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DIGITIZATION OF REGISTRY BOOKS IN THE STATE ARCHIVES IN ZAGREB - EXPERIENCES FROM PRACTICE

Abstract

Purpose: *The purpose of this text is to present experiences in the work on the digitization of registry books (registers) in the State Archives in Zagreb through the several steps that this process contains. This digitization started at the beginning of 2024 and is still going on. Its ultimate goal is the publication of all digitized books on the e-Kultura portal. The e-Kultura portal is an official portal intended for the publication of digitized collections kept by heritage institutions of the Republic of Croatia.*

Methods / Approach: *The individual steps and tools in the digitization process and the final publication of the digitized material on the Internet are described. The conclusions obtained in individual steps are also described.*

Results: *The text draws conclusions based on experiences in working on this project, in its various phases. Conclusions are also drawn that can be applied to digitization projects in general, especially related to the potential added value of human work (i.e. knowledge of archivists) in these projects.*

Conclusions: *Technology is taking a huge step forward in enabling the greatest possible availability of archival material. Human knowledge constitutes the added value that properly directs and upgrades / refines this digitization process.*

Keywords: *archives, digitization, registry books, e-Kultura, valorization*

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DIGITALIZZAZIONE DEI LIBRI DI REGISTRO NEGLI ARCHIVI DI STATO DI ZAGABRIA - ESPERIENZE PRATICHE

Abstract

Scopo: *Lo scopo di questo testo è presentare le esperienze nel lavoro sulla digitalizzazione dei libri di registro (registri) negli Archivi di Stato di Zagabria attraverso le diverse fasi che questo processo contiene. Questa digitalizzazione è iniziata all'inizio del 2024 ed è ancora in corso. Il suo obiettivo finale è la pubblicazione di tutti i libri digitalizzati sul portale e-Kultura. Il portale e-Kultura è un portale ufficiale destinato alla pubblicazione di collezioni digitalizzate conservate da istituzioni del patrimonio della Repubblica di Croazia.*

Metodi / Approccio: *Vengono descritti i singoli passaggi e gli strumenti nel processo di digitalizzazione e la pubblicazione finale del materiale digitalizzato su Internet. Vengono inoltre descritte le conclusioni ottenute nei singoli passaggi.*

Risultati: *Il testo trae conclusioni basate sulle esperienze nel lavoro su questo progetto, nelle sue varie fasi. Vengono inoltre tratte conclusioni che possono essere applicate ai progetti di digitalizzazione in generale, in particolare in relazione al potenziale valore aggiunto del lavoro umano (ad esempio la conoscenza degli archivisti) in questi progetti.*

Conclusioni: *la tecnologia sta facendo un enorme passo avanti nel consentire la massima disponibilità possibile di materiale d'archivio. La conoscenza umana costituisce il valore aggiunto che indirizza e aggiorna/affina correttamente questo processo di digitalizzazione.*

Parole chiave: *archivi, digitalizzazione, registri, e-Kultura, valorizzazione*

DIGITALIZACIJA MATIČNIH KNJIG V DRŽAVNEM ARHIVU V ZAGREBU - IZKUŠNJE IZ PRAKSE

Izvleček

Namen: *Namen tega besedila je predstaviti izkušnje pri delu na digitalizaciji matičnih knjig (registrov) v Državnem arhivu v Zagrebu skozi korake, zahtevane s strani omenjenega procesa. Ta digitalizacija se je začela v začetku leta 2024 in še vedno poteka. Njen končni cilj je objava vseh digitaliziranih knjig na portalu e-Kultura. Portal e-Kultura je uradni portal namenjen objavi digitaliziranih zbirk, ki jih hranijo dediščinske ustanove Republike Hrvaške.*

Metode / Pristop: *Opisani so posamezni koraki in orodja v procesu digitalizacije in končne objave digitaliziranega gradiva na internetu. Opisani so tudi zaključki, pridobljeni v posameznih korakih.*

Rezultati: *Besedilo podaja sklepe na podlagi izkušenj pri delu na tem projektu v njegovih različnih fazah. Izvedeni so tudi zaključki, ki jih je mogoče uporabiti za projekte digitalizacije na splošno, zlasti v zvezi s potencialno dodano vrednostjo človeškega dela (tj. znanja arhivistov) pri teh projektih.*

Sklepi: *Tehnologija dela velik korak naprej pri omogočanju čim večje dostopnosti arhivskega gradiva. Človeško znanje je tista dodana vrednost, ki pravilno usmerja in nadgrajuje/izpopolnjuje ta proces digitalizacije.*

Ključne besede: *arhivi, digitalizacija, matične knjige, e-Kultura, valorizacija.*

1. INTRODUCTION – DIGITIZED REGISTERS IN STATE ARCHIVES IN ZAGREB BEFORE 2024

Digitized registry books (registers)² have been used in the State Archives in Zagreb (hereinafter: SAZG) since 2008. Digital recordings were previously obtained from the Croatian State Archives, where they were digitized indirectly, from previously recorded microfilms of registers.³

These digital records arrived at SAZG in the period before 2008 on DVDs. In 2008, the DVDs were recorded on the computer in the SAZG reading room and the recordings were prepared for use. The recordings were arranged in such a way that each book formed one folder, and all register books of the same parish (ie all folders that contained recordings of individual register books of the same parish) were grouped into a folder with the name of the parish to which they belong.⁴ In this way, the digital recordings of the registers followed the inventory list of the original registers. Since 2008, users of the SAZG reading room have been able to use digital recordings of register books on the computer in the reading room of the Archives, without having to order the material in advance.⁵

The digital images received from the Croatian State Archives that have been prepared for viewing in the SAZG reading room (and which are still used for some registers) are black and white, jpg format, resolution 300 dpi. The size of one image that covers two pages of the book is about 500-900 kilobytes, 4416 (Width) x 3104 (Height) pixels, 8 - bit depth. They are viewed by scrolling the pages using the right-left arrows, with some additional options.

2. NEW DIGITIZATION IN 2024

When attending the Festival of Croatian Digitization Projects in the National and University Library in Zagreb in 2023 (D-FEST, 2024), SAZG employees who were present there called with a question about how to digitize archival material

2 The text talks about the registers (of births/baptisms, marriages, deaths) that are kept in the State Archives in Zagreb in the collection HR-DAZG-870 Zbirka matičnih knjiga s područja nadležnosti Državnog arhiva u Zagrebu (Collection of register books under the jurisdiction of the State Archives in Zagreb). These are mainly old church registers of large format. A large number of them are approximately 40 cm x 25 cm. See more Vodič kroz fondove i zbirke Državnog arhiva u Zagrebu, 2008

3 Part of these registers has been microfilmed in cooperation with the Croatian State Archives and the Church of Jesus Christ of Latter-day Saints and is available online on the FamilySearch website: <https://www.familysearch.org/hr>.

4 In 2008, archivist Katarina Horvat arranged the recordings and prepared them for use.

5 Not all register books from the HR-DAZG-870 Collection of register books under the jurisdiction of the State Archives in Zagreb were digitized then, but a great number of them was. Part of the registers were still used in their original form.

without a suitable large-format scanner. After that, the Archive was contacted by a person from the Ministry of Culture to connect it with the Museum of Arts and Crafts in Zagreb, which had a scanner for large-format materials.⁶

The scanner was acquired by the Museum of Arts and Crafts through public procurement as part of the “e-Kultura - Digitization of cultural heritage” project. The e-Kultura project was financed by the European Fund for Regional Development as part of the implementation of the Operational Program “Competitiveness and Cohesion 2014 - 2020”. The project is implemented by the Ministry of Culture and Media of the Republic of Croatia in cooperation with partner institutions: Croatian State Archives, Croatian Radio and Television, the Museum of Arts and Crafts and the National and University Library in Zagreb (eKULTURA, 2023a). The project is aimed at digitization and secure storage and availability of the largest possible amount of digitized material. State archives, libraries and museums, as well as Croatian Radio and Television, as well as some other institutions, participate in the project as content providers.⁷ In order to have a uniform approach to the digitization of materials, the Croatian State Archives adopted Instructions for Digitization, which were published on its website (Hrvatski državni arhiv, 2021). Digitized material created as part of the e-Kultura project is stored on the Central System (“Središnji sustav”, everything digitized is stored on it). Only that part of the material intended for public publication is available through the e-Kultura portal. The e-Kultura portal is designed as a portal with interesting and relevant material, and it is not necessary to publish entire fonds or collections on it, but only what is selected as relevant from them. SAZG are also a participant in the e-Kultura project. They concluded a contract with the Ministry of Culture for the publication of their digitalized material on the e-Kultura portal.⁸

3. THE PROCESS OF DIGITIZATION IN 2024

The actual process of scanning the registry books began in early 2024.⁹ The scanning is done in agreement with the Museum of Arts and Crafts in their digitization studio, at a time that suits them, i.e. when the scanner is not used by

6 I was informed about this by Danko Rusan, senior archive technician and Domagoj Čičko, archivist (both from SAZG).

7 Briefly about the project e-Kultura see more: Hrvatski državni arhiv, s. d.; About the institutions involved see eKULTURA, 2023a.

8 Some SAZG employees were trained at the Croatian State Archives and were trained as creators in e-Kultura.

9 At the time of writing this text (September 2024), the digitization was still in progress.

their employees.¹⁰ It is a large Microbox A0+ Hornet scanner, with two CMOS sensors (cameras) of 71 Mpix, a separable bench and a cover glass. The scanner is intended for the digitization of (flat, paper) museum materials larger than A2, and now it is additionally used for the digitization of library and archival materials.¹¹

After the book is set up for recording (scanning), a glass is placed over it, which covers it completely and holds it tightly. It is important to place the book straight. After that the pages are recorded. Pages are manually flipped after each recording. The scanner has its own lighting, there is no additional light in the room during scanning.¹² The resulting recordings are in color, in tiff format, about 95 to 105 MB in size. The resolution is 300 dpi. The dimensions are about 6675 (Wdth) x 5136 (Height) pixels. Bit Depth is 24. The quality of the recordings is extremely good, you can see very small details recorded on the pages of the books.

With register books, there are also some peculiarities related to their large format. If the book is thicker (it consists of many pages or the pages were strengthened during the restoration and are therefore thicker), it cannot be spread all the way when opened, so the middle cannot be seen. (Sometimes notes with relevant information are written on the very margins or in the middle of the book.) Therefore, for some books, it would be good to put weights, so that the pages spread out as much as possible. (So far, we have not used this possibility when recording.) There is also the possibility to hold the book open with the hands, and to subsequently delete the fingers on the recordings. This can be solved, for example, with a program available with the CZUR scanner, which uses special finger cots to recognize places that should be automatically deleted (CZUR, 2022).

In general, it can be said that when recording books, attention should be paid to small details, such as small notes written on the margins or in the middle of the book, i.e. whether they are visible enough.

During the recording process, some agreements were made “on the fly”. We agreed that all pages of the book should be recorded (front page - cover, pages

10 The space for the digitization of the Museum of Arts and Crafts was located at the time of writing this text in the building of the Museum of Contemporary Art in Zagreb, where it was temporarily located due to the earthquake in Zagreb in 2020, which significantly damaged the building of the Museum of Arts and Crafts.

11 Information on the acquisition, type (model) and purpose of the scanner was kindly provided to me by Zoran Svrtan, head of the MUO's IT service in September 2024.

12 Danko Rusan, an archive technician, is in charge of scanning the registers. He provided me with information about the same.

that precede the entries themselves, pages with entries, pages at the very end that precede the cover and the last page - cover). The blank pages at the end of the book were not recorded, that is, only one blank page was recorded, which announces the other blank pages, and the others are not. In the event that, with an open book, the margins of the pages overlap each other in such a way that the data on one page does not seem legible (because it visually merges with the page below) or the page itself appears messy, white paper is placed under the page and it is recorded that way.¹³ Records should be kept of these decisions and subsequently listed as notes with digitized registers.

4. PROCESS OF CHECKING RECORDED MATERIAL

After recording the registers, the process of checking the recorded material goes through several steps. The memory stick with the recordings is handed over to the person (in this case, the archive technician) in charge of checking the recordings. She reviews the recordings by comparing them to the original registers, page by page. Marks pages in the original book that may have been skipped or not very well recorded. After that, the person in charge of the registry digitization project (in this case the archivist) together with the mentioned archival technician responsible for checking, once again examines the recordings of the material and decides whether some pages should be recorded again or not. If the book is recorded well, it returns to its place in the archival depo. If an additional page needs to be recorded, the book is prepared in the place provided for re-recording so that the digitizer can take it during the next digitization going.

If it is necessary to record some pages in the book on which small notes are not clearly visible and cannot be recorded well with the scanner used for digitization, the book is placed on a special shelf with the note “for additional recording”. (The pages with such notes remain marked in the book.) This recording is scheduled to be made after the digitization of the entire Collection of registry books from the jurisdiction of the State Archives in Zagreb. The plan is to use a photo camera to record only a part of the page with a small note that is not clearly visible after scanning, i.e. to focus the recording on that note and to insert that shot into the

13 This was introduced into the recording process by trainee archivist Lea Kasabašić, who led this project at the beginning of the digitization of the registers. After her, the project was taken over by Katarina Horvat, archival councilor.

folder with the shots of the said registry book behind the shot of the entire page on which the said note is located. Recordings of register books are copied from a memory stick to a special external hard disk, where they are also edited. They remain stored on the external hard drive, and the plan is to store them on the Central System and publish them on the e-Kultura portal.

5. EDITING OF DIGITIZED MATERIAL

The recordings are arranged in such a way that one folder represents one book. Each folder is named as the original book (order number within the Collection, parish name, book type, year range). If some pages in the book were subsequently recorded, these recordings are inserted among the already existing recordings of that registry book, in such a way that their position among the recordings within the folder must be identical to the location of those pages within the original book. Edited folders can already be used on the computer in the SAZG reading room and easily viewed by scrolling through the pages as images, using the arrows, with the possibility of enlarging, reducing and rotating them.

When reviewing the recordings, the importance of valorizing the registers as an informational and historical source came to the fore. Sometimes valuable information about a particular person is written down in tiny, barely visible notes, and they can also have a special value as a historical source. Some books require knowledge of the Latin language in order to decide what needs to be recorded later and what is not. For example, if it is about formulas that are repeated and easily identified, then it is not necessary because it is easy to guess what they say. If it is about special notes or parts of names, etc., then it is definitely recommended. That is why it is desirable that an archivist with experience in work on this registry books and knowledge of the Latin language works on this project, so that he can valorize such cases. Checking the digital recordings of the registers comes in handy as an additional check of the registers themselves (originals). In the case of some books, it was found that some pages were wrongly pasted after the previous restoration. This can be added as a note in the folder with the recorded registers. Pages can also be digitally cut out and inserted where they should be (A decision must be made - fix the digital recordings or follow the original book. If the book in digital form no longer fully follows the original, a note must be made about this).

6. CREATION OF METADATA AND EXPORT TO THE CENTRAL SYSTEM

After digitization, it is necessary to create metadata for the recordings. The metadata contain precise information about the Collection, series and each individual book. Metadata are created in an Excel spreadsheet. They are not visible to end users but serve to describe the digitized materials before sending them to the Central System, as well as for records visible to the archivists who describe these materials. Mandatory fields when entering metadata are Identifier, Title, Level, Higher ID, Order, Time FROM, Time TO, Record Type, Content Type, Collection, Record Status, To Publish and Terms of Use.¹⁴ Some metadata have fields for free text entry (descriptive, which will be searchable later with the full text search option), and some for selecting terms from the drop-down menu. When creating descriptive metadata, the information of the archivist working on the description can come to the fore - the more relevant keywords are added to the description, the easier it will be for end users to find the material.

Once this is completed, the export of digital material to the Central System can be accessed, which is done using the Goobi application. It is an application with various processes, some manually and some automatically done (Igreč & Sušac, 2023).¹⁵ At the time of writing this paper, the metadata for the registry books had not yet been created. However, SAZG employees already had experience in their creation. In September 2024, the SAZG had digitized material from eight archival fonds and collections published on the e-Kultura portal. Also, SAZG had digitized archival material from six additional archival fonds stored in the Central System.

It is important to note at this point that the metadata and digitized materials do not have to, and often will not, fully accompany the informational aid and material of the fonds / collection (or part of the fonds / collection) designated for digitization. By selecting materials for digitization and storage on Central System or publishing on the e-Kultura portal and by creating the associated metadata, we are actually creating a new archival entity and a new information tool. This new

14 Croatian: *Identifikator, Naslov, Razina, VisaID, Redoslijed, VrijemeOD, VrijemeDO, VrstaZapisa, VrstaSadržaja, Zbirka, StatusZapisa, ZaObjavu* and *Uvjeti korištenja*. Precise instructions for creating metadata for SAZG employees were prepared by specialist archivist Sonja Galina.

15 For SAZG employees, the instructions for the Goobi application were created by specialist archivist Sonja Galina.

archival entity has its own digital life that can be changed and updated and needs to be looked after so that it is constantly available under accepted conditions. Here too, the knowledge of the archivist comes to the fore, deciding which part of the material will be digitized and published and which will not.

7. CONCLUSION

Technical progress and the wider availability of devices for scanning and recording materials have made the digitization of archival material at a higher level easier. Digitization and the widest possible availability of the entire cultural heritage, and thus archival material, is encouraged by the European Union, and in this direction the e-Kultura project was designed in Croatia. In addition to the digital world, in the sense of a joint portal where material from archives, libraries and museums is published, cooperation on this project is also visible through the joint use of very valuable devices, as in the example of the use of a large scanner of Museum of Arts and Crafts for the needs of SAZG. Although the advancement of technology has made digitized material far more accessible, human knowledge, in this case the knowledge of the archivist who leads the digitization processes, is still valuable. The added value to the digitization process will depend on his amount of knowledge, visible in the valorization of records (e.g. visible when deciding what from a certain fonds or collection will be chosen for digitization and/or publication; visible also when deciding on the additional recording of individual notes in the original books), as well as descriptions that are entered in metadata, which can significantly facilitate someone's search for material. That is why knowledge of the material by the competent archivist should continue to be a prerequisite for valid control and valorization of digitized material. Thus, the end result created by the joint action of new technologies and human knowledge will be not only digitized and quickly accessible archival material, but also that end users find exactly the archival material they need as quickly as possible.

REFERENCES

- CZUR. (2022). *How to use CZUR Finger Cots* (video). Retrieved at <https://www.youtube.com/watch?v=ZZKxflLjE8Q> (accessed on 16. 9. 2024).
- D-FEST. (2024). *Dvanaesti festival hrvatskih digitalizacijskih projekata*. Retrieved at <https://dfest.nsk.hr/2023/> (accessed 23. 9. 2024).
- eKULTURA (2023a). *O portalu*. Retrieved at <https://ekultura.hr/about-portal/> (accessed on 16. 9. 2024).
- eKULTURA (2023b). *Uključene ustanove*. Retrieved at <https://ekultura.hr/participating-institutions/> (accessed on 16. 9. 2024).
- FamilySearch. (2023). Retrieved at <https://www.familysearch.org/hr> (accessed on 23. 9. 2024).
- Hrvatski državni arhiv. (s. d.). *Projekt „e-kultura – Digitalizacija kulturne baštine“*. Retrieved at <http://www.arhiv.hr/Informacije-za-stvaratelje/Digitalno-gradivo/Projekt-e-kultura-Digitalizacija-kulturne-ba%C5%A1tine> (accessed on 13. 9. 2024)
- Hrvatski državni arhiv. (2021). *Upute za digitalizaciju dokumentarnog i arhivskog gradiva*. Zagreb: Hrvatski državni arhiv. Retrieved at <http://www.arhiv.hr/Portals/0/Upute%20za%20digitalizaciju%20gradiva.pdf> (accessed on 16. 9. 2024).
- Igrec D. and Sušac A. (2023). Goobi: servis za podršku tijekom digitalizacije u hrvatskim arhivima. *Arhivski vjesnik*, 66(2023), 213–224. Retrieved at <https://hrcak.srce.hr/file/448782> (accessed on 20. 9. 2024).
- Vodič kroz fondove I zbirke Državnog arhiva u Zagrebu. (29. 9. 2008). HR-DAZG-870 Zbirka matičnih knjiga s područja nadležnosti Državnog arhiva u Zagrebu. Retrieved at <http://www.daz.hr/vodic/site/article/hr-dazg-870-zbirka-maticnih-knjiga-s-podrucja-nadleznosti-drzavnog-arhiva-u-zagrebu> (accessed on 4. 9. 2024).

Summary

This year, the new digitization of the registry books in the State Archives in Zagreb began. This process is carried out in cooperation with the Museum of Arts and Crafts in Zagreb, which owns the scanner for large-format books. The scanner was acquired as part of the “e-Kultura - Digitization of cultural heritage” project. The e-Kultura project was financed by the European Fund for Regional Development as part of the implementation of the Operational Program “Competitiveness and Cohesion 2014 - 2020”. It is implemented by the Ministry of Culture and Media of the Republic of Croatia in cooperation with partner institutions: Croatian State Archives, Croatian Radio and Television, Museum of Arts and Crafts and the National and University Library in Zagreb. The purpose of the project is the digitization, safe storage and availability of the largest possible amount of digitized material - the cultural heritage of the Republic of Croatia. Various heritage and other institutions, as well as state archives, participate in the project as content suppliers. The State Archives in Zagreb is also a participant in the e-Kultura project. The project of digitization of registry books aims to store the resulting digital recordings on the Central System and publish them on the e-Kultura portal.

The scanning of registers is done in agreement with the Museum of Arts and Crafts in their digitization studio. When scanning books, you should also pay attention to small details, such as small notes written on the margins or in the middle of the book, i.e. whether they are visible enough. In the process of digitization, some agreements were created “on the fly”. Records should be kept of these decisions and subsequently listed as notes with digitized registers.

After scanning the original registers, the process of checking the recorded material goes through several steps. Digital recordings are arranged in such a way that one folder represents one registry book. Each folder is named as the original book (r. no. within the Collection, name of the parish, year range). Edited folders, i.e. recordings of registers, can be used on the computer in the reading room of the State Archives in Zagreb.

It is preferred that an archivist with experience in working on registry books and knowledge of the Latin language works on this project, so that he can valorize possible cases of doubt regarding the need to re-record a page or part of a page.

After digitization, it is necessary to create metadata for the recordings in an Excel table in which precise information about the Collection, series and each individual book is given. Metadata and digitized materials do not have to, and often will not, fully accompany the finding aid and material of the archival fonds / collection (or part of the fonds / collection) designated for digitization. By selecting materials for digitization and storage/publishing on the e-Kultura system and creating associated metadata, we are creating a new archival entity and a new finding aid. This new archival entity can be changed and updated, and it needs to be looked after so that it is constantly available under accepted conditions. The knowledge of the archivist who decides which part of the material will be digitized and published and which will not be very valuable here.

The process of digitizing the registry books is carried out through several steps, the goal of which is to publish the digitized registers on the e-Kultura portal. Sophisticated scanners and processes have made digitized material far more accessible. Nevertheless, human knowledge, in this case the knowledge of the archivist who leads the digitization processes, is still valuable. The result created by the joint action of new technologies and human knowledge should not only be digitized and quickly accessible archival material, but also that end users find exactly the archival material they need as quickly as possible.

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