

Ivančica Sabadin<sup>1</sup>

## 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 Ivančica Sabadin, PhD student of Archival Sciences at Alma Mater Europaea – European Centre Maribor, Slovenia, e-mail: ivancica.sabadin@almamater.si.

## 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.<sup>2</sup>

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)<sup>23</sup> 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 OVERVIEW

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<sup>4</sup> (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."

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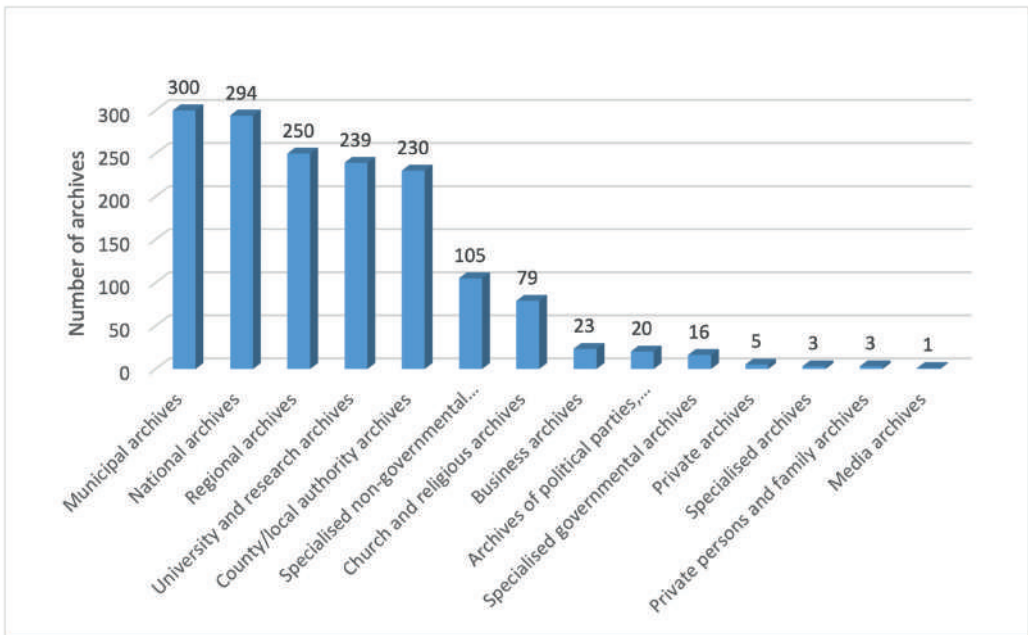
4 slo. Uredba o varstvu dokumentarnega in arhivskega gradiva (UVDAG).

## 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	Sweden	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."<sup>8</sup> 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 sredenosti<sup>9</sup>, Plan sređivanja<sup>10</sup>). 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*

## REFERENCES

- Hrvatski državni arhiv. (2020). HAIS. Available at <https://hais.arhiv.hr/HDA/pomoc> (accessed on 2. 1. 2023).
- International Council on Archives (ICA). (2000). ISAD(g)2: General International Standard Archival Description, Second edition. Available at [https://www.ica.org/sites/default/files/CBPS\\_2000\\_Guidelines\\_ISAD%28G%29\\_Second-edition\\_EN.pdf](https://www.ica.org/sites/default/files/CBPS_2000_Guidelines_ISAD%28G%29_Second-edition_EN.pdf) (accessed on 10.1.2023).
- Novak, M. (2012). Signatura kot entiteta arhivskih informacijskih sistemov. In N. Gostenčnik (Ed.), *Tehnični in vsebinski problemi klasičnega in elektronskega arhiviranja: arhivistika in informatika. Zbornik mednarodne konference [Radenci, 28.-30. marec 2012]* (pp. 605–630). Maribor: Pokrajinski arhiv Maribor. Available at [http://www.pokarh-mb.si/uploaded/datoteke/Radenci/Radenci2012/62\\_Novak\\_2012.pdf](http://www.pokarh-mb.si/uploaded/datoteke/Radenci/Radenci2012/62_Novak_2012.pdf) (accessed on 10. 1. 2023).
- Novak, M. (2016). Količina, obim i mediji kako elementi upravljanja arhivskom građom. *Arhivska Praksa*, 19, 148–160. Available at <https://www.scribd.com/document/331410762/Arhivska-praksa-broj-19> (accessed on 9. 9. 2021).
- Novak, M. (2018). Fasetni model oblikovanja naslovov popisnih enot. *Moderna Arhivistika*, 1(2), 385–406. Available at [http://www.pokarh-mb.si/uploaded/datoteke/2\\_2018\\_385-406\\_novak.pdf](http://www.pokarh-mb.si/uploaded/datoteke/2_2018_385-406_novak.pdf) (accessed on 10. 1. 2023).
- Novak, M. (2018a). Vrijeme kao element za određivanje sadržaja i konteksta arhivskog gradiva. *Arhivska Praksa*, 1(19), 253–272. Available at [https://www.bib.irb.hr/1045254/download/1045254.Arhivska\\_praksa\\_21\\_2018.pdf](https://www.bib.irb.hr/1045254/download/1045254.Arhivska_praksa_21_2018.pdf) (accessed on 22. 1. 2023).
- Semlič Rajh, Z. (2016). Uporabniki in poizvedovanje po arhivskih podatkovnih zbirkah. *Atlanti*, 26(1), 73–90. Available at <http://www.dlib.si/details/URN:NBN:SI:-doc-3GV93027> (accessed on 22. 1. 2023).
- Sobczak, A. (2016). *Traditional vs. Virtual Archives – The Evolving Digital Identity of Archives in Germany* (Doctoral dissertation). Hamburg: ProQuest. Available at <https://www.proquest.com/dissertations-theses/traditional-vs-virtual-archives-evolving-digital/docview/2030543285/se-2> (accessed on 21. 1. 2023).
- Šauperl, A., Vilar, P., Šabotić, I., & Semlič Rajh, Z. (2014). Uporabnikov pogled na arhiv in popise arhivskega gradiva v arhivskih informacijskih sistemih. In N. Gostenčnik (Ed.), *Tehnični in vsebinski problemi klasičnega in elektronskega arhiviranja. Arhivi v globalni informacijski družbi: zbornik mednarodne konference, [Radenci, 2. - 4. april 2014]* (pp. 171–200). Maribor: Pokrajinski arhiv Maribor. Available at [http://www.pokarh-mb.si/uploaded/datoteke/radenci2014/17\\_sauperl\\_2014.pdf](http://www.pokarh-mb.si/uploaded/datoteke/radenci2014/17_sauperl_2014.pdf) (accessed on 10. 1. 2023).
- Uredba o varstvu dokumentarnega in arhivskega gradiva (UVDAG). (2017). *Uradni list RS*, (42/2017).
- Vilar, P., & Žumer, M. (2008). Uporabniški vmesniki sistemov za poizvedovanje in uporabniška prijaznost. *Knjižnica*, 52(1), 41–61. Available at <https://knjiznica.zbds-zveza.si/knjiznica/article/view/5900/5548> (accessed on 21. 1. 2023).
- Zou, Q. (2019). *The Representation of Archival Descriptions: An Ontological Approach*. Available (Doctoral dissertation). Montreal, Quebec, Canada: School of Information Studies, McGill University. Available at <https://www.proquest.com/dissertations-theses/representation-archival-descriptions-ontological/docview/2505370884/se-2> (accessed on 10. 1. 2023).