010, literature did not provide IS with technical information on software, uniform technological requirements, standards and internal rules. Stančič Oven (2010) mentions the standards that were valid for the field of museum inventory and cataloguing (AFRICON, SPECTRUM, Object ID, Dublin Core) in the chapter "Digitisation software". However, at the 2010 Slovenian Museum Association meeting in Bela Krajina, Harrison and McKenna (2010) from the Collection Trust in London presented the field of data management of museum objects, touching upon the issues of documentation procedures, the importance of standards, uniform technological requirements, identification of internal processes, etc. They noted that this suggests the need for an integrated approach to data management. They presented the SPECTRUM museum standard. One of the objectives of the standard among other things is to create an archive that must be guaranteed to be durable and secure (Harrison & McKenna, 2010).

The Ministry of Culture established working groups in 2013 that prepared guidelines for the capture, long-term preservation, and access to cultural heritage in a digital form. The aim was to accelerate the development of the informatisation of cultural heritage, including archaeological heritage, for the effective use of digitised and born-digital material, as well as creating conditions for wider public use (MK RS, 2013). This is a complex document and provides a foundation for the field of creation, capture, long-term preservation, and access to e-archives of archaeological sites (MK RS, 2013).

In 2017, the Ministry of Culture started to address the rather urgent and chaotic situation in the field of informatisation of cultural heritage with the eHeritage project, the part of which is also eArchaeology. Kovačec (2021) states that the aim of the project is to strengthen the use of e-services in the field of cultural heritage and increase the transparency and efficiency of heritage protection in space. The operational objectives are all linked to the field of archaeology. They are as follows: establishing a system for effective recording and monitoring of archaeological research, setting up modern and sufficiently powerful information communication technology (ICT) and infrastructure, and ensuring permanent preservation of digital content (in particular the register of immovable and living (intangible) cultural heritage and archaeological research reports), which was realised in 2022.

The review of the archival literature did not yield any results regarding the treatment of archaeological research archives, especially archaeological field documentation, from the perspective of the archival profession. Budna Kodrič (2016) notes that in recent decades archivists have replaced the scientific treatment of material with the study of classification schemes and internal rules. They have been more concerned with the creators and their office operations than with the users of the material, their wants, and their needs.

Informatisation is now part of our everyday lives. The archaeological profession is confronted with informatisation in almost all areas of its work, in the field, in post-excavation data processing and, last but not least, in the preservation of archaeological research archives. This article presents the field of informatisation of archaeological research archives, namely an overview of the research carried out so far and current issues that raise a number of questions, which are as follows: Given that the legislation in this area is rather loose, do the competent institutions ensure the long-term e-storage of the archaeological research archive as a whole or only partially and in what way? Do they have internal rules for capturing and e-preservation of the archaeological research archive? How and in what way are databases managed? How do they ensure secure e-storage, and at what intervals? And finally, who is implementing the informatisation of the archaeological research archive?

2 METHODOLOGY

The first phase of this research on the informatisation of the archive of archaeological research focuses on literature review in the field of research in order to obtain a more comprehensive picture of the development of informatisation to date. The method used to obtain the data was compilation/description based on already known research and publications in the field. The literature review showed that the literature is limited, which stems from the fact that the archaeological, museum and archive professions didn't systematically deal with this issue. In the beginning, these were initially only attempts at implementation, even though the archaeological profession has clearly expressed the need for informatisation.

The second phase of the research focused on the current state of informatisation of archaeological research archives, using a survey and interview method. The questionnaire was sent to the stakeholders who keep archives of archaeological research, namely eight museums (National Museum of Slovenia (slo. Narodni muzej Slovenije), Museum and Galleries of Ljubljana (slo. Muzeji in galerije mesta Ljubljane), Museum of Dolenjska Novo mesto (slo. Dolenjski muzej Novo mesto), Posavje Museum Brežice (slo. Posavski muzej Brežice), Celje Regional Museum (slo. Pokrajinski muzej Celje), Ptuj Ormož Regional Museum (slo. Pokrajinski muzej Ptuj Ormož), Škofja Loka Museum (slo. Loški muzej Škofja Loka), Regional Museum Goriški muzej (slo. Goriški muzej)), the Institute for the Protection of Cultural Heritage of Slovenia and the Institute of Archaeology ZRC SAZU. The criterion for the selection of museums was the amount of archaeological material they hold.

The questions were designed to obtain data to identify or detect the current state of play in this area. Six stakeholders out of eleven responded. In order to better understand the issues, two interviews were conducted with an archaeological curator and a documentary curator, both of whom are employed in different museums and work directly with archaeological research archives.

Based on the survey and interview responses, the current state of the art in this area was valorised using the method of analysis.

3 RESULTS

Perko Vidrih (2010, 8, 10) notes that *„informatics has brought radical technological, organisational and economic changes to museums. The use of ICT has transformed static [data] into museum archives, locked, strictly separated data into hypermedia documents. Their individual parts are interconnected through different computer databases, enabling the unimaginably rapid growth of all human knowledge."*

The archaeological research archive is also part of this global museum informatisation. The legislation in the field of informatisation of the archive of archaeological research is very loose, which is reflected in the use of different IS in museums and at different levels of informatisation of the archive of archaeological research as a collection at the level of preparation, capture and e-storage. PAR (2013) defines in detail the Unified Technology Requirements (UTR) only in instructions for submission of the first report in digital form and the final expert report in digital form.

What can be observed from the survey (questionnaire) is the current state of informatisation of the archaeological research archive in the competent institutions, i.e., how, in what way and by whom the informatisation of the archaeological research archive is being carried out in competent institutions.

On the basis of obtained answers it was found that the competent institutions generally use different IS for documenting and archiving the archive of archaeological research (documentation, finds, and samples), as well as for inventory and accessioning finds and samples.

The most commonly used IS is Gallis, followed by KRONOS and SITULA. Gallis and KRONOS are IS developed by external service providers in cooperation with institutions. IS have been used in museums since the 1990s. Additionally, they have been used on a larger scale since the beginning of the 21st century.

IS Gallis is the most widely used museum documentation management software in Slovenia, used by most museums. The primary purpose of Gallis is to record documentation material and manage related processes (Semantika, 2019).

IS KRONOS is a system for managing museum activities and documentation and was developed in cooperation with the Museum and Galleries of Ljubljana. It was primarily developed for the purpose of documenting the archaeological collections of the then City Museum of Ljubljana (Mestni muzej Ljubljana) (Orehovec, 2010).

SITULA is an IS developed by the Archaeological Department of the National Museum of Slovenia and an external collaborator and was developed for the needs of the institution (Kos, 1991). The programme is designed on two levels, namely for the storage and processing of data (object files, photographic material, archives) and for the central registry of archaeological collections of Slovenia (Bitenc, 1991, 20).

The majority of participants document the archaeological research archive as a single entity, which implies that finds, samples and documentation are recorded separately. These individual entities are not, however, interlinked within the IS to form an archaeological research file, which in fact, indicates that the archaeological research archive is not treated holistically, which reduces its quality in terms of uniformity of treatment, coverage and permanent preservation.

All IS have code lists with predefined attributes, mostly defined by the stakeholder. The attributes were predefined only in one case.

Most of the stakeholders document to the IS on a monthly basis. The documenting is mainly done in the domain of the archaeological curator, the documentary curator, but also with the help of students.

Stakeholders using the IS for the creation, capture and long-term e-preservation of archaeological research archives should have internal rules for capture and e-preservation according to the Law on the Protection of Documentary and Archival Material (ZVDAGA), but the survey showed that most stakeholders do not have internal rules and are not aware of the relevant sectoral legislation. Only two stakeholders have adopted internal rules for capture and e-storage.

Based on the interview, it was found that museums keep archives of archaeological research both physically and digitally in the IS. Old physical archives and physical documentation of the archaeological research archive are digitised, but they do not follow the Rulebook on uniform technological requirements for capturing and storing material in digital format (PETZ, 2020) and ISO standards ISO 14721:2012, ISO 15 489 - 1, ISO 15 489 - 2 because they are not familiar with them. However, there is a trend for archaeological excavators to submit fully digitised archaeological field documentation, which is part of the archaeological research archive, and for the museum to import it into the IS. Recording and documentation in the IS ensures the integrity, authenticity, usability, accessibility and durability of the data or material. The level of recording is hierarchical, and there is a visible audit trail. Long-term e-storage is implemented at two levels, on a local server and externally hosted by service providers. On the local server, data is refreshed daily. In one of the museums, the data are recorded at fixed intervals on tapes, which are stored in the most secure part of the museum's depository (Bitenc, 1991, 20).

4 CONCLUSION

A review of literature on the computerisation of archaeological research archives showed that the archaeological profession began to deal with this issue more intensely in the 1980s, when the need for informatisation and the establishment of basic databases emerged.

In the early 1990s, a proposal for a Project for the Formation of a Museum and Documentation Centre was drawn up to establish a national documentation centre (Grosman, 1991). Institutions developed their own IS, as the sectoral legislation, neither archaeological, archival nor museological did not have clear guidelines in the field of informatisation of the archive of archaeological research.

Archaeologists have pointed out the following problems: in 2013, the Ministry of Culture prepared guidelines for the capture, long-term preservation and access to cultural heritage in digital form (MK RS, 2013). In 2017, the Ministry of Culture started to actively address the rather urgent and chaotic situation in the field of informatisation of cultural heritage with the eHeritage project, a part of which is also eArchaeology (Kovačec, 2021).

This is also reflected in the snapshot of the current state of informatisation of the archaeological research archive. The article raises the issue of informatisation of the archaeological research archive and shows that many areas within it are still unresolved. In order to reach an optimal level, it is necessary to involve all three disciplines: archaeology, museum and archives, in the informatisation process. At present, the most unfinished business is in the field of archives. The latter, already at the primary level of archaeological field documentation (a part of the archive of archaeological research), is not actively involved, apart from finds and samples. However, it is indispensable for the proper validation and standardisation of the documentation. The same applies to the computerisation of the archive of archaeological research.

The survey showed that the state of informatisation of the archives of archaeological research is merely sufficient in the competent institutions, and that there is still much to be done in this area.

Many questions arise, e. g. the weaknesses of the number of IS in use, the non-uniformity of code lists, the possibility of integrating IS into a common central information system, the standardisation of processes, the adherence to ISO standards, the uniform technological requirements for capturing and storing material in digital format, etc., which will have to be answered in the future. This research shows that it is necessary to actively involve experts in the field of archives, who will complement the legislation at the primary level with their specific knowledge in the field of informatisation of archives and will be actively involved in the process of informatisation of the archives of archaeological research at the secondary level. In essence, it will be necessary to define the relationship between the archaeological research provider and the museum in terms of the creator–long-term e-repository. The archaeological researcher is the creator of the archaeological research archive. The museum plays two roles, on the one hand as the creator and on the other hand as the ‚e-archive'. It will be necessary to legislate the adoption of internal rules for the capture and e-archiving for archaeological surveyors and museums. A number of things need to be done prior to this, such as an analysis of the current situation, the requirements for e-storage, an assessment of risks and mitigation measures, feasibility studies for e-storage and a plan for e- storage and the establishment of an IS for e-storage should be prepared (Hajtnik, 2011).

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TIPOLOGY: 1.01 Original scientific research

Lanskoy Grigory N.[1]

ARCHIVAL SCIENCE IN THE POSTINDUSTRIAL SOCIETY

Abstract:

Purpose: *presentation of specific features, possible directions and actual objectives of development of world archival science under the influences of postindustrial society. These features, which are fundamental for social and information sciences, are analyzed because of the active spread of new electronic technologies that serve to preserve and describe documents while using various forms of communication.*

Method/approach: *The methodological basis of this study is based on a systemic and integrated approaches. The application of the systemic approach to archiving and archival research presupposes the attractiveness and commonality of the results and serves to improve the presentation of archival material and the main forms of working with them. The use of an integrated approach in research makes it possible to show the influence of objective and subjective factors on the development of archival science in the post-industrial society.*

Results: *The first specific feature of archival sciences in the context of post-industrial society is the emergence of a new subject – study programme. The technical and technological advances in the field of information technology have led to the establishment of a new community of archival studies through information technology. The elaboration and adoption of collaborative methodological documents at the international level in the period between 2000 – 2020 became the basis for the integration of elements of post-industrial society in the field of archival science and, at the same time, in the content and structure of archival informational systems.*

Conclusions/findings; *Development of archival science, unlike many other branches, depends not only on the existing level of methodological and theoretical thinking, but also on the technical and technological results of social development. This dependence is particularly evident under the conditions of post-industrial society in which the dominant development of computer information technologies offers new possibilities for collecting, preserving and using archival documents.*

Key words: *Archival studies, informational resources, post-industrial society*

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1 INTRODUCTION

Development of any science depends on a number of factors. Among them, majority of external factors are political, economic, and – especially in the case of the social sciences and humanities ideological. Internal factors are also very important, as their emergence depends on specific aspects of professional activity of individual professionals. In the natural and technical sciences, these factors are due to the results of experiments and statistical work related to existing and new objects. The same empirical basis can be established for social scientists who try to discover new forms and results of action in different regions and administrative institutions. The development of the humanities is in most cases connected with rethinking of intellectual categories and definitions that are important for important for peoples in every period of their existence. An important feature of these branches of intellectual activity can be defined in the context of the historical and objective attraction of the various developmental outcomes of different societies. When analyzing objects of cultural heritage (documentary heritage), specialists analyze and consider their significance from the point of view of the time of their creation and the period in which the study of their formal and content features began. In implementing this approach, the staff from museums, libraries, and archives, at the stage of their collection and preservation, make a comprehensive assessment not only on their content but also of their origin, in order to create and understand their typical and unique characteristics for a given historical period and territorial space.

The development of archival science differs from other areas of professional activity and in this respect can be compared to other sciences, concerned with the study of information systems and their components – various sources and technologies. For this reason, in times of radical technological upheavals, professionals are trying to find new methodological approaches in the field of studying the properties of documentary sources (Duranti, 1998) and innovative thinking about working with them in different types of archival institutions and services (Klasinc, 2019). The emergence of this intellectual tendency is not spontaneous for all countries, especially in a situation where they have their own basic traditions of dealing with fundamental categories such as archives, documents, media. Their lack of confidence and trust in the possibility of forming and developing archival informational systems in a truly electronic space – cloud –without their obligatory transition to the material sphere, which has existed for centuries, would lead to the emergence of a harmonious relationship between the global process of electronic information changes and the level of scientific consciousness, resting in realities of the time when the inclusion of documents as material carriers with the recording of information on them had no alternative in both, the scientific and normative spheres.

2 METHODS

The methodological basis of the research is based on systemic and integrated approaches. The choice is directed towards the analysis and interpretation of archival research and at the same time towards the problems posed and analyzed in it. The application of a systemic approach to the content of archival research determines its attractiveness as a commonality of the results of understanding and presenting archival documents and the main forms of working with them. In contrast to the period of ideological confrontation between socialist (Marxist) and capitalist approaches to evaluating the content of documentary and, to a large extent, historical sources, the conceptual heritage of archival studies analyzed in this paper represents a global space of intellectual production in which two distinct approaches to the study of archival materials, technologies and in-

stitutions can be found. This heritage can be divided into two localized systems in which specialists choose their own intellectual and methodological strategies of thought. The first system is focused on the study of the historical results of the formation of archival services in their various institutional forms and the organization of their work with groups of documents, the common features of which determine the status and direction of the professional activity of the professionals working in these services. In the second research system, the work of scholars is focused on the search for and presentation of methodological approaches and practical aspects of work with archival records that can be based on the use of computer technological progress. The peculiarities of this intellectual direction manifest themselves in various areas, between which one can see, for example, the obvious existence of the publication of historically important documents in traditional (typographical) and electronic form.

The application of a comprehensive approach in this study makes it possible to identify the influence of objective and subjective factors on the development of archival science in a post-industrial society. Objective factors include the developing infrastructure for the creation, dissemination, preservation, and practical use of documents, as well as the norm-setting activities of various states in the field of organizing and regulating digital transformation strategies in different spheres of information technologies. Regardless of the tendencies of theoretical thinking in certain states, this study shows that all developing countries in the late 2010s adopted normatives and other strategically important documents in this area, the content of which should be directed to the efforts of experts in various and, in particular, information sciences (Decree of the Government of the Russian Federation on the System of Implementation of the Management of the National Programme „Digital Economy of the Russian Federation" with a normative document on the System of Management of the Implementation of the National Programme „Digital Economy of the Russian Federation"). Subjective factors in the development of archival science include traditions in the interpretation of its main objects and specific approaches to the analysis of work with documents determined by the content of these traditions.

The commonalities of the methods used in this study are directly related to the chosen methodological approaches. The retrospective method made it possible to identify and reveal the content of the lore in understanding the specificities of archives and documents in the industrial and post-industrial periods. The application of the synthetic (logical) method was necessary to show and trace the connection between the inclusion of basic theoretical categories and the description of the main practical processes in working with archival documents and metadata sources. Fundamental and, above all, innovative aspects of the present research were also provided by the application of the comparative method. On the one hand, it was used to illustrate the differences between archival research strategies in the industrial and post-industrial periods. On the other hand, this method was used to highlight the distinguishing features of historical and informational approaches to analyzing trends and forms of working with archival materials.

3 RESULTS

The first feature of archival studies in the conditions of post-industrial society is the emergence of a new subject/programme of study. Technological advances in the incorporation of information technology into some of the possible branches of professional archival work have meant that the professional approach has begun to displace the information sphere in the archival studies community.

In the countries that existed in the initial phase of the diffusion of computer technologies for the needs of archival services and institutions, the way to study this new subject was to analyze the structure and formal content of documentary information. Thus, Avtokratov (1976), one of the best-known Soviet experts on the analysis of the subject, proposed to classify the information resources available in archives into a first and a second level. He included in the first level all types of documents collected by state archival organizations; the second level, in his understanding, consisted of tools created by archivists to display and search for information about the origin, content and external characteristics of these documents. After the successful experience of Soviet archivists and experts with the application of computer technologies for the inventory, formal description and content analysis of documentary sources (previously selected historical topics, the first of which was devoted to the Russian Revolution of 1917), the experts decided to create databases to replace documentary and other existing texts in them that were created electronically without copying them on paper (Glushkov, 1982). As a result of these studies, a concept was developed in the Soviet Union in the early 1980s according to which all sources of information, regardless of the technology of their creation, could be used and studied on the basis of a global methodology to identify common and at the same time specific characteristics of written, visual, and acoustic texts (Kovalchenko, 1982). The global economic and political crisis in the last decade of the Soviet state and then in the first years of the establishment of the new Russian state had a negative impact on the degree of diffusion of modern information technologies in archives. For this reason, in 2020 the Deputy Director of the Federal Archives Service of Russia announced an updated strategy for the development of the state archives service in this area (Naumov, 2020). In this context, it can be pointed out that the results of the scientific work of Soviet scientists in the field of archival management, historical science and informatics remain relevant to this day.

In Western Europe and North America, the development of archival knowledge had a somewhat different strategy than in the Soviet Union. It arose from the projection of the model of a new society that was more technologically advanced than in the period when the industrial base for various industrial and other branches of production was created. It is important to note that this area of intellectual activity developed not only through the work of experts in the field of archives or information technology, but also through the work of people who were oriented towards administrative work and finally had the opportunity to participate in the realization of their ideas (Brzezinski 1972). In the second half of the 1970s (when a critical phase of systemic collapse began in the Soviet Union and some other countries of the socialist countries), experts from Western Europe and North America concentrated their research in the area of the practical design of conditions for incorporating elements of the post-industrial model of society into concrete archival work. Their activities in this area went in two directions that had not been realized in Russia for a long time. The first direction referred to the adoption of a new understanding of „archive" as a community of documents and the division of this definition with reference to public or private archive services in which these documents should and can be partially replaced. This change in theoretical thinking was reflected in the legislative acts of several countries and influenced many professions that make up the subject area of archives (Loi No. 79-18 du 3 janvier 1979 sur les archives, 1979). The second direction was aimed at transforming the infrastructure of archival services in order to create new conditions for preservation and, at the same time, access to documents on a global scale. This process began with the design and subsequent construction of new, methodically unified buildings to replace the various archival services and institutions (Duchein, 1985), and in the 21st century focused on the development

of open information services for users based on the EAD (2022) and OAIS[2] (2012) standards. The creation and adoption of these and a number of other guidelines formed the basis for the integration of elements of post-industrial society into the archival field and thus into the content and structure of archival information systems. Indeed, this process provided the opportunity to develop a model in which new technologies for preservation, description and communication with different documentary sources were used to create new opportunities for users. In Western Europe and North America, theoretical research focused on endowing technological processes with new basic, systematically organized definitions (Pearce - Moses, 2005) and stimulating a significant degree of openness in archival documents to enrich collective and individual memory (Delmas, 2006). This process of intellectual endeavor has shown that the methodological and conceptual efforts of the expert accompany and support technical change, and in this context are directed towards the realization of new progressive goals.

4 DISCUSSION

The development of a real post-industrial society forms new conditions and goals for experts in the field of archival science. The justification of the necessity of its development in the creation of theoretical and methodological bases for the implementation of concrete practical processes of preservation, inventory, description, and use of documents reflects the affiliation of archival science to the methodologically oriented field of knowledge. In our opinion, only this field of research is of interest to organizations and institutions with different forms of ownership, as the experts working there need answers to the questions arising from the creation of new information (especially software) technologies. The lack of these answers means that existing problems, e.g., related to the collection and preservation of documents on new, diverse material carriers, are exacerbated under the conditions of technological progress and cannot be solved without great and forced effort.

In the intellectual situation of the interest of many experts regarding the traditional questions of the formation of the system of archival institutions and the information potential of the documentary heritage present in them, it is possible, in connection with the needs of the developing post-industrial model of the society, to propose two equally important branches of archival science from the cultural point of view - the historical and the informational. These branches, which focus on the study of their own subject matter - archival documents - and the forms of practical work with them, have a different methodological orientation and related differences in the directions of professional intellectual activity.

The historical branch is devoted to the study of the process, results and regulative instruments of the formation of archival services in different periods. In this branch of research, experts reconstruct global and local chronological directions of the transformation of these objects on the basis of their ownership, legal access to them and a number of other features. For the representatives of this branch, the characteristic research focus is connected with special attention to the organizational structure and regulatory framework of various organizations and institutions, as they occupy the main place among the institutional sources of accumulation of the archives' documentary heritage. The historical approach can also be presented as the main one for the diplomatic study of sources with various retrospective information. The information direction in archival studies is aimed at analyzing archives not as institutional structures formed for the col-

2 OAIS - Open Archival Informational System.

lection and preservation of documents, but as information systems consisting of documentary sources and metadata, as well as technologies necessary for working with these sources. This direction forms a practically important variability in the specification of the objects of study, among which we can distinguish documents created not only on various material carriers, but also in electronic form without the necessary transition to paper and other physical objects. The methodological direction of the information approach forms the basis for the study of archives as information objects that can be replaced, preserved, diversified and used in both traditional and cloud infrastructure.

5 CONCLUSION

The development of archival science, unlike many other branches of professional intellectual and practical activity, depends not only on the existing level of methodological and theoretical thinking, but also on the technical and technological results of social development. This dependence is particularly evident under the conditions of post-industrial society, where the dominant development of computer information technologies offers new possibilities for the collection, storage and use of archival materials. At a fundamental level, these practical changes make it relevant to understand and study archives as documentary sources that are not only represented on tangible media in traditionally organized archival services but are also substitutable electronically in the cloud. The existing strategies and traditions in the historiography of archival studies determine the necessity of using historical-informational approaches in the study of archives and directions of working with them.

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TIPOLOGY: 1.01 Original scientific research

Dennis Hormuth[1]

REMEMBRANCE AS RESTITUTION OF DIGNITY: VICTIMS OF NAZI-REGIME IN THE DESCRIPTION OF ARCHIVAL HOLDINGS AND PROJECTS ABOUT CONTEXTS OF INJUSTICE

Abstract

Purpose*: During Nazi-regime several staff members of Hamburg University had been persecuted, marginalized, driven out of university, or murdered by Nazi-regime. Even though staff members who survived Shoah, war and the political persecution had an official right to get back in office, in many cases this promise had not been fulfilled. Hamburg University Archives are preparing an online-exhibition and a publication about these issues. This paper provides an introduction to this project and discusses issues of archival canon debate.*

Method/approach*: This paper is a case study on the question if a special project with a specific focus and which consumes rare resources should be carried out even if it prevents archives from their daily work and leads to a distorted view on their general holdings.*

Result*: Everyday work and carrying out special projects should be possible. The challenge is to perform one task without neglecting the other.*

Conclusion*: Highlighting special parts of the holdings distorts the view on the general holdings and the identity of an archival institution. The archives should act openly in this interrelation. Archivists should disclose their priorities and strategies on access, description and digitization to the public.*

Keywords: *dignity, persecution, Jews, archival project, public service, digitization, Hamburg University Archives*

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1 INTRODUCTION

Security and dignity in archival theory and practice was the conference theme of the 8th International Symposium of Archivists which took place in Maribor/Slovenia on 11 March 2023. At this conference, Eric Ketelaar from Amsterdam University pointed out four major fields in which dignity played a significant role to archives:

- dignity of archivists
- dignity of archival documents
- dignity of archival endeavor
- human dignity

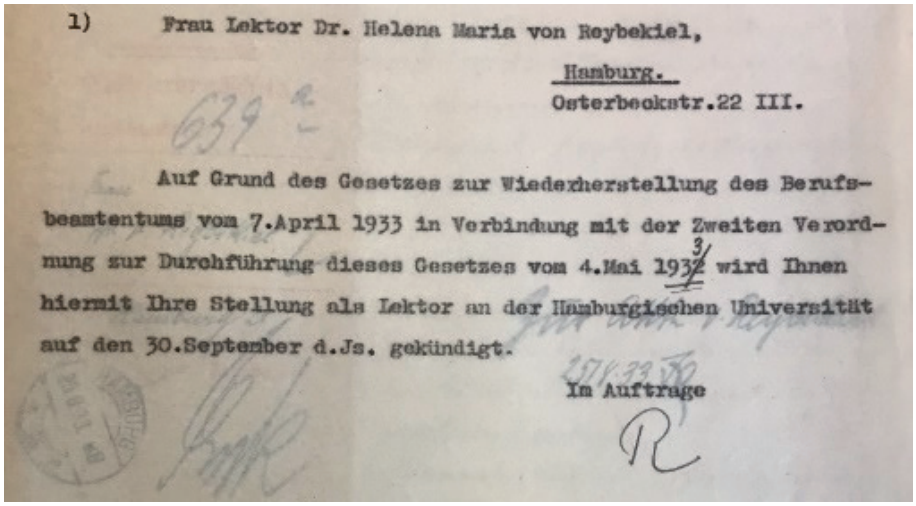
The idea of serving human dignity means giving an archival voice to those who cannot speak for themselves anymore, to those who were suppressed or persecuted either by the state or by major parts of the contemporary society. Archivists should provide opportunities to make remembrance possible by making available documents about the victims and about the way how major societies treated suppressed minorities.

In Germany one of the most outstanding archival projects concerning human dignity and remembrance of victims of the National Socialist time is #everynamecounts: a citizen science project about digitizing the names of victims and survivors of National Socialism provided by the Arolson Archives (Arolson Archives, 2023). Since June 2022, German Federal Archives started working on an online collection "Compensation for National Socialist Injustice" (German Federal Archives, 2023) which focuses on the question of how and if survivors of Nazi persecution could gain financial or other compensation for their losses. Compensation – and reintegration as such – suffered a lack of sense for responsibility in the German post-war society. The historian Christian Pross assesses this collective behavior as a "Kleinkrieg gegen die Opfer", a 'small-scale war against the victims' (Pross, 2021).

A discovery by chance at Hamburg University Archives brought up three files about compensation at Hamburg University during the 1940s and 1950s (Hormuth, 2022). This recovery was the inception of a project where the Hamburg University Archives work together with the Institute for the History of the German Jews. The intended outcome is an online collection based on individual biographies. This paper focuses on this project.

2 HISTORICAL CONTEXT

Based on a wide-spread antisemitism in German society, the governmental persecution of Jews began immediately after the Nazi-party had been elected into German government in 1933. This ended in the murder of six million children, women and men. One of the first campaigns in Nazi-Germany in 1933 was to expel Jews from public service. The "Law for the Restoration of the Professional Civil Service" from April 7th enabled all administrative institutions to dismiss Jews and other so called 'politically disloyal people' from office. So did Hamburg University (Nicolaysen, 2014).



1) Frau Lektor Dr. Helena Maria von Reybekiel,

Hamburg.
Osterbeckstr.22 III.

Auf Grund des Gesetzes zur Wiederherstellung des Berufsbeamtentums vom 7.April 1933 in Verbindung mit der Zweiten Verordnung zur Durchführung dieses Gesetzes vom 4.Mai 1933 wird Ihnen hiermit Ihre Stellung als Lektor an der Hamburgischen Universität auf den 30.September d.Js. gekündigt.

Im Auftrage

Image 1: Letter of dismissal of Helena Maria Reybekiel (Staatsarchiv Hamburg, 361-6 IV 1185 Helena Maria Reybekiel, pp. 48)

Image 1 shows the letter of dismissal of lecturer Helena Reybekiel from 1933, preserved in her personnel file at Hamburg State Archives. All these letters had the same text: Mention of the law and date of dismissal.

After the end of World War II, German public service suffered a lack of employees due to the death toll and prisoners of war, as well as dismissals in contexts of denazification (for denazification at Hamburg University, see Guhl, 2019 and Guhl, 2020). Therefore after the war, one of the first actions was to restore the positions in public service to the dismissed from 1933 – if they had survived war and persecution. Another option to amend the persecuted was to grant financial compensation for lost salary and pension. Constantin Goschler and Christian Pross described the German overall system of compensation for national socialist injustice in detail (see Goschler, 2005; Pross, 2021). Former members of public service had a better position to gain these amending compensations than persons who had worked in the private sector (Hockerts 2001, 176–177). At Hamburg, restoring processes began immediately after war had ended and even before the English occupation authority made orders. This is very well analyzed by Christian Römmer (2003).

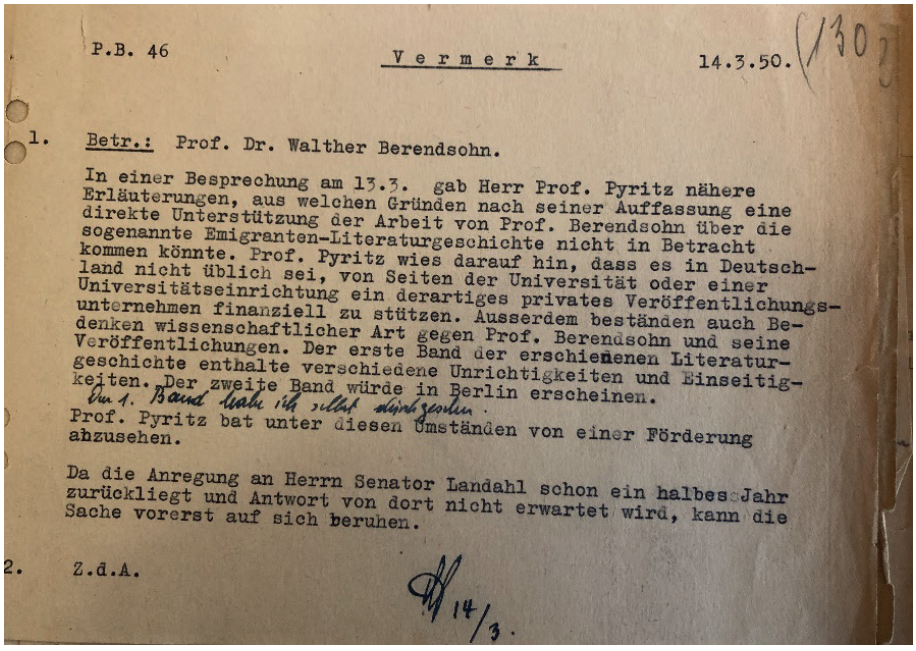
Although contemporary universities were public institutions and their staff belonged to public administration, the dismissed researchers and professors of 1933 had bad chances to be reinstated to their old positions or to get any other compensation. This may have been due to several reasons. One reason might have been that Germany lost some universities like Wrocław and had to take care of the displaced researchers from its former eastern universities. This situation caused a competition between displaced researchers after 1945 and those who had been expelled from office in 1933. Even more striking, those who had to confirm the scientific qualification of the expelled from 1933, were often the same persons who had expelled them or who were their successors in their old positions. Furthermore, these researchers had built up and fostered their networks during wartime with other non-persecuted or even loyal Nazi scientists who were also looking for new employment.

3 THE PROJECT

The project of Hamburg University Archives focusses on the university's treatment of its expelled staff members from 1933 in the postwar period (for first analyses on this topic at Hamburg University see Nicolaysen, 2008). The purpose of the project is an online-documentation based on individual examples representing different types of compensation after 1945. Each specified person should be represented by a selection of four to five documents concerning persecution, dismissal, being or not being restored to their old position and gaining or not-gaining financial compensation. Each document will be transcribed and annotated, but will not be enriched with interpretations or analysis. The outcome of the project will be a documentary against neglect and will offer a curated basis of sources for further historical research.

The case of Walter A. Berendsohn may be presented briefly as an example of a scholar who tried to get restored into his position as a researcher from Hamburg University. He was a German scholar in literature studies and was expelled from Hamburg University in 1933 (for his curriculum vitae, see Nicolaysen, 2006; Bischoff, 2014; personnel files). He moved to Denmark and later during the war he fled to Sweden, where he worked as an archivist for the Nobel-Institute of the Royal Swedish Academy from 1943 to 1970. In Sweden, he developed a new branch of research on literature: the research on exile literature.

In 1950 he wanted to return to Hamburg University for some lectures. His intentions were prevented by scientific expertise and the reluctance of Hamburg faculty of philosophy under the lead of Hans Pyritz (Hempel-Küter, 2000, 105–115), who was a person of influence in German studies on literature and a convinced Nazi.



P.B. 46

Vermerk

14.3.50. (130)

1. Betr.: Prof. Dr. Walther Berendsohn.

In einer Besprechung am 13.3. gab Herr Prof. Pyritz nähere Erläuterungen, aus welchen Gründen nach seiner Auffassung eine direkte Unterstützung der Arbeit von Prof. Berendsohn über die sogenannte Emigranten-Literaturgeschichte nicht in Betracht kommen könnte. Prof. Pyritz wies darauf hin, dass es in Deutschland nicht üblich sei, von Seiten der Universität oder einer Universitätseinrichtung ein derartiges privates Veröffentlichungsunternehmen finanziell zu stützen. Ausserdem beständen auch Bedenken wissenschaftlicher Art gegen Prof. Berendsohn und seine Veröffentlichungen. Der erste Band der erschienenen Literaturgeschichte enthalte verschiedene Unrichtigkeiten und Einseitigkeiten. Der zweite Band würde in Berlin erscheinen.
Den 1. Band habe ich selbst durchgesehen.
Prof. Pyritz bat unter diesen Umständen von einer Förderung abzusehen.

Da die Anregung an Herrn Senator Landahl schon ein halbes Jahr zurückliegt und Antwort von dort nicht erwartet wird, kann die Sache vorerst auf sich beruhen.

2. Z.d.A.

14/3.

Image 2: Note about the refusal of Pyritz to support Berendsohn, 14.03.1950 (Staatsarchiv Hamburg, 361-6 I 0121, Walter Berendsohn, pp. 130)

It wasn't until 1982, when Walter Berendsohn, at that time already 98 years old, was given an honorary doctorate by the University of Hamburg – after the experiences of the 1968-student-revolution and more than one generation change in the faculty / professors. In 2001, seventeen years after his death, Hamburg institute for studies on exile literature was re-

named "Walter A. Berendsohn Forschungsstelle", 'Walter A. Berendsohn Research Center' (Bischoff, 2014, 53–54). It took a long time for Hamburg University to recognize Berendsohn as a persecuted member of its own staff and to honor him and his scientific merits.

4 MINORITIES AND CANON DEBATE

"The dignity of man is inviolable". These are the first words of Article 1 of the German constitution, describing dignity of man as the highest value in German administrative and governmental acting. The article was written in 1949 under the direct impression of the dehumanizing of Jews by Nazi-regime. In this point of view, remembrance of people, persecuted by the Nazis, is a question of dignity. There is a widespread understanding in today's German society that historical awareness of an institution's role during Nazi-period and its behavior towards the victims are mandatory tasks to these institutions.

There is no question if such a project of remembrance to victims of Nazi-persecution is of political or social value. The question is if it fits within the archival duty and archival strategies. There is probably not a single archival institution without a lack of human or financial resources. Even if this online-project of Hamburg University Archives is limited to a documentation and will not be enriched with texts of historical analysis, it will provide rare resources.

Since the 1960s onwards, there has been an ongoing debate on archival canon (Assmann, 2010). Common understanding nowadays is that the archival holdings, which are catalogued in an archival documentation and especially those which are presented in an online database, are looked at and used for historical research more often than those holdings for which no finding aids have yet been created. That is obvious. The conclusion is that archives should be aware of mainly and primarily describing and cataloguing the holdings that are representative to its holdings.

Digitization intensifies the trend of creating knowledge by focusing on easily available records (Audunson et al., 2020; Digital Archive and Canon, 2021). Digital accessibility generates a shift in the perception of archival holdings: What is not on the internet, does not exist. Digitization has thus been called the third appraisal of archival holdings (Schwarz, 2023) – after selection which documents have value to be accessioned and after prioritizing their description. Archives should better be quick to create an online context to have a chance to be part of social discussion and scientific research, but they have to be aware of their specific profiles and common duties. From this point of view, it could be counterproductive to spend time and manpower for creating an online-project concerning a special group – even if this small extract of the entire holding concerns actual debates. One can easily imagine that the documents about restoring and compensating the Nazi-victims are not very numerous compared to all documents of 100 years of Hamburg University. The core question is if the focus on smaller holdings, which have a relative high value to research, prevent utilization of more representative holdings. Does such prioritizing prevent discussion and research on the core-holdings and distort the view on the institution's historical identity?

This is one of the cases when quality meets quantity. The task is to do one thing without neglecting the other. How to achieve this under the condition of a lack of time and money depends on the special situation of each archival institution and cannot be answered ex-cathedra.

What needs to be done? Archival institutions should communicate openly the decisions about their priorities in describing and in digitization, as demanded for example by Farrenkopf, Ludwig and Saupe (2021). An archival institution should inform transparently

about the choices which were made to present a selection of holdings and how these focused documents relate to the vast majority of files preserved in these archives. Users should be invited to talk about their research interests with the archivists – the need for communication between archivists and users will increase the more the level of digitized archival material rises. Archivists have to be aware that users cannot know what they do not see – they only see what is prepared, catalogued, and published for use on the website. They are not aware of what is behind the finding aids and the internet presentations. It is the job of archivists to attract users to the homepages of their institutions. There is a need of a new culture of archival consultation, archival access, and the use of archives for scientific and individual research (Plassmann, 2022, 46).

5 SUMMARY

Remembering persecuted and suppressed minorities is a field in which archivists may serve human dignity. The latest contribution of Hamburg University Archives is a project of documentation of compensation for Nazi-persecuted staff members wo were expelled from university in 1933, which corresponds with other archival projects in Germany like an online collection of German Federal Archives. Based on a few biographies, Hamburg University Archives will present sources about persecution and contemporary efforts and discussions concerning compensations and about failed chances of amends.

But how does such a project fit into strategies about archival management under the condition of a lack of resources? Does such a project distort historic tradition? And should archivists focus on their core-holdings before turning to projects about special groups and topics? The answer is to do one without neglecting the other, to decide consciously about priorities of cataloguing and digitizing and, first of all, to act transparently in this field. Under the condition of digitization, the importance of disclosing archival priorities and strategies is increasing. Open communication between archivists and users is eminently important to improve research services, to foster historical consciousness, and to strengthen democratic processes.

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TIPOLOGY: 1.01 Original scientific research

Živana Heđbeli[1]

THE HISTORY OF INSTITUTIONS – THE BASIS OF WORK WITH ARCHIVAL RECORDS

Abstract

Purpose: *This paper elaborates on the work done on drafting the publication "The Public Administrative Apparatus in the Federal, People's and Socialist Republic of Croatia 1945-1990".*

Method/approach: *On the basis of nothing else but regulations promulgated in the Official Gazettes of the Socialist Federal Republic of Yugoslavia (SFRY) and the Socialist Republic of Croatia, the book in preparation precisely identifies the creators of archival records and provides an overview and history of bodies of the public administrative apparatus in Croatia during the period between 1945 and 1990. This paper descriptively lists the problems that arose in the preparation of the publication, as well as the importance of regulations both for archivists' work and for those who use the records.*

Results: *The creators of archival and documentary (registry) records are those legal entities whose operation and work leads to the creation of such records. The history of institutions is a constituent part of archival science. The history of institutions defines the creators, their operation, organisation and competences. An accurate knowledge of the history and purview of any specific body within the apparatus is the starting point of the overall work of archives and archivists, with the purpose of providing correct, credible and meaningful information to users of archival records.*

Conclusion: *The past is constantly being reinterpreted, represented and explained. With no preserved and arranged archival records that are available to all, our descendants will be left only with myths, not history.*

Keywords: *Croatia, archival science, history of institutions, socialism*

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INTRODUCTION

Based on the laws and regulations promulgated in the official gazettes of the Socialist Yugoslavia and Croatia, and from the perspective of archival science as a discipline within information science, Živana Heđbeli, PhD, and co-author Nikola Mokrović, are finalizing a book that deals with the state and public administrative apparatus in the Federal, People's and Socialist Republic of Croatia (further SRC) during the period between 1945 and 1990, their competences, functions, purviews and organisational structure. Not much has been written in Croatian archival science about the institutions of the socialist Croatia. In 1998, the Croatian State Archives published the second, revised edition of the Directory of Public Administration 1945-1990 (*Šematizam državne uprave 1945.–1990*, 1994), which, as its name implies, contains short entries about the bodies in question.

ABOUT THE BOOK, "STATE AND PUBLIC ADMINISTRATIVE APPARATUS IN THE FEDERAL, PEOPLE'S AND SOCIALIST REPUBLIC OF CROATIA 1945-1990"

The Socialist Yugoslavia emerged during World War II, which began in 1939, with Croatia one of its federal constituents. The fall of the Berlin Wall in 1989 was the symbolic end of the global division that arose after World War II. It was very quickly followed by the war on the territory of Yugoslavia and its dissolution, and the independence of the Republic of Croatia (further RC). The book covers the period beginning with the formation of the Initiative Committee of the State Anti-Fascist Council for the National Liberation of Croatia (further ZAVNOH) in 1943, up to 25 July 1990, when the word "Socialist" was erased before the words "Republic of Croatia" in the name and provisions of the Constitution of the Socialist Republic of Croatia.

The book addresses the public administrative apparatus from the viewpoint of archival science, that is, the creators of the records are identified precisely, and exclusively based on regulations. The evaluations of the Socialist Yugoslavia and Croatia cover a broad spectrum, ranging from excellent to negative marks, with an exceptional level of variety depending on the evaluator and the year in which the evaluation has been made. Evaluations should be left to historians, political scientists, jurists and other scholars. This volume provides solely the facts important to the emergence, work, development and disappearance of the republic-level public administrative bodies. Although there are also federal administrative bodies that operate within the territory of the RC (for instance the Customs Administration), the book only addresses the republic-level bodies.

The book traces the vertical and horizontal division of the administrative apparatus. The first chapter, following the introduction, gives a critical overview of the events from World War II until 1990, in order to give the readers a basic understanding of the socio-political and socio-economic context in which the public administrative apparatus operated. The chapter *State authority and administration* is divided into five sub-chapters. The first gives a detailed chronological overview of Yugoslavian and Croatian public administration. It examines the regulations that govern the work of officials and civil servants, delegates and representatives. It examines records management and the regulations pertaining to administrative proceedings, finances, assets and budgets of public administration bodies. Four chapters deal with the bodies of the administrative apparatus themselves. The chapter *The highest-level bodies of the state apparatus* covers the SRC Parliament, its Executive Council, the SRC Presidency and the Council of the Republic. The chapter *Republic-level bodies* covers the ministries, councils and councils of the republics, general directorates, committees and republic-level committees, secretariats, state and republic-level secretariats, boards, state and republic-level administrations, institutions and republic-level institutions, commissions, state and republic-level

commissions, joint bodies, various bodies. The sixth chapter, which is the longest, *Local bodies*, addresses national liberation committees, national committees, districts, municipalities, communities of municipalities. The seventh and last chapter deals with inter-republic committees. The book contains a list of abbreviations, literature and legal sources, a summary in Croatian and English, and two annexes: an Index of bodies and organisations, and an Index of officials and decision-makers.

THE IMPORTANCE OF LEGISLATION

Legislation promulgated in official gazettes provide an insight into a state's constitution,[2] the organisation of political life and legal system, the state's position on a certain issue or set of issues. A country's existence is reflected in the emergence, development, transformation and disappearance of its organs. Every community (state) constructs its administration in a way that is contingent on its needs and circumstances, which change over time, depending on social, economic and political changes. The administration in the Socialist Yugoslavia and Croatia is no exception. The very names of various acts and administrative bodies demonstrate what was in the state's focus in any given period: in 1945, in the aftermath of the war, the priority lay in securing food for the population, and so the Croatian People's Government also included a Minister for Commerce and Procurement. In 1948, the Federal People's Republic of Yugoslavia (further FPRY) established a Ministry for the Newly-liberated Territories, due to the special requirements of social, economic and cultural life in regions that were incorporated into the FPRY on the basis of the Peace Treaty with Italy. The Committee for the Peaceful Use of Outer Space was founded in 1963, and the Act on Liability for Nuclear Damage was adopted in 1978. Each piece of legislation, each body is an example unto itself. Simply examining the names of the bodies and regulations over a given period may allow us to swiftly and easily infer which domains the state has regulated and paid attention to.

Knowing the regulations, each archivist, as well as the users of the records, will know which information / documents ought to have been produced in the course of a certain body's operation, which greatly facilitates and accelerates the use of the records. Each body's work leads to the creation of documents necessary both to the body itself to be able to do its work, and to the citizens to exercise their rights, which the users of the records, researchers and scholars also use for various other purposes. Some of the regulations determine which kinds of records must emerge in the course of the functioning of a specific body or branch of the administrative apparatus. Upon receiving the records to their archives, it is the archivists' task to give the users correct and credible information, both about the documents contained in the fonds deposited in the archive, as stipulated by the relevant regulations, and about the documents that are not in the fonds, and the relevant reasons. The same goes in the opposite case – if the records included in a fonds contain documents whose keeping has not been stipulated in the relevant regulations.

The book is based on legal sources – regulations promulgated in the Official Gazette of the Socialist Federal Republic of Yugoslavia (further OGY) and the Official Gazette of the SRC (further OGC) between 1945 and late July 1990. Work on the legal sources promulgated in the OGY and OGC had its difficulties, the first being the availability of the official gazettes itself, as they can only be accessed for use in a small number of public libraries – especially those from 1945 and 1946. The gazettes from the period in the immediate aftermath of World War 2 (further WW2) are difficult to read due to the degradation of paper and print, and it is sometimes only possible to access them with a microfilm

2 In the sense of its formation or establishment.

reader. The terminology used in the published regulations is inconsistent and one finds several names in use for the same body – especially during the first few years after the war. The work is also hindered by the frequent amendments to regulation, as well as corrections, which are sometimes difficult to keep track of.

The purviews, establishment / termination, responsibilities, competences, tasks and jobs, organisation and internal organisation of the bodies are determined by federal and republic-level laws and regulations. Federal and republic-level regulations determine and govern the founding and termination of a body, as well as its purview. There are also exceptions, especially during the years immediately following the war – bodies being founded without being promulgated in an official gazette, or being founded pursuant to federal regulations without the enactment of relevant republic-level regulations.[3] The organisation of the administration of the republics follows the organisation of the federal administration.[4] Bodies change their structure and organisation in line with changes to the Constitution and the relevant legislation. Sometimes the regulations explicitly stipulate the termination of a certain body and transferral of its competences to another, and sometimes a regulation is enacted determining that a certain other regulation is no longer in force. Regulations cease to apply based on specific articles in the regulations (e.g., harmonising the regulations within a certain domain with a new system), and can also be annulled by other regulations, cease to apply as their implementation has been completed, be tacitly annulled by the adoption of new regulation, expire due to the time defined for their implementation having come to an end, or they may not be in line with the new system or order. Sometimes a single regulation determines when a number of regulations cease to apply. Some bodies exist for a very short time, while others have existed from 1945 almost to this day.[5]

Being acquainted with legislation and regulations is important to archivists and users, as these determine which documents bodies should keep, their retention periods, which organ performs the records management and other tasks for which body, as well as the procedures regarding the cases worked on and the archive once the organ is no longer in operation. Regulations determine how entries and corrections to entries are made in registers and documents. Regulations determine the availability of the records, the secrecy of the documents and data, the bodies working without the presence of the public. Being well-acquainted with the regulations is also important to archivists and users in the case of destruction of records. The Ordinance on Records Management determines that bodies produce the necessary number of copies of their formal documents, meaning a copy for each private or legal entity receiving the document, and a copy for its own record office. If for any reason a body's record office is destroyed, it will probably be possible to find the document (information) being sought with another body. The regulations also make clear in which segment of the records of the same creator a duplicate of a document can be found if the document isn't in its expected place.

3 The Croatian State Commission for determining the crimes of the occupiers and their accossaries was established pursuant to the 18 May 1944 Decision by the ZAVNOH Presidency, without promulgation in the Official Gazette (ZKRZ, 1945–1947). The Land comission for war damages of the Federal Croatia was established pursuant to the Ordinance on establishing a Land commision for war damages (Zemaljska komisija za ratnu štetu, 1945–1946).

4 The FPRY Government's Council for Energy and the Extractive Industry was founded on 7 February 1950, followed by The PRC Government's Council for Energy and the Extractive Industry on 5 May.

5 For instance, the Ministry of National Farmland was established on 5 May 1950, and abolished in three months, on 4 August. The Committee for Maritime Affairs was founded on 7 December 1950, and abolished on 27 April 1951. The Ministry of Internal Affairs has existed since its establishment in 1945 to this day.

THE HISTORY OF INSTITUTIONS AND THE STATE OF AFFAIRS REGARDING THE PROTECTION OF ARCHIVAL RECORDS

Archival science is concerned with studying the principles and methods of protecting archival records with the purpose of their use. The history of institutions is a constituent part of archival science; it defines the creators of records, their purview, organisation and competences. A good knowledge of the history and purview of a certain organ is the starting point of the overall work of archives and archivists, with the aim of providing correct, credible and meaningful information to users of archival records.

The work of archives is governed by the Archives and Archival Records Act. Ideally, in performing public administration work and in official correspondence with physical and legal entities, a public administration body receives or collects documents, that is, documented (registry) records, in line with the stipulations of the legislation on record and archive management whose principles have practically been unchanged since 1945 to this day. All documentary records must be entered in the official records of record management. The record office (registry) receives the completed files (cases), attends to the integrity and arrangement of the entire documentary and archival records, which it also oversees and safeguards. Documentary records are kept in the record office until they are disposed, transferred to a relevant state archive within a deadline that generally shouldn't be longer than 30 years from their creation. Archival records being transferred to the relevant state archive must be arranged, catalogued, ordered in well-defined wholes and prepared for storage. The relevant state archive conducts professional oversight of the records in the possession of the body.

The state archive keeps records and documentation on a body's archival records. Among its tasks is also receiving and processing public archival records that emerge in the course of the work of the creators of documentary and archival records currently or previously active within the jurisdiction and competences of the archive, as well as enabling and encouraging the use of archival records. Records produced in the course of the operation and work of a single creator constitute a whole (archival fonds). An archive creates finding aids allowing the use of any single fonds' archival records. With legally defined exceptions, archival records in state archives are available for use to users from the moment they are created.

Both the creators and the archives need to follow certain principles of managing archival records. Legislation on managing documentary records outside archives determine the principles of managing the records including: authenticity, comprehensiveness, confidentiality, credibility. Archivists make sure that the documents they keep are authentic, reliable, usable, unchanged and complete (Stančić, 2006).

The RC adopted its first legislation on archives in 1997. The Act determined that the Croatian State Archives, regional state archives and local self-government and administration units' archives perform the services of archives; while certain specific tasks pertaining to archival services may also be performed by specialised and private archives, as institutions. The National Plan for the Development of Archival Practice for the period 2020-2025 (Ministarstvo kulture Republike Hrvatske, 2019, 5) makes it clear that the development of archival services outside the network of national archives envisaged in the 1997 Law has entirely failed to materialise. According to the Culture and the Arts in 2020 Statistical Report (Državni zavod za statistiku Republike Hrvatske, 2023, 79–82), 19 Croatian archives stored a total of 16,558 fonds and collections, 115,706 linear metres of records, of which 68.86% had been processed. From the Culture Ministry's Strategic Plan for 2020-2022 (Ministarstvo kulture Republike Hrvatske, 2019, 60) we find that the existing spatial and technical resources of most archives do not permit the storage of the materials that need

to be received, and the descriptive data for about 50% of the records in archive need to be harmonised or added to, which can only be done over a relatively longer period with the existing resources. The majority of archives lack the storage space and/or equipment for depositing new records coming in, which need to be received within the legally mandated deadlines. For this reason, the records are kept longer in inadequate locations outside archives, where they are exposed to the risk of accelerated decay and are unavailable to users. The National Plan for the Development of Archival Practice (Ministarstvo kulture Republike Hrvatske, 2019, 6) stipulates that the basic tasks of all the constituents of the current network of archives are: to ensure long-term safekeeping, receiving and availability of records created in the course of the work of the state administration and the of the local and regional self-government units, as well as other public authorities across the entire territory of the RC; to collect private records of public interest or special value as a mark of our history; to appraise, select, arrange and describe those records that are of permanent value and ensure their availability.

This publication is necessary to archivists and users, as some of the records deposited in archives has not been adequately processed, while a large amount of records is outside archives. Records often arrive in state archives behind the legally defined deadlines, unarranged and undisposed, so the tasks with regards to the records that should have been performed by their creator fall to the archives, who primarily have to bring the records to the level of proper record management, only to be able to move on to archival processing once this is done.[6] Ideally, all archival records created through the work of the state and administrative apparatus of the People's Republic of Croatia should have been handed over to the relevant state archives, arranged, catalogued into well-defined wholes and prepared for storage by 1994 at the latest, and records created through the work of the state and administrative apparatus of the SRC by 2021. Reading the Statistical Report Archives in 2020 (Državni zavod za statistiku Republike Hrvatske, 2023, 3), we find that there were 115,706 linear metres of records inside archives in 2020, while 780,103 metres of records were outside archives. A lack of material and human resources, knowledge and skills in record and archive management are neither new or rare. The level of illiteracy in Croatia before WW2 was high: "according to the 1931 Census, 27.7% people in Savska Banovina and 57.4% in Primorska were illiterate." (Senjan, 2021, 28). In elections immediately after the war, voting was done using small balls due to the population's illiteracy. Very soon after the war, the administration itself very quickly established that cadres were insufficiently proficient and educated, and so for instance in 1952, an ordinance determined that even individuals without the specified educational qualifications may access the civil service, if it is found that they are capable of performing the tasks relevant to the service. The lack of professional qualifications among workers in public administration remains an object of complaints to this

6 For instance, the records of the National War Damage Commission, which operated between 1945 and 1947, was received *ex officio* by the CSA from the Parliamentary Executive Council in 1988 (acq. 2/1988). Upon reception, the records were processed at the CSA in 1993 (ZKŠ, 1945–1947). The records of the Institute for the advancement of primary education arrived at the CSA in an unarranged and only partly catalogued state. The Institute operated between 1966 and 1976. The records were intermixed with other records pertaining to education (the Education Council, the Institute for the advancement of vocational education, the Republican fund for advancing the cultural sector). The material was neither arranged nor disposed in the record office. There was no comprehensive catalogue of the records, which had been received in 2002 from the Ministry of Education and Sports (ZUOO SRH, 1966–1976). On 15 december 2007, the CSA received the records of the Republican Secretariat for Judicial Affairs (1953–1965), entered into the Book of Acquisitions under the number 69/2007. The records were handed over *ex officio* by the RC Ministry of Justice after CSA staff arranged them during 2006-7 on the premises of the Justice Ministry (Republički sekretarijat za pravosudne poslove Socijalističke Republike Hrvatske, 1946–1966).

day, for which a cursory look at the daily press should suffice. We find more on the state of the administration in the Analytical basis for the National Development Strategy of the Republic of Croatia by 2030 (The World Bank, 2019, 22–26): "However, Croatia does not rank well on measures of civil service efficiency or professionalism; indeed, over time it has regressed.", "Tertiary education is a precondition for only 46 percent of jobs in the civil service, which is an unusually low percentage compared to other countries. And while setting the bar so low may be explained by the fact that several categories of employees of bodies tasked with implementing legislation have the status of civil servants, the share of jobs in the civil service for which higher education is not required is high in the majority of institutions."

The National Plan for the Development of Archival Practice (Ministarstvo kulture Republike Hrvatske, 2019, 16–17) shows that in the RC, people can currently only be educated to become archivists at the Philosophy Faculty in Zagreb, where 20 students enrol in the course in Archivistics each year as part of the graduate degree in Information Sciences. Nevertheless, such education mostly takes place within the archival service itself, as part of the preparations for the professional exam. The Department of Information and Communication Sciences of the Philosophy Faculty of the University of Zagreb, of which the Section for Archival and documentation sciences is part, was established in 1981 (Jamić, 2017, 12). Neither the SRC nor the RC hold, through their legislation, that completing a study in archival science is a necessary condition for becoming a professional archivist. The fact that the state has been financing a course that appears to be unnecessary for archives for decades is in itself worthy of a distinct paper.

The archival records of the administrative apparatus of Socialist Croatia has generally been deposited in the relevant state archives. The CSA keeps the Record of Entries for all archives in the RC. The Ministry of Culture and Media keeps the Register of Archives. The Register of archival fonds and collections of the Republic of Croatia is the central registry of archival records within the territory of the RC, and is maintained for the RC by the CSA. In 2006 and 2007, the CSA printed an Overview of archival fonds and collections of the Republic of Croatia, parts I and II. In 2006, the National Archival Information System (NAIS) was initiated – an online information system that has become the basic tool for representing and accessing archival records (the system was initially called ARHiNET). The online Register is an element of ARHiNET. At the moment, the system is in the course of migrating to a new one, the Croatian Archival Information System (HAIS, 2020). In 1986, the Law on the Archival Records of the Federation was adopted (SFRY Official Gazette, 11/1986). The archival records of the Federation have been deposited in the Archives of Yugoslavia. The list of the deposited fonds and collections is available at the Archives' website.

CONCLUSION

Archivists give information both from the records and about the records. Their task is to allow all users to use the documents/information they are interested in, allowing each user their evaluation, interpretation, assessment, coming to their own conclusion. The task of information management professionals is to give facts about the bodies, not to evaluate the organs as such. By comparison, librarians are not expected to give literary critiques of works, but to provide a librarian's descriptions of a publication, well-ordered, available and easily searchable catalogues etc. Just like librarians do not write literary works or literary criticism as part of their official tasks during their official working hours, so are archivists likewise not expected to write historical, sociological, legal or other accounts of a certain period or state. Information management professionals

connect sources to users, and their task is to manage records, deposit it, allow its use. Archivists don't interpret the records, but take care that the documents they safeguard are authentic, reliable, usable, unchanged and complete. The records are read and interpreted by the users, who use primary sources to create secondary and tertiary ones. When it comes to archival work, it's also worth highlighting that when giving information from the records, the archivists do not establish the truth, but merely cite what has been written in the documents.

The bodies of the state and public administration apparatus that existed in Croatia in the period from 1945–1990 are the foundation of the administration today. On 25 July 1990, the SRC Parliament, Presidency, Parliamentary Executive Council and republican secretariats and committees continued their work as the RC Parliament, RC Presidency and RC Government, that is, the ministries in the Republic of Croatia. History is constantly being reinterpreted, represented and explained; each new generation views things and phenomena in their own way. Archivists are there to allow records to be used under the same conditions for all, current and future users, so that they can reach their own (re)interpretations of past facts and events. Without well-preserved and arranged archival records that are available to all, our descendants will be left with myths, not history. The publication being prepared is necessary to both archivists and users, since part of the records deposited in archives has not been adequately processed, while a large amount of records are outside archives. Caring for archival records, preserving historical sources, is our generation's task, our legacy to future generations, which is the purpose of this work.

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