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Moderna arhivistika

Časopis arhivske teorije in prakse
Journal of Archival Theory and Practice

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1.03 Kratki znanstveni članek

1.03 Short Scientific Article

THE DAWN OF DIGITAL ERA IN THE ARCHIVES OF BOSNIA AND HERZEGOVINA

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Abstract

Instead of the well-known technical listing of the advantages gained by digitizing archival records at the beginning of this paper, the research of the topic took the author, entirely unplanned, in a slightly unexpected direction. Which path brought us to today's needs that modern archives should meet? Was it only one straight direction or multiple simultaneous historical and evolutionary processes, from multiple courses? It was interesting to study and understand how the change in scientific methodologies directly affected archivists and accelerated the need for massive access to archival fonds and what the Archives of Bosnia and Herzegovina can do to keep pace in today's Digital Era.

Key words:

formats, database, digitization, scanning, access

Izvleček:

Začetki digitalne dobe v Arhivu Bosne in Hercegovine

Namesto naštevanja dobro znanih prednosti, ki jih prinaša digitalizacija arhivskega gradiva na začetku tega prispevka, je raziskovanje tematike avtorja zaneslo v malenkost nepričakovano smer. Katera pot nas je privedla do izpolnitve zahtev, ki jih danes morajo izpolniti arhivi – le ena, neposredna pot ali več vzporednih zgodovinskih in razvojnih procesov? Zanimivo je raziskovati in razumeti, kako so spremembe v znanstveni metodologiji neposredno vplivale na arhiviste ter pospešile potrebo po množičnem dostopu do arhivskih fondov in kako Arhiv Bosne in Hercegovine drži korak s časom digitalne dobe.

Ključne besede:

formati, podatkovne baze, digitalizacija, skeniranje, dostop

1. Introduction words

In his paper titled "Archive Fever: A Freudian Impression", Jacques Derrida (1996, 36) outlines that "...the question of the archive is not, I repeat, a question of the past... but rather a question of the future, the very question of the future, question of a response, of a promise and of a responsibility for tomorrow. The archive: if we want to know what this will have meant, we will only know tomorrow."

Archival science has always been torn between two opposing goals. On the one hand, to fanatically preserve all important documents in human history from disappearance (which inevitably implies a very limited and exclusive access) while on

the other hand, original documents should be presented to as many people as possible, so that the authentic content remains in the collective memory of the nation (and thus expose them to a high risk of damage). For many academics, researchers and students, archives have always been a treasury never fully explored, in which the "*guard*" (i.e. the archivist), has a much different attitude towards the material inside. He primarily seeks to preserve and protect documents they are trying to examine and investigate. The usual practice of sending announcements and recommendations, filling in forms, and disposing of all personal belongings, except computers and pencils, is necessary to ensure, inter alia, the security and longevity of the original archival material.

However, in recent years, technology has radically changed the way in which data is accessed in the Archives.

To mention the advantages of digitization in today's time has become impossible without repetition but all well-known facts. Starting from the fact that now it is possible to search much faster and more thorough, regardless of the search term, name or topic, then efficient access to any archival box from any part of the world at any time of the day, or how it is feasible for multiple researchers to work simultaneously on the same document, etc.

We can say that after quality scan with accompanying metadata run into a proper database, the fun can begin. However, up to this point, it is necessary to carry out the necessary strategic and technical preparations, which in the case of lack of experience in such affairs is not an easy task at all.

2. A less visible path to digital era

Digitization of archives is not only a mere product of overall technological progress of mankind, but also the need arising from evolutionary processes in scientific methodology. Since its foundation, until about twenty years ago, the Archives of Bosnia and Herzegovina was an institution that existed far from the public eye, and was used exclusively by professional researchers and occasionally, ordinary citizens when they needed some important documents they lost. A good archivist was expected to be passive and without any stance, his voice would not be heard, but only to perform the function of a tool that sorts, lists and restores archival records. He was expected to be unobtrusive, invisible and neutral. This approach owes to the positivist approach to science, which marked a good part of the twentieth century.

Such doctrine states that all relevant knowledge is obtained "*a posteriori*," based on the natural laws perceived by our senses, interpreted by reason and logic. Thus, the archives is perceived as the invariable environment inherited by the archivist, whose laws and integrity are not intermingled by either their interpretation or the alteration of the resulting order of origin. Accordingly, the basis of positivism is empiricism. Positivism also considers that the society functions in accordance with general laws, so the introspective and intuitive reasoning is rejected. The archives should be a mirror of a stable and invariable reality.

In such an environment, it was to be expected that archival records were mainly intended for an intellectual elite that should not contaminate it by deduction and critical attitude, but to research the most striking facts only.

The shift from this approach came with the arrival of postmodernism, with elements of deconstructionism and post-structuralism (separating reality from abstract ideas) adding the irony and skepticism towards the postulates that were established by then. The society no longer operates in accordance with the general laws, but it is managed by processes that are constantly changing with the development of new ideas and with

general progress. This method of analysis has shifted the role of an archivist from a passive observer and neutral servant to an active participant with a critical approach, who affects the shaping of reality almost as well as the immediate creator - through the system of collecting materials, estimating their importance, creating inventories, descriptive aids and historical notes.

When records arrive in the archives, it is usually necessary to repackage it into archive boxes, and often review it for possible extraction. The simple act of repacking, for the purpose of long-term preservation, puts the archivist into the very core of the formation of a new matter during the transformation of the unlisted, formless but dynamic pile in the "*mild boredom of order*," as Benjamin Walter (1968) wrote in his essay on arranging of his library.

Suddenly, we are aware of the fact that the very information in the document is not a fixed fact. The archives has become a place where you need to scratch the surface and catch contexts in search of the truth. It is necessary to distinguish for what purpose the document was originally created, by whom, for whom, who saved it and why. More than the immediate bearer of truth, the document is recognized as the backbone of the entire range of meanings that put it into a complex socio-cultural framework. Its truth is not absolute, but contextual. The past created by it comes from discourse with the present.

As the passive role of the archivist changed, the attitude of the whole society had changed too! The archives is no longer the place predominantly designed for a chosen circle of scientists, for more and more "ordinary" citizens are coming. In order to fulfill one of its core tasks (apart from the preservation of materials), to make documents available, it is necessary to radically modernize the exploration and search, and nowadays the most effective way to do this is by - digitization!

3. Activities on document protection - scanning and digitization

Archival records in digital form are becoming increasingly popular and often uncritically favored. It must be acknowledged that their benefits are enormous - incredibly fast and easy access to the requested data, no problems with storage space, easy copy creation, access from anywhere in the world... For the first time, it is possible to protect the original by providing access to a digital surrogate. Apparently, this is the future. But what about the present?

Archivists who have fought so far with decaying paper (because of the high acid content in its composition), with thermo-fax ink that fades and disappears with the flow of time or highly flammable nitrate films, now have to catch up with a new medium that if (or rather when) starts to fail, disappears in the blink of an eye and there is no time for an adequate response. Their tasks are being redefined. The idea of a "digital depot", as an ideal and simple substitute for the classic one, which saves tremendous space and reduces maintenance costs, fades when the conditions to be met are set before it.

When an archivist is considering preserving the document, he must think in advance, if not centuries, then at least decades. Taking into account that software and hardware are out of date in three to five year cycles, there is a question of how to access the stored electronic material in the future? It is a dangerous gap between a variety of hardware supplies dedicated to data storage and unreliable methods for permanent preservation. As a result, production of a large number of digital records has been accelerated, without a clear strategy for their long-term storage. Estimates about the growth of e-data may be difficult to make, but they are without doubt impressive. The lack of universally accepted standards and protocols, proven methodology, and

institutions in Bosnia and Herzegovina that have long-term experience in keeping electronic records, transforms the whole issue into a time bomb. The result is that, for now, this kind of long-term preservation is in a way still experimental and associated with numerous risks. It is not enough to do just regular data migration, but also the migration and emulation of the technology, along with devices and formats in which the information was generated, so that it would still be available on new platforms. In other words, even under the condition that it does not malfunction, the hardware could become unusable within ten years! We are still waiting for the absolute solution, but electronic data are already accumulating around us.

One of the acceptable solutions is to convert a digital record into the simplest possible format, which for its reading does not require sophisticated software, such as ASCII text file or flat file. This approach has universal application, is easy to implement, and it has proved to be financially acceptable. It was proven in practice when migrating large databases from the 1950s and 1960s from punched cards on the magnetic tape and then from the magnetic tape to the optical medium.

The second low-tech approach would be to convert audio, writing and photos into a high-density QR code, which would be split into frames and recorded on a 35mm microfilm tape. Simple open source software would easily convert the scanned frame or series of frames into the original source format. This would take advantage of the durability of microfilm without losing color, sound, or even motion.

These two approaches, or a third, the Archives of BaH can not finalize by itself. Providing the required hardware, recruiting and training an additional number of people and finding the required workspace is in current circumstances difficult to achieve. Fortunately, there are enough companies that this is their primary business and it is needed to plan a budget and choose the best offer.

The Archives of Bosnia and Herzegovina is aware it has to take into account its researchers when planning scanning of archival records. If the result does not meet the needs of the end user, all the effort lost its value. These needs vary from institution to institution, from researcher to researcher; however, there are some basics that are common to all. One of the most important is establishing a mechanism for authentication and integrity of the digitized document. Archivists must protect the authenticity of the document during the course of archival processing, preservation and use (Code of Ethics, 1996). Databases must be protected against unauthorized access, alteration, or deletion. Data safety, integrity and periodic review are important components of maintaining its authenticity.

The conventional document is a material object with its physical and chemical characteristics, which can be directly perceived and analyzed by our senses. Its digitized form does not have the properties of a material object, and whenever used, it must be reworked in the visible and legible form. Accordingly, processing of electronic records is technically more complicated than the processing of its conventional source. The electronic environment has a number of weak points that endanger authentication, and it is necessary to take more complex measures to ensure its integrity.

Before the digitization process began, the characteristics of the original material were also taken into account. These characteristics can be influenced in many ways - fire marks, discolored ink because of moisture (or fire extinguishing, as in the case of BaH Archives), thin paper through which text is visible on both sides, etc. Documents that required laboratory treatment prior to processing are separated in a special depot. This has been done to improve the quality of subsequent digitization and the protection of originals.

When planning the digitization project, the Archives of Bosnia and Herzegovina lacked experience in this field, so it was necessary to consult methodologies applied by other related institutions. A useful source of information was the Internet. Any suggestion, counsel and advice were welcome and carefully analyzed. Activities are divided into planning (database and software selection, work plan, analysis and document preparation) and deployment (scanning and digitization, metadata, quality check, and storage media entry).

Digitizing should be understood not just as the act of scanning an analog document into digital form, but also as a series of activities that result in a digital copy being made available to end users via the Internet or other means for a sustained length of time.

The activities include:

- document identification and selection,
- document preparation (including preservation, access review and screening, locating, selecting, and refiling),
- basic descriptive and technical metadata collection, sufficient to allow retrieval and management of digital copies and to provide basic contextual information for the user,
- safety of the material being digitized,
- digital conversion,
- quality control of digital copies and metadata,
- providing public access to the material,
- providing user-friendly online ordering for reproduction services
- reviewing the existing IT infrastructure to ensure that it can sustain long term growth, storage, and preservation of digital copies and metadata and
- utilizing a management system that ensures the authenticity, reliability, usability and integrity of digital copies.

It was necessary to choose the material for digitization and the Archives decided to start with the two most used – periodical collections and the fonds "*Commission for Religious Affairs in Bosnia and Herzegovina*". The latter fond was chosen for several reasons – a relatively small number of archival boxes (114), frequent use among researchers and has never before been microfilmed or scanned.

As for periodicals, there is a large number of Legal Codes and daily newspapers in the Archives of Bosnia and Herzegovina, dating from 1878 to the present day. This type of material is frequently, almost daily, explored and photographed and never before had been digitized or microfilmed, so the originals have become damaged. This type of paper is of the weakest quality, easy to tear and break and such documents are at the greatest risk of rapid degradation. Initially, scanning was done by a specialized firm, but after the purchase of necessary equipment, the Archives took over the rest of the job.

The digitization process was done by three Epson GT-20000 flatbed A3 scanners, which can scan in resolution to 600 x 1200 dpi in 48-bit color and on book scanner MICROBOX SPIRIT MFT 1534, which allows the fastest transfer of documents up to A3 size to digital format, without needing to be exposed to excessive light and excessive bending.

Scanning standard was 300/600 dpi, TIFF (backup) and 300/150 dpi JPG (for users). When selecting the appropriate resolution, it was attempted to avoid unnecessarily large or small files.

Table 1: Basic standards for scanning in the Archives of Bosnia and Herzegovina:

PRINT MATERIAL - basic standards for scanning archival material in the Archives of Bosnia and Herzegovina														
Source Material to Digital File / Microfilm to Digital File														
Standards for Digital Image Capture														
Material Type	Newspapers			Manuscripts			Books/Documents			Jacket	Maps		Photographs	
Master / Preservation Images														
Target File	Bi-Tonal	greyscale	color	greyscale	color	Bi-Tonal	greyscale	color	color	greyscale	color	color	color	
Format	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF	TIFF	
Resolution/DPI	300/400	300/400	400-600	300	400-600	300	300	400	300	400	600	600	600	
Bit Depth	1-bit	8-bit	24-bit	8-bit	24-bit	1-bit	8-bit	24-bit	8-bit	24-bit	24-bit	24-bit	48-bit	
Compression	None	None	None	None	None	None	None	None	None	None	None	None	None	
Color Mode	-	-	RGB	-	RGB	-	-	RGB	RGB	-	RGB	RGB	RGB	
Criteria	-	Standard	Tabloid, Magazine	-	Standard	-	Standard	If with images	-	-	Standard	Standard	When high quality required	
Secondary / Production Images														
Format	TIFF JPEG2K JPEG	TIFF JPEG2K JPEG	TIFF JPEG2K	TIFF JPEG2K	TIFF JPEG2K	TIFF JPEG2K JPEG	TIFF JPEG2K JPEG	TIFF JPEG2K	TIFF JPEG2K	TIFF JPEG2K	TIFF JPEG2K	TIFF JPEG2K	TIFF JPEG2K	
Resolution/DPI	300	300	400	300	400-600	300	300	400	300	400	400	600	600	
Compression	LZW CCITT-4	LZW		LZW		LZW CCITT-4	LZW							
Image Processing	De-skew De-speckle Crop to edge											De-skew Crop to edge		
Presentation / Access Images														
Format	JPEG/PDF	JPEG/PDF	JPEG/PDF	JPEG	JPEG	JPEG/PDF	JPEG/PDF	JPEG/PDF	JPEG/PDF	JPEG/PDF	JPEG	JPEG	JPEG	
Size														
Thumbnail Images														
Format	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	
Size	150x150	150x150	150x150	150x150	150x150	150x150	150x150	150x150	150x150	150x150	150x150	150x150	150x150	

Multiple pixels up to a certain extent mean more fine details, but if it continues in this direction, the only thing resulting is a sluggish and heavy file that requires too much valuable space and longer processing time. In the case of full-featured maps, 600 dpi is acceptable, 300 dpi for photos and illustrated text, and 300/200 for plain text. It is important to specify a resolution that will capture all relevant details of the original document.

When making any digital surrogate, we took into account that it is a true copy of the original, without any subsequent adjustments and refinements.

The master copy should show the document's appearance at the time of recording and it is subject to the same legal regulations as the original.¹ The working surface should always be kept clean - old paper constantly leaves tracks of dust and a lot of care should be taken in the process of scanning. It is necessary that edges of documents are visible on each side of the scan; cropping is not tolerable. In the case of lightweight paper that easily passes light, it is necessary to put clean white paper as a background. This improves the contrast, the texture is less visible and autofocus on the scanner easier achieves sharpness.

Documents that originally have good contrast, predominantly of a recent date (typewriter, laser printer), whose paper is clean, without stain and/or damage, can be digitized as a 1-bit file with black and white pixels, without visible paper texture; as 8-bit grayscale, and as 24-bit RGB color image. With older documents, which are hard to read, pale and with low contrast, the best results are achieved by 8-bit scans. Most of them have no relevant color information and the 8-bit grayscale variation will be lighter and take up less space than the color version. When color is of the utmost importance for interpreting information or when it is desired to get the most accurate original view, the scanning is done in full color.

On several occasions, the scanned document had a dry stamp on it, which was not seen in digital form at all because of the vertical light of the scanner that is designed to evenly illuminate the flat surface. When only one-sided light was used, the seal

¹ See: *The basic principles of digitization of the documentary heritage available at:* http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/mow/digitization_guidelines_for_web.pdf.

became visible, and the most effective was when the document adjusted that the shadow fell to its bottom.



Picture 1: Austro Hungarian maneuvers near Sarajevo, 1914

Sample of the three most common mistakes during picture scanning .

The picture on the left is partially cropped, slightly rotated and incorrectly illuminated resulting in the reflection on the black surface.

In addition to the scanned material, metadata is also included, enabling identification, management, access, use and protection. Although their entry requires considerable time and effort, they affect the quality of the work and prevent the possibility that the files eventually get lost. In the digital environment, the context of creating a document is easy to change. The information structure of the electronic archives integrates digital records and metadata that are needed to access them.

Durability is achieved by assigning the relevant descriptive, administrative, structural and preservation metadata to all digital objects and to the organization of the entire collection.

Table 2: Types of metadata:

Descriptive Metadata	Describe intellectual content of the source
Administrative Metadata	Contains data on ownership and property rights
Structural Metadata	Describe links between multiple digital files, e.g. file ordering within a single set or series
Technical Metadata	Describe characteristics of the digital file, e.g. type, bit depth, resolution, etc.

Scanned documents are converted to PDF, PDF/A or searchable PDF using the OCR software (Abby Fine Reader), and in that format are available in the reading-room. In addition to documents, inventories and guides are also scanned in searchable PDF format, making it easier and faster to search, both employees and users.

Of the utmost importance is the active interaction with the user community in choosing the most suitable file format. For a certain content consensus already exists (e.g. audio files are most often stored in WAV). The picture master file uses TIFF, RAW and DNG, and recently open-source JPEG2000. On the other hand, in some areas, uniformity is not easy to achieve. This is the case with digital video files, where there are countless formats and a variety of encoding technologies, and every standardization has been slowed down by commercial reasons of the manufacturer. Audiovisual footage is a surrogate reality. Technology allows that anyone who watches and hears a certain record feels how the situation looked and sounded like. Technology creates nothing more but an illusion of reality due its limitation on reproduction. That is the fact one have to bear in mind when planning data transfer or format changing, since such interventions carry

the risk of additional loss of content. These forms (for video) and signals (for sound) are information to be retained. The main technical problem is to transfer digital content from the original media (such as CDs, DVDs, video tapes, DATs, or minidisks) into appropriate files. This procedure, known as "ripping", is characterized by the fact that problems of error control during the transfer may occur, so additional caution and expertise of the involved personnel is needed.

Microfilm scanning has begun in 2016 to simplify and accelerate search, to help researchers, and protect originals. The goal is primarily to get a digital representation that is easily readable and searchable. Because of the very nature of the microfilm, the same quality standards as for photographs or printed material could not be applied. The result was a usable scan, but because of the lack of professional equipment, the project is on hold for now.

4. Storage and Database

The scans are stored on an external HDD, server and on DVD. When selecting an external HDD, it is important that it is resistant to vibrations and minor strokes and was made by a reliable brand. The speed of the input / output is of secondary importance, though the advantage is USB 3.0 standard support.

When it comes to storage media, a relatively short life span is not the main limiting factor for digital preservation. It has been shown that the magnetic media, with proper storage, have a lifespan of 10 to 30 years, and the latest SDD technology promises even more. The problem is in their rapid technical obsolescence. A DVD was chosen as a third spare carrier, which is the most financially acceptable solution, although technologically its use is receding. Out of the total number of disks, about 30% are Verbatim Ultra Life, which meet all the conditions for long-term storage (especially reinforced scratch-resistant protective layer, gold non-corrosive layer and a silver layer that provides maximum readability).

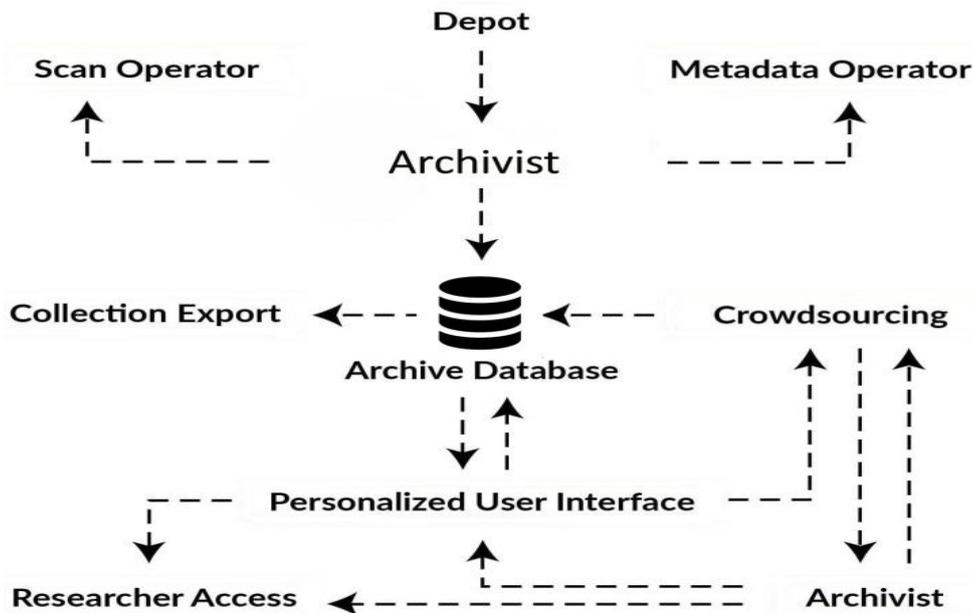
The dynamics of working in this digitization process is slow. One of the reasons is that the migration and conversion requires a certain amount of processing time, but the main reason is a very small number of trained employees, limited amount of equipment, lack of working space and insufficient budget.

In 2018, the expansion of storage space and its modernization will be carried out. In several depots, the Archives installed microclimate regulators, which maintain temperature and humidity within optimal values, which directly extends the lifespan of documents. It is obvious that the Archives of Bosnia and Herzegovina is only just beginning a long and demanding task. Effective management of digital collections is a tremendous job, but there is a great necessity and a will to overcome this challenge.

All above resulted in the first open source database - *Archive Digitization Application 2* or ADA2. Albeit modest in size and features, but as the backbone for future upgrading and improvement. More than just managing the digitization process, ADA2 gives the opportunity to store archival holdings online and to interact with the audience, to export collections for special exhibitions or to any of the many open source catalogue management tools. Archives of Bosnia and Herzegovina chose ADA2 as its first database because it allows to manage and control all the elements in a digitization process at very little or no additional cost. Its workflow covers most typical use cases, including handling newly scanned documents, integrating previously scanned digital collections, with or without metadata, incorporating unprocessed archival collections, supervising crowd-sourced metadata input, and more.

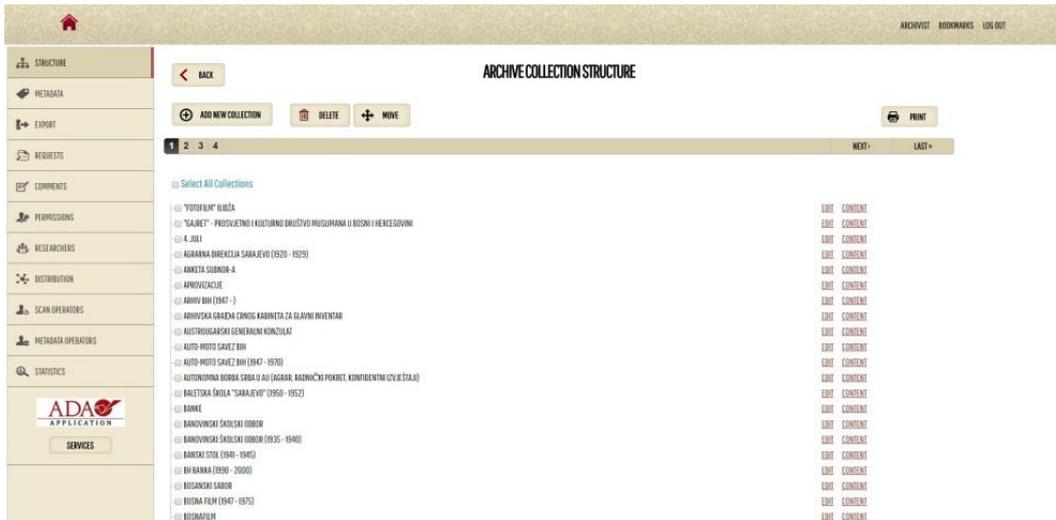
ADA2 can be easily configured, allows file browsing, has a revision system, metadata is customized to Dublin core and has distributed scanning and metadata distribution, i.e. direct communication between all the participants involved in the digitization phase.

ADA2 Workflow

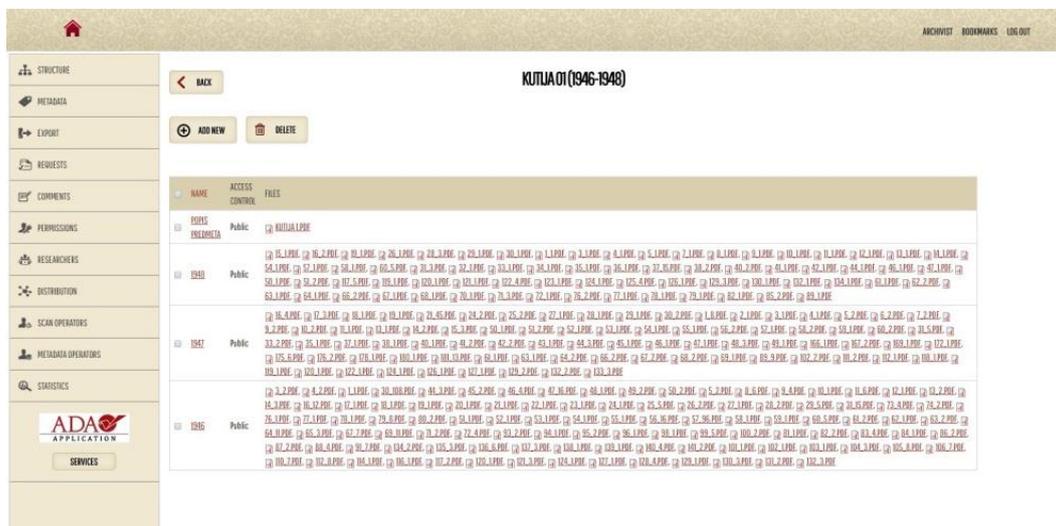


Picture 2: ADA 2 workflow

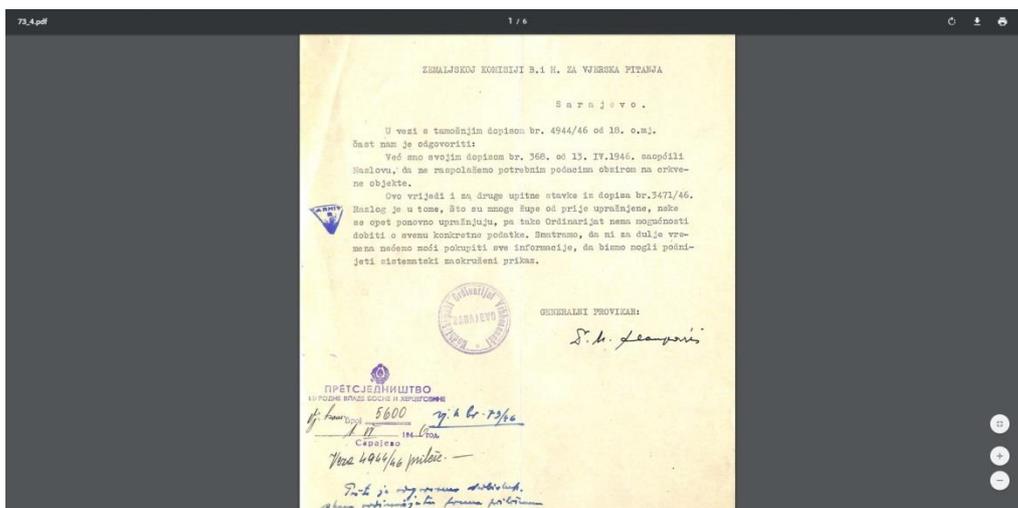
It is built as a Drupal 7 distribution package, containing the Drupal core, a number of contributed community modules, several modules specifically built for it, the ADA2 theme and a pre-defined configuration. The standard ADA2 configuration can be quickly installed on any pHP 5.3x / Mysql 5.x enabled web server, following the common Drupal installation procedure (a minimum installation requires 15 MB; 60 MB is needed for a website with many contributed modules and themes installed). All necessary server side components are included in the installation package. Minimum requirements are Windows XP+, 2Gb RAM, 600Mb disk space and any contemporary browser to access the application. Websites built using just Drupal core (i.e. with no additional, contributed modules) are compatible with, and fully functional, in all modern browsers that support CSS and JavaScript. However, browsers have varying levels of compliance with Internet standards such as CSS 2, so there may be minor variations in appearance. If a browser that does not support JavaScript with Drupal, the functionality will be slightly different. It is also possible to use a browser that does not support CSS with Drupal, but in that case, the site will not look very similar to how it looks in a browser that does support CSS. Additional advanced features, requiring the server level installation of third party open source software are supported by detailed documentation. Database can serve as a temporary document repository, offering controls for metadata mapping. The search engine provides archives users with keyword, category and advanced search, and gives archives managers a multilayer overview of the archival structure, as well as user and archival statistics. Each individual document is available for review, and zoom, rotation, download and printing is allowed (pic. 5).



Picture 3: ADA2 main Archival structure



Picture 4: Inside archival box



Picture 5: Review of an individual document, with control commands

POVZETEK

ZAČETKI DIGITALNE DOBE V ARHIVU BOSNE IN HERCEGOVINE

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Arhivisti se pri svojih nalogah soočajo z mnogimi novimi izzivi. Medtem ko se nosilci arhivskega gradiva spreminjajo, ostajajo arhivske naloge in njihova pomembnost za družbo enaki. Digitalizacija je več kot le varovanje arhivskega gradiva – raziskovalcem ponuja takojšen dostop do gradiva, kar je bilo v tradicionalnem okolju nepredstavljivo.

Kvaliteten prehod na digitalni arhiv v družbi Bosne in Hercegovine, ki je vpeta v različne ekonomsko-politične prioritete, ni lahka naloga. Še zlasti zato, ker ne obstajajo definirane norme za njeno izvedbo. Na začetku je potrebno izbrati pravo strategijo, da vloženi napor ob zaključku niso bili zaman. Arhiv Bosne in Hercegovine se je zanašal na izkušnje večinoma tujih institucij, ki so že bile vključene v takšne projekte in so sprejele svoje standarde in navodila (z nekaterimi manjšimi popravki).

Zelo pomembno je posvečati pozornost kompatibilnosti prevzetega sistema obdelave v širšem tehnološkem konceptu – za ohranjanje avtentičnosti dokumentov, migracijo podatkov in zadoščanje potrebam uporabnikov. Pred pričetkom je proces potrebno podrobno analizirati, enaka temeljitost pa mora biti prisotna tudi pri skeniranju, vnosu metapodatkov in izbiri podatkovne baze. Sprejeta strategija temelji na manj obsežni digitalizaciji v arhivski ustanovi, z uporabo lastnih virov, najemom ponudnikov, specializiranih za masovno digitalizacijo, za obsežnejše fonde ter odprtokodno podatkovno zbirko, ki trenutno zadošča vsem potrebam za pregledovanje in raziskovanje.

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