

**Jelena Đurović**

Former director of the National library of Montenegro Đurđe Crnojević, Montenegro

## DIGITISATION OF LIBRARY RESOURCES IN MONTENEGRO

**Abstract:** The purpose of this paper is to provide an assessment of the current state of digitisation in Montenegrin libraries, which are important memory institutions responsible for preserving cultural heritage. Additionally, this paper offers recommendations for future work in this area. The introduction provides an overview of international initiatives, recommendations and present trends in the field of digital libraries and the digitisation of cultural heritage. The research methodology used in this study includes a tailor-made survey and an analysis of the web pages and annual work reports of the libraries. The study analyses digitisation programmes and projects, selection criteria for library materials, applied techniques and standards for the digitisation process and ways of using and preserving digital materials. The analysis of the gathered data provides an overview that should help libraries and decision-makers to identify obstacles and find optimal solutions to overcome challenges in digitising their rich resources. The paper concludes with recommendations aimed at contributing to the development of digitisation policies for libraries and other cultural heritage institutions. The ultimate goal is for these institutions to take on leading roles in the processes of building information and knowledge-based societies.

**Keywords:** libraries, cultural heritage, digitisation, research

**Sažetak: Digitalizacija biblioteka u Crnoj Gori.** Cilj ovog rada je da prikaže stanje digitalizacije biblioteka u Crnoj Gori kao važnog segmenta memorijskih institucija koje čuvaju kulturnu baštinu, i da pruži preporuke za budući rad. U uvodnom dijelu se prezentiraju međunarodne inicijative, preporuke i aktuelni trendovi koji se sprovode u cilju izgradnje digitalnih biblioteka i digitalizacije kulturne baštine uopšte. Metodologija u istraživanju stanja digitalizacije biblioteka u Crnoj Gori je primijenjena putem namjenskog upitnika, kao i analize dostupnih web stranica i godišnjih izvještaja o radu. Analizirani su programi i projekti digitalizacije, na koji način se vrši selekcija, odnosno odabir građe za digitalizaciju, zatim koje tehnike i standarde biblioteke koriste u procesima digitalizacije, kao i načini na koje se koristi i čuva digitalizovana građa. Na osnovu dostupnih pokazatelja urađena je analiza stanja koja treba da pomogne bibliotekama i donosiocima odluka da identifikuju probleme i pronađu prava rješenja u savladavanju izazova u digitalizaciji svojih bogatih resursa. Na kraju rad donosi nekoliko zaključaka i preporuka koji treba da doprinesu politikama digitalizacije biblioteka i uopšte kulturne baštine u Crnoj Gori kako bi biblioteke i ostale memorijske ustanove i institucije kulture dobile novu izmijenjenu i lidersku ulogu u procesima izgradnje informacionog društva i društva znanja.

**Ključne riječi:** biblioteke, kulturna baština, digitalizacija, istraživanje

### 1. Introduction

In recent decades, the digitisation of cultural heritage has become a key ongoing practice, particularly with regard to handwritten and printed cultural heritage materials kept by libraries worldwide. Libraries are rightly considered institutions of excellence due to their highly-standardised organisational structure on the international level. This structure enables rapid and comprehensive implementation of information technology, which resulted in the creation and publication of early digital collections back in the

1980s. The development of digital strategies and continually evolving standards in terms of technology and formats, as well as processing, access and storage practices related to digitised material has contributed to the vast expansion of digital collections. As a result, a growing amount of cultural heritage content is becoming available online, facilitating overall access to the knowledge and information integrated into the items collected and preserved by libraries worldwide. The increasing demand for networked content from culture and memory institutions, such as libraries, archives, museums and galleries, as well as the need for their concordant presentation, led to the creation of Europeana – the Pan-European digital library, archive and museum. Europeana [1] is an exclusive place in the cyberspace of integrated cultural heritage that provides an exceptional opportunity to position our cultural heritage within the European and worldwide framework.

The *Digitisation of Library Resources in Montenegro* is a research project carried out as part of a wider initiative *Digitisation in Montenegro: History, Current State and Future Perspectives* by the Montenegrin Academy of Sciences and Arts (CANU). The project involved empirical research and analysis of collected information on the state of digitisation in Montenegrin libraries, as well as recommendations for further improvement. This undertaking, which took place between 2019 and 2020, represents the first comprehensive research of digitisation practices in some of the country's most significant libraries that house the largest and most valuable part of our cultural and intellectual heritage.

The journey towards digitisation began by replacing analogue card indexes and current and retrospective bibliographies (as secondary sources of information) with digital duplicates, ultimately leading to the establishment of an Online Public Access Catalogue (OPAC) in the 1980s. As a completely standardised and highly-structured library catalogue, consisting of bibliographic records created following the same principle, it was highly suitable for the application of the MARC standard [2] (Machine-Readable Cataloguing). This standard is a set of machine-readable formats in use in American libraries since 1968 and was the standard of choice for national and other significant libraries at the onset of the transition to digital catalogues, mainly through retroconversion. As a result, bibliographic data on millions of documents became available to a worldwide audience. A new version of the format, MARC 21, has become one of the most frequently-used standards, along with UNIMARC [3], which is predominately applied in European libraries. In the 1990s, the Library of Congress in Washington launched American Memory, a pilot project of the National Digital Library. The first collections of the library were selected and digitised, marking the beginning of the digitisation of primary sources, i.e. hypertext documents. The concept of presenting digital documents with accompanying metadata made them readable and searchable.

Preserving, enriching and expanding the knowledge stored in cultural heritage, which is mainly kept in libraries, museums and archives, is of paramount importance. UNESCO recognised this by putting in place the obligation to preserve and protect it. Its IFAP [4] (Information for All) programme has been in place since 2001, providing a platform which aims to provide information and protect documented knowledge. UNESCO's MOW [5] (Memory of the World) programme, launched in 1992, aims to preserve and make documented heritage widely available. The European Union has also made the online availability of member states' cultural assets a long-term priority to promote and preserve cultural heritage [6]. In 2011, the European Commission issued the last of a series of recommendations on the digitisation of cultural assets and digital preservation [7], inviting and encouraging all member states to use new technology for this purpose. The Digital Libraries [8] initiative of the European Commission, part of the i2010 programme, aimed to use technological advancements and new business

models to the benefit of Europe's rich heritage, characterised by multiculturalism and multilingualism.

All of this led to the establishment of the European Digital Library (EDL, 2006–2008), which evolved from The European Library [9] (TEL, 2004–2016), a network of interconnected electronic catalogues of 47 national libraries, which included the COBISS.CG Mutual Catalogue of Montenegro. Several projects and initiatives carried out over the last three decades, including Bibliotheca Universalis [10] (1995-1999), World Digital Library [11] (WDL, 2008), Telematics for Libraries [12] (1990-2002), PULMAN [13] (2001-2003), MINERVA [14] (2006-2009), SEEDI [15] (2003- ), OPEN GLAM [16] (Open Knowledge Foundation Initiative, 2012) and LODLAM [17] (2011- ), have contributed to the vast expansion of digital content and development of digital libraries. This progress has resulted in the creation of networks with integrated, empowered and evolved infrastructure, particularly in architectural, technological, social, epistemological and ethical terms [18]. Modern libraries are taking on new roles to meet the expectations of the current age. Since 2008, the Europeana Portal has been the most significant platform for displaying digitised cultural heritage. Europeana is a Pan-European digital library, archive and museum [19] that explores new conceptual and technological possibilities for content presentation, promotion and reuse. The portal is the continuation and expansion of the EDL project, which incorporates different experiences gained from various European cultural heritage digitisation projects undertaken since the mid-1990s.

## 2. An Overview of Digitisation Practices in Montenegrin Libraries

This brief study provides an overview of the progress of Montenegrin libraries from the traditional library to the (legally-required) digital library [20] towards the end of the 2020s, based on research data.

**Research Methodology.** The research methodology involved a comprehensive survey modelled after UNESCO and IFLA surveys [21], adapted to local needs and conditions. The survey consisted of 67 questions grouped into 15 thematic units and was sent to a total of 42 addresses, including the Đurđe Crnojević National Library of Montenegro, Central University Library and 11 faculty libraries of the University of Montenegro, Library of the Faculty of the Montenegrin Language and Literature, Library of the Donja Gorica University, all public (community, municipal) libraries in Montenegro (21) and special libraries, such as the Montenegrin Library for the Visually Impaired, Library Section of the National Museum of Montenegro, Library of the Historical Institute of Montenegro, Library of the Montenegrin Academy of Sciences and Arts, Library of the Maritime Museum in Kotor and Library of the Parliament of Montenegro. A survey regarding current digitisation initiatives and support measures was sent to the Cultural Heritage Directorate of the Ministry of Culture of Montenegro to gain insight into their policies regarding the digitisation of cultural heritage but there was no response.

The Montenegrin Academy of Sciences and Arts received 17 completed surveys before the set deadline from the Central University Library of Montenegro in Podgorica, Library of the Montenegrin Academy of Sciences and Arts in Podgorica, Library for the Visually Impaired in Podgorica, Library of the Faculty of the Montenegrin Language and Literature in Cetinje, Library of the Montenegrin Maritime Museum in Kotor, Library of the Historical Institute of Montenegro, Library Section of the National Museum of Montenegro in Cetinje, Library of the Faculty of Law of the University of

Montenegro in Podgorica, Library of Natural Sciences, Mathematics and Technology of the University of Montenegro, Radosav Ljumović Public Library in Podgorica, Njegoš Public Library in Nikšić, Stevan Samardžić Public Library in Pljevlja, Njegoš Public Library and Reading Room in Cetinje, Budva Public Library, City Library and Reading Room within the Nikola Đurković Cultural Centre in Kotor, Public Library within the Nenad Rakočević Cultural Centre in Mojkovac and Public Library within the Cultural Centre of Kolašin, bringing up the survey participation rate up to 40%.

Out of the 42 Montenegrin libraries surveyed, only 7 are currently involved in digitisation projects and programmes, which amounts to 16.66%. Among those 7 libraries are the National Library, the Central University Library, three special libraries and two public (community, municipal) libraries. Two of them, the Đurđe Crnojević National Library of Montenegro in Cetinje and Herceg Novi Public Library and Reading Room, did not fill out the survey, which means they did not directly contribute to the research, while the Library of the Historical Institute of Montenegro provided scant data. As a result, we had to rely on data from their web pages, annual reports and printed and electronic publications. Therefore, all the available information relevant to the research was included in this paper along with the survey responses.

**Digitisation Programmes and their Origins.** Digitisation efforts in Montenegrin libraries were initiated by the Đurđe Crnojević National Library of Montenegro (NBCG), which has been continuously digitising its collections since 2006. A great portion of this paper details the current state and achievements of digitisation programmes and processes implemented by this library, which is the largest and most significant one in the country. After completing preparatory activities, the National Library began developing its digital library in compliance with international guidelines and national policies a decade ago. In 2006, the second stage of the Virtual Library of Montenegro project was designed (by T. Seljak and J. Đurović) [22, 23], and its implementation began the following year. A well-designed and informative library website ([www.cnb.cg.yu](http://www.cnb.cg.yu)) was launched in 2006, and the domain was switched to [www.cnb.me](http://www.cnb.me) in 2008. The website was revamped in 2016, resulting in improved content, design and overall presentation and is now located at a new address ([www.nb-cg.me](http://www.nb-cg.me)).

In 2006, the National Library of Montenegro established the COBISS centre of the country aiming to create a library and information system that would feature a shared catalogue of bibliographic data from member libraries. The project received financial and logistical support from IZUM in Maribor (Slovenia). As a result, the National Library and other participating libraries became members of the COBISS.Net library network, obtaining the right to exchange bibliographic data with other member libraries in the region without compensation. The National Library's digital catalogue was integrated into The European Library (TEL) in 2009 and the WorldCat in 2012, after signing an agreement with OCLC, Ohio, USA. In 2008, the Microfilming and Digitisation Centre was founded through a donation-funded project. In 2015, the state-funded Montenegro Web Archive project was launched to download and preserve the content published on the Montenegrin internet domain. Between 2016 and 2017, the National Library collected and stored electronic publications related to the country's cultural heritage (electronic legal deposit for archival purposes), which were available at [www.webarhiv.me](http://www.webarhiv.me). By the end of 2017, the Montenegro Web Archive had 167 entries with a total of 5,626 site visits. However, since 2018, no new content has been archived, and the webpage has been unavailable. According to available reports, it appears that this legally mandatory practice (legal deposit of electronic publications) has been discontinued [24].

The development of project documentation for the new Montenegrin Digital Library platform ([www.dlib.me](http://www.dlib.me)) began in 2016, with the project task being revised and completed in 2017. However, by the end of the following year, the implementation had not yet begun.

The National Library began its microfilming and digitisation efforts with the earliest Montenegrin periodical, *Glas Crnogorca*. Initially, a hybrid approach was used by not digitising directly paper copies of the periodical, but microfilmed copies. However, the workflow was later revised, so the original paper copies began to be digitised, in order to improve the quality of the output. In 2012, a DVD of the periodical was published in 10,000 copies. This title was also the first periodical to be included in the new collection – Montenegrin Newspapers and Magazines, which continues to expand to this day. In 2010, the digitisation efforts expanded to early printed books, with five titles of incunabula and post-incunabula from the National Library collections being digitised thanks to donations, which took place in the Vatican, more precisely at the facilities of the Embassy of Montenegro. This marked the creation of the continually expanding Early and Rare Book Collection.

In 2011, the National Library of Montenegro embarked on a project to create the Digital Retrospective Montenegrin Bibliography 1494-1994. The project, which was completed the following year, included scanning 32 printed volumes with approximately 230,000 bibliographic entries and creating a searchable database accessible at [www.nbcg-digitalnabibliografija.me](http://www.nbcg-digitalnabibliografija.me). The search engine is linked to the database and the scanned material. The purpose of the project was to enable online access to an easily-searchable integrated corpus of elements. The database software was outsourced.

The project was presented at the XI International NCD conference *New Technologies and Standards: Digitisation of Cultural Heritage* on 20 and 21 September 2012 in Belgrade [25] and later also in a few libraries throughout Montenegro. It was well-received by international experts who praised it as the first and perhaps only such initiative in the region and beyond, which should be used as an example of best practices in the establishment of online national bibliographies.

In 2013, on the occasion of the 200th anniversary of the birth of Petar II Petrović Njegoš, the National Library launched the Njegoš Digital Collection project. This project aimed to showcase the most important editions of Njegoš's works, their translations into foreign languages, and also the works about Njegoš by other authors to a broad cultural and scientific community and the general audience. The collection contained manuscripts, letters, posters, derivative works, musical adaptations, stage plays and films. Additionally, it included a comprehensive bibliography of Njegoš's works and a large corpus of bibliographic data on the author and his literary journey. The collection was designed to enable the audience to explore the author's works and personality. The collection is available at [www.petarpetrovic2nbcg.me](http://www.petarpetrovic2nbcg.me). The software for this project was also outsourced.

The project was initially presented at the IX SEEDI (South-Eastern European Digitisation Initiative) Conference on the Digitisation of Scientific and Cultural Heritage [26], which was held on 15 and 16 May 2014 in Belgrade as part of the Central-European Initiative (CEI). The project was well-received and praised as a rare example of the integration of diverse materials from different types of cultural heritage institutions. The project output was regarded as highly educational, highlighting its potential use in school and university classes. The project also received positive reviews at several other conferences throughout the country, as well as in the media. As an illustrative example, the National and University Library of Slovenia initiated a similar

project, *Cankarjevo vesolje*, creating a portal dedicated to Ivan Cankar [27] four years later (in 2017).

In 2014, a multivolume publication *Portreti (Portraits)* by Dušan Martinović, containing bio-bibliographic data on prominent individuals who had an impact on the culture and history of Montenegro, was digitised. The digitisation of the Legacy Library of Radivoj Lola Đukić was carried out in 2015. The project titled *Digital Monumenta Montenegrina* was launched in 2017 by digitising a multivolume publication compiled by Vojislav D. Nikčević. The collection of digitised posters and postcards was also created, and a portion of it was submitted to Europeana in 2016. In 2017, 300 old photographs were digitised as part of the Montenegrin Photographs in Europeana project, followed by the manuscript legacy of Sima Popović and 50 pages of an old manuscript titled *Ljekaruše* (a collection of handwritten prescriptions and treatment instructions) in 2018, as part of the *Melem na ranu (Remedies of the Past)* project. The pages of the manuscript were transliterated and translated into the contemporary Montenegrin language.

In 2017, the first phase of a major project – the Central Catalogue and Digital Collection of Handwritten Books in Montenegro was launched. The project proposal had been submitted to the Ministry of Culture of Montenegro the year before, as part of the Cultural Asset Protection and Preservation Programme. The project aimed to map Cyrillic, Latin and Oriental handwritten books that are held in Montenegrin public and religious institutions or are privately owned and perform their conservation, digitisation and metadata processing to develop an online register and create an online collection. However, the Ministry of Culture did not approve funding for the continuation of the project in 2019.

Digitisation programmes are implemented based on yearly work plans and granted project funds. With the aim of ensuring adequate, systematic and rational development of written cultural heritage digitisation and encouraging swift and efficient digitisation and digital transformation of Montenegrin libraries, the National Library prompted the Ministry of Culture to develop the National Library Digitisation Programme [28], as an important strategic document, towards the end of 2008. In 2014, the document was revised to explicitly define important aims and activities, such as creating quality digital collections to protect and preserve the material and improve its availability and use, enabling access to digital collections following rules and regulations, offering new and improved user experiences, storing digital collections according to an organised management system that guarantees continuous protection and availability and completing existing library holdings. The National Programme also envisioned the creation of a national platform for the digitisation of Montenegrin cultural heritage, in which all memory institutions would participate. However, to this day, the document has not been finalised (legally and financially) and put into effect.

The data from **the Central University Library of the University of Montenegro (CUBCG)** is available on the University of Montenegro website ([www.ucg.ac.me/rektorat/biblioteka](http://www.ucg.ac.me/rektorat/biblioteka)). The library began working on digitisation in 2013 by creating a repository of doctoral theses (E-teze) as part of the University of Montenegro Digital Archive (PHAIDRA). The work on the repository was initiated as part of the TEMPUS project titled New Library Services at Western Balkan Universities (2009–2012). However, the library does not have a digitisation plan, strategy or any other similar document related to its collections or the collections of faculty libraries within the University.

The **Herceg Novi City Library and Reading Room (GBHN)** was among the first libraries to launch a website and start digitising the material in the mid-2000s. In

2013, the institution used its own equipment to launch the digital library, which is available at the new address ([www.bibliotekahercegnovi.co.me](http://www.bibliotekahercegnovi.co.me)). The library boasts the following digital collections: Early and Rare Books from the Regional Collection and Early Newspapers and Magazines. The library carries out digitisation through long-lasting projects and according to yearly work plans. The digitised collection of periodicals published in Boka Kotorska is the most comprehensive one in the country.

The **Budva Public Library (NBBD)** has had a webpage ([www.nbbd.me](http://www.nbbd.me)) since 2018. Scanning of local newspapers began in 2005 and 2006, and after a long break, it continued in 2018, when the digital library was launched in line with contemporary standards. It is available at [digital.nbbd.me](http://digital.nbbd.me). Digitisation is carried out based on a three-year plan and yearly work plans. So far, the following collections have been formed (with subcollections): Books, Newspapers and Magazines, Manuscripts and Posters.

The **Library of the Maritime Museum in Kotor (BPM)** does not have a webpage, but the museum does ([www.museummaritimum.com](http://www.museummaritimum.com)). The library has been working on digitising its collections since 2018. However, it does not have an official digitisation programme to serve as a guideline for the selection, management, use and preservation of the collections, and the digitised material is not yet available online.

The **Montenegrin Library for the Visually Impaired (BZSCG)** has a website ([www.bzscg.net](http://www.bzscg.net)). It has been working on the digitisation of books and periodicals based on yearly plans since 2007. It is also particularly dedicated to digitising audio recordings suitable for its specific user profile and publishing books in the DAISY format. The digitised material is not available online.

The **Library of the Historical Institute of Montenegro (BIICG)** has been working on digitisation since 2008. Its digital collections are available on the University of Montenegro website ([www.ucg.ac.me/ii](http://www.ucg.ac.me/ii)): *Istorijski zapisi* (a magazine – the collection contains all issues since 1927 and a bibliography), Special Editions and Rare Periodicals. There is no digitisation programme.

### 3. Selection of the Materials to be Digitised

When selecting the materials for digitisation, most libraries apply criteria such as historical and cultural value, age, the need for physical protection, long-term preservation and ease of access. The NBCG, CUBCG and BIICG also consider the scientific value of the publications. However, commercial use is not yet included in the selection criteria by any library.

**Cooperation.** While the CUBCG and BPM responded negatively to the question of whether they cooperate with other institutions or organisations in respect of digitisation, the NBCG, NBBD, GBHN, BZSCG and BIICG reported that they do work together with other libraries, museums and archives on digitised content, both domestically and internationally. These collaborations do not only involve digital content creation, but also the procurement of goods and services.

**Digitisation Personnel.** The NBCG has a Digitisation Department staffed with three full-time employees. However, outside experts are also occasionally contracted. According to the Job Classification Rulebook available on the GBHN website, this library has one full-time digitisation expert, and it also hires external contractors as needed. The CUBCG also has one in-house digitisation expert but no external contractors. The NBBD has one full-time digitisation expert and employs an average of two external contractors per year. The BPM hires two full-time digitisation experts and



no external contractors. The BZCG has five full-time experts and hires an average of seven to eight external contractors. The BIICG has one full-time expert.

**Investments into Digitisation.** The NBBB and BZCG provided information on the funding sources (budget, donations, projects) and average yearly funds. The NBBB allocates around EUR 6,000 annually from its budget, which is approximately half of what they spend on the procurement of materials in paper format. The BZCG allocates between EUR 20,000 and EUR 25,000 per year, which adds up to a total of EUR 200,000 to this day. It was not possible to determine the exact amount of funding for digitisation from the available financial reports of the other libraries.

**Digitisation Methodology.** When asked whether digitisation is done in-house, most libraries responded affirmatively, stating that it is carried out by the employees using original publications. The NBCG, NBBB and GBHN also hire outside contractors.

**Formats of the Digitised Materials.** This portion of the survey addressed resolution, formats, compression and image processing, as well as optical character recognition (OCR) programmes for textual materials. Most libraries produce colour scans in at least 300 dpi with JPG being the most commonly used format. The NBBB also uses other formats, such as TIFF, JPEG 2000 and BMP, while the BZCG uses MP3, DAISY, MSM and Word formats. PDFs are mainly used for compression. The image processing programmes used are Adobe Illustrator and Adobe Photoshop, and Abby Fine Reader. Libraries listed different reasons for the use OCR. For instance, the CUBCG and NBBB use it for automatic indexing and screen reading, and for reading the content of digitised objects, while the BPM uses it only for screen reading.

**Accessing the Digitised Material.** The libraries do not have special workstations for accessing restricted digitised publications (due to copyright and related rights), mainly because they don't have any such publications that could only be used within the library premises.

**Digital Objects.** The survey included questions about whether the digitised objects are individual or part of a larger collection, as well as which types of materials are digitised. The results showed that the majority of objects are part of collections. However, due to differences in tracking methodology across libraries (some of them track the number of complete objects, i.e. all scanned pages of a title with pertaining metadata, while others track individual scans or individual titles or years for periodicals), it was difficult to provide a precise tabular presentation of the data. Old periodicals and books are the most commonly digitised materials, followed by manuscripts, posters, photographs, and postcards. For example, the NBCG produces around 12,000 scans per year, meaning that it has produced a total of 120,507 scans in the past 10 years (data extracted and summed up from work reports). The current Digital NBCG contains 13 periodical titles (3,290 issues), 67 books, 76 manuscripts and documents, 32 posters, 544 photographs and postcards, 45 AV recordings and 10 visual arts posters. The NBBB digitises around 500 items per year (for example, 500 issues of periodical publications). According to available reports, between 2015 and 2018, the GBHN scanned, processed and published around 2,200 pages per year. The CUBCG digitised 191 doctoral theses, which is 54.6% of the total number of theses defended at the UCG. The BZSCG digitised 65% of its book collection and 93% of its collection of periodicals. Its yearly average amounts to around 100 items. The BIICG did not list data on the yearly average and the total number of digitised items.



**Catalogues of Digitised Materials.** With the exception of the BPM, all libraries include catalogue records for digitised materials in their main catalogues. These electronic records are available online. They are in line with existing standards [29].

**Access to Digital Objects.** All libraries, except the Library of the Maritime Museum, make their digitised materials available online.

**Distribution and Copyright.** The NBCG, NBBD, CUBCG and GBHN digitise materials that are in open access or are copyrighted if appropriate permits and approvals by copyright owners are obtained. The libraries own the rights to the digitised materials and have rules for their use.

**Products Created from Digitised Materials.** The NBCG published a DVD of *Glas Crnogorca*, the most important early Montenegrin periodical, containing all issues found in the country and abroad. This DVD is the most complete collection of the issues of this periodical to date.

**Long-term Preservation.** None of the surveyed libraries mentioned having specific digitised material preservation policies, and none were found on the websites of other libraries. All libraries other than the GBHN and BZSCG still provide access to the original materials even though digital copies are available. Some libraries migrate their data to technologically newer versions of platforms (the NBCG and CUBCG do so for entire collections and the BZSCG only for selected items). The question of whether the collections are stored in the digital archives in line with international standards (ISO, ISO/IEC) revealed that the NBCG, CUBCG and NBBD have their own digital archives.

**Future Development.** All surveyed libraries expressed an interest in making their digital collections available in major collections (national and international) and would approve the establishment of connections between the major collections and their own websites to allow access to their digital objects. The NBCG is currently the only library that has made a portion of its digital collections available on Europeana, the European platform for cultural heritage digitisation (in 2016).

**Additional Information.** Several libraries provided additional information at the end of the survey where they could comment on anything of interest to them not previously addressed. For instance, the Kotor City Library and Reading Room acquired a scanner and the appropriate software but has yet to use them. The Pljevlja Public Library applied for funding granted by the Ministry of Culture as part of the Cultural Heritage Protection and Preservation Programme to purchase digitisation equipment twice but was denied both times. The Njegoš Public Library in Nikšić cited inadequate resources as a barrier to undertaking the digitisation process. Finally, the Library of Natural Sciences, Mathematics, and Technology of the University of Montenegro emphasized the need for a wider university-level strategy for digitisation.

#### 4. Conclusions

All the libraries surveyed as part of this research have confirmed that they possess materials and collections that should be preserved for future generations. The libraries that have yet to start digitising their holdings have expressed the readiness to engage in this process, which is a good starting point. However, they should approach it in a planned and systematic manner and as soon as possible.

The libraries that are already digitising their collections apply appropriate selection criteria, use standardised formats and respect the legal framework regarding copyright. However, digitisation in Montenegrin libraries is still in its infancy, as only a few libraries are working on it, and the available technology for material processing and presentation, as well as the necessary employee knowledge and skills, are lacking. Digital access to the collections is limited, they are not well protected against unforeseen events and there aren't many promotion activities dealing with digitised material. Local, national, and international cooperation is also not sufficiently developed.

None of the libraries currently working on digitisation have a digitisation strategy, and they rely on yearly work programmes instead. Only a few of them have three-year digitisation plans. Additionally, the libraries don't have any policies or strategies for preserving born-digital heritage. It is worth noting that the website of the Ministry of Culture of Montenegro, which is in charge of cultural heritage and memory institutions, does not contain a digitisation policy for Montenegrin cultural heritage.

Overall, analysing the data collected by the research survey was complicated because Montenegrin libraries do not keep track of statistical data according to widely accepted ISO standards [30] and technical reports. This made it impossible to create schematic overviews for different research areas. Consequently, Montenegrin libraries cannot be positioned within international library statistics as the data is not comparable.

## 5. Recommendations

Based on the relevant literature [31] and foreign examples of good practices and recommendations [32, 33], as well as the research results, analysis and conclusions, a list of recommendations has been created for libraries and policymakers on national and local levels to support immediate actions for midterm planning and the adoption of long-term strategies in the area of digitisation. The recommendations are as follows:

1. Establish a legal and technological framework that enables Montenegrin memory institutions, such as libraries, archives, museums and galleries, not encompassed by the research to start digitising their collections, as they are valuable sources of cultural heritage;
2. Create guidelines for policymakers, library managers and technical teams;
3. Define clear selection criteria for digitisation;
4. Define technical requirements and methods of their implementation regarding conversion, quality control and organisation and management of collections;
5. Abide by the legal framework related to copyright, authenticity, intellectual property and the norms regulating legal deposit;
6. Plan for human resources, including management in the new circumstances, capacity building, training and so on;
7. Implement web services and develop digital services to meet the growing needs of remote users;
8. Develop local and national integrated platforms for the presentation of digitised cultural heritage;
9. Participate in international projects and platforms and make copyright-free content available at Europeana;
10. Provide online access to as much non-commercial content and jeopardised material stored on old formats inaccessible to users as possible;
11. Protect materials and collections that are vulnerable due to inadequate storage conditions in most libraries to prevent the risk of loss or destruction;

12. Preserve the digitised content and create digital archives and repositories that require adequate technology and technical support to ensure consistent digital archive management.

The general recommendation is for the Government of Montenegro, specifically the Ministry of Culture, to establish a national body for digitisation and digital cultural heritage preservation. This body would work not only for the benefit of libraries but also other memory institutions, archives, museums and galleries [34]. It would have the following roles:

- Researching the current state of digitisation and future needs;
- Harmonising strategies at the national and local level and prioritising digitisation projects;
- Coordinating the work of different institutions on digitisation programmes and projects in line with the rational use of human resources and available technology;
- Keeping up with contemporary trends, standards and best practices while implementing solutions for digitisation, processing, preservation, migration and presentation of the national cultural heritage;
- Encouraging participation in international projects and activities;
- Developing appropriate and efficient training to improve employee capacities;
- Participating in the improvement of the legal framework to ensure the implementation of adequate policies when it comes to cultural heritage digitisation;
- Establishing the national aggregator for Europeana.

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