

**ПОСЕБНЕ ЗБИРКЕ
КАО ПРЕДМЕТ БАШТИЊЕЊА
И ЊИХОВА ЗАШТИТА**

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CULTURAL HERITAGE RESOURCE PRESERVATION AND ACCESSIBILITY

Music Material at Digital Collections of the National and University Library in Zagreb

Abstract

Special collections within national libraries are comprised of the material that has significant cultural value. This is also the case with the Music Collection (*Zbirka muzikalija i audiomaterijala*) of the National and University Library in Zagreb (*Nacionalna i sveučilišna knjižnica u Zagrebu*). In the context of the heritage as a whole, it is important to mention such material as notated music as well as the sound representations of music. The notated music collections, particularly music manuscripts, are a unique and irreplaceable resource for the research of music, including the collections of sound recordings that bring together the so-called historical recordings and the more recent publications of the national music production. Considering the specific manners of distribution and different media releases, there are numerous challenges regarding the preservation of sound collections. However, it seems that there is not enough community awareness on the importance of preserving that kind of material. Hence, it is the obligation of institutions, especially those with valuable heritage resources, to prioritize the preservation of sound recordings, in accordance with the recent guidelines, standards and best practices for long-term preservation. The National and University Library in Zagreb (NUL) continuously works on the preservation of its holdings, especially through the digitisation of different types of material, particularly music manuscripts and historical sound recordings. In addition, the digital optical media have recently become the main focus of the Library, due to their instability in the context of long-term preservation. The Library launched a project of the preservation of the available content on compact discs. With the development of the digital content management system The NUL Digital Collections (*Digitalne zbirke NSK*), presenting and publishing the most valuable part of the material from the Music Collection online became possible.

Keywords: music, digital libraries, music collections, digitising of music collections, sound recordings, notated music, music manuscripts, digital collections, National and University Library in Zagreb

INTRODUCTION

Institutions such as archives, libraries and museums are often considered to be the guardians of recorded information and mediators with a role in communicating and disseminating that information to a wide range of users. National libraries have the task to collect, store, preserve, but also to present valuable heritage material to the general public. The national library special collections store material that has a significant cultural value. In the context of musical heritage in general, graphic representations of music in the form of prints and music manuscripts should be taken into consideration, as well as their representations in the form of sound recordings. For years, sound recordings were rather neglected and their content was released on various media that have proven to be very unreliable for long-time preservation. Therefore, the heritage institutions should prioritize the preservation of this type of content, following the contemporary practices and guidelines for conservation and long-term preservation. The National and University Library in Zagreb (NUL) follows these recommendations, in line with the NUL Strategy for the period of 2016–2020 (*Strategija Nacionalne i sveučilišne knjižnice u Zagrebu 2016–2020*), which is focused on library development, with the general aim of creating complete, catalogued, preserved and accessible library collections in all possible physical and digital forms.¹ For the purpose of preserving the library holdings and making them available, the NUL has undertaken several projects, which will be discussed in this paper. As for digital music, setting up a digital content management system is very important. The functionalities of such a system should reflect the special features of all kinds of music.

1. MUSIC MATERIAL IN THE NUL MUSIC COLLECTION

Various kinds of music material are kept at the Music Collection section of the NUL. The Collection stores a vast collection of music prints regardless of the music format (scores, parts, songbooks, solo music for the piano and other solo instruments, and so on). Autographs from the Croatian composers legacy libraries represent a starting point for any kind of scholarly and musicological research in the field of music and are considered to be the musical sources of great importance.² This kind of material was obtained through purchase or as a gift. In addition, a large part of the Collection is comprised of sound recordings available on different media. This kind of material has been systematically collected for years, mainly by

1 Nacionalna i sveučilišna knjižnica u Zagrebu, *Strategija Nacionalne i sveučilišne knjižnice u Zagrebu 2016–2020*. (Zagreb: NSK, 2016), 8–17, <http://www.nsk.hr/wp-content/uploads/2012/01/Strategija-NSK-2016.-2020.pdf>.

2 The collection comprehends autograph of the first Croatian opera *Ljubav i zloba* written by Vatroslav Lisinski and the majority of the legacy of Ivan Zajc. Besides, there are many other manuscript scores significant for the research of musical life in general.

legal deposit, and, to some extent, through gifts or Library purchase. The collection of gramophone records, which has been compiled since 1964 at the Library, is the biggest collection, containing over 35,000 items. Most of the records are the 33 and 45 rpm vinyl records, the so-called long-playing and single records. In addition, a part of the Music Collection is the collection of historical recordings on 78 rpm gramophone records, released at the very beginnings of the sound recording and publishing industry. Since such recordings were published long before the enactment of the Croatian Act on Libraries (Zakon o knjižnicama)³ and the provision introducing the legal deposit, this kind of material was obtained exclusively by gifts of individual collectors or by the purchase of the recordings significant for the early period of the Croatian phonography.⁴

Due to the unreliability of the storage media, special attention has been recently given to the collection of sound recordings on magnetic-optical media (compact discs). This collection has been systematically compiled from the beginnings of sound recording publishing on CDs in Croatia. Currently, the collection contains more than 25,000 items. Nowadays, this collection is regarded as one of the most comprehensive collections of sound recordings in Croatia.⁵ The collection was formed mainly by legal deposit, but it should be noted that some of the very significant collections and personal archives of the most prominent collectors were donated to the Library in the past several years. These collections mainly include selected high-quality music performances of the most highly-valued repertoire. The content and the media were the reason this collection has become prioritized in the process of selecting the items to be preserved.

1.1 Preservation of notated music from the Music Collection

The Library has been microfilming music material for several decades now, while systematic digitisation started in 2005. The selection of the digitisation criteria is based on the general Library selection criteria. The music material (mainly sound recordings) that could not be digitised at the Library was digitized through small digitisation projects. The project Digitised Heritage (Digitalizirana baština) marked the beginning of the continuous music manuscript digitisation at the library. The first thematic collection of music material to become available on the Library website was the collection of Solo Songs of Croatian Composers, which contains the selected solo songs of Croatian composers.⁶ After this initial project,

3 Hrvatski sabor, *Zakon o knjižnicama* NN 105/1997, (Zagreb: Hrvatski sabor, 1997), chapter IX, <https://www.zakon.hr/z/745/Zakon-o-knjižnicama>.

4 This refers especially to the recordings released by Edison Bell Penkala, a company headquartered in Zagreb, which produced, manufactured and published early sound recordings.

5 The three most comprehensive CD collections are: Music Collection of the NUL, Croatia Records Archive and the Croatian Radio Archive.

6 Solo songs by composers Ivan Brkanović, Blagoje Bersa, Antun Dobronić, Ferdo Livadić, Jakov Gotovac, Ivan Padovec, Stanislav Preprek, Branimir Sakač, Ivan Zajc jr. were published online.

the results of which were published in the digital format, systematic digitisation of all kinds of music prints and manuscripts began. At the same time, further steps in the selection of all kinds of music material for digitisation have been taken. Digitisation priorities primarily refer to original music material, the so-called musical sources like autographs of composers that have a great value in the scientific and musicological approach to music research. That is the main reason the composers' autographs are the most widely available Music Collection material in the digital form. The autograph manuscripts of the composer Ivan Zajc should be mentioned here because the main part of the Music Collection consists of his legacy. Furthermore, there are also many other pieces belonging to composers such as Blagoje Bersa, a Croatian composer and a representative of musical modernism, followed by Ferdo Livadić, Ivan Padovec, Fortunat Pintarić and others.⁷ The most commonly used music prints are old music songbooks intended for school or church singing, published in the second half of the nineteenth century.

1.2 Sound preservation and sound digitising projects

The history of sound recording is relatively modest, compared to that of the written documents, including the music manuscripts for instance. Nevertheless, the popularity of sound recordings exceeds the popularity of written music, both in the analogue and digital domain. One of the reasons for this is the fact that music represents a universal language and listeners need no special knowledge of music notation.

Nowadays, one of the potential problems regarding the preservation of sound recordings is the fact that there are no national standards regarding the selection and evaluation criteria for the digitisation of sound recordings as part of the Croatian national heritage.⁸ Due to the media fragility (digital or magneto-optical), sound recordings have an undeniable priority when it comes to content preservation, a process in which libraries play a very important role.⁹

According to the UNESCO guidelines, some of the goals of the audio-visual material preservation is to emphasize its cultural and historical significance, as well as the fragility and sensitivity of such material.¹⁰ Furthermore, it is necessary to

7 Ivan Zajc, jr. (1832–1914) was one of the most important Croatian composers not only during his lifetime but in the Croatian music history in general. Educated in international centres of culture such as Milano or Vienna, Zajc brings into Zagreb some novelties and reforms, one of them being development of the performing ensemble. Also, as a director of the opera of Narodno zemaljsko kazalište u Zagrebu, Zajc encouraged the performances of operas written by Croatian composers.

8 Maja Šojat-Bikić, "Digitalizacija zbirke mehaničkih glazbenih automata Ivana Gerersdorfera: prilog digitalnom očuvanju Hrvatske zvučne baštine te povijesti bilježenja i reprodukcije zvuka od 1880-ih do 1920-ih godina", *Arti musices* 41, 1 (2010): 61–62.

9 Bruce Royan, "Audiovizualna građa i nasljeđe", in *Audiovizualna građa i nasljeđe*, ed. Sanja Vukasović-Rogač (Zagreb: Knjižnice grada Zagreba, 2010), 21.

10 Royan, "Audiovizualna građa i nasljeđe," 21.

continually raise public awareness of the critical position of such material and to encourage legislative, financial and organizational measures for its long-term preservation. The guidelines also encourage professional educational institutions to strive for the best results in sound and video archiving.¹¹ In addition to the UNESCO guidelines, there are numerous other documents that determine the rules and priorities for sound digitisation within the preservation process. The most important documents were published by the International Association of Sound Archives (IASA) and are known as TC03¹² and TC04¹³. Those guidelines provide suggestions for the strategic digitisation planning, as well as the technical guidelines on the format and resolution of the digital sound, intended primarily for heritage institutions. In the National Digital Content Survey Study of the Library of Congress, one of the most prominent libraries in the world, it was stated that digital sound recordings represent one out of six new types of media and that their preservation is exponentially more complex than the preservation of printed sources (including music), due to the instability of the media and the complex technologies included in the sound producing process.¹⁴

In Croatia, Guidelines for the Selection of the Digitisation Material (*Smjernice za odabir građe za digitalizaciju*) were published in 2007. They were intended for the Croatian Cultural Heritage project (*Hrvatska kulturna baština*).¹⁵ Among other things, these guidelines propose the possible criteria for the selection of the material for digitisation projects. Although very general, the proposed criteria could also be applied to music (notated music and sound recordings), at least in respect of the formal selection of music material. Therefore, besides the fragility of the media, the criteria for content selection should also be taken into account in the project of sound recording digitisation.

Research in the domain of intellectual property rights (copyright issues) is an important stage in the preparation of each digitizing project. Due to the complexity of multiple copyright issues, especially when it comes to sound recordings, additional efforts are needed to act in accordance with the law. Useful international guidelines concerning international property issues in the context of digitising were published by the European Union, and are available on the website of

11 Royan, "Audiovizualna građa i nasljeđe", 21.

12 "The Safeguarding of the Audio Heritage: Ethics, Principles and Preservation Strategy: IASA-TC 03, Version 3, December 2005", http://www.iasa-web.org/IASA_TC03/TC03_English.pdf.

13 "Guidelines on the Production and Preservation of Digital Audio Objects: IASA-TC 04", accessed November 11, 2017, <http://www.iasa-web.org/audio-preservation-tc04>.

14 Neil Beagrie, "National digital preservation initiatives: An overview of developments in Australia, France, the Netherlands, and the United Kingdom and of related International Activity Council", accessed November 14, 2017, <http://www.clir.org/pubs/reports/pub116/pub116.pdf>.

15 Ministarstvo kulture, "Hrvatska kulturna baština. Smjernice za odabir građe za digitalizaciju, radna verzija", accessed November 16, 2017, https://bib.irb.hr/datoteka/590089.smjernice_odabir.pdf.

MINERVA.¹⁶ Rules for publishing and making digitised material available online should always be defined in national law, in case of Croatia those rules are defined in the Croatian Copyright and Related Rights Act (Zakon o autorskim i srodnim pravima).¹⁷ Also, the Croatian Cultural Heritage program underlines the importance of working in compliance with the national legislation.

The first digitisation project for sound recordings was called The Croatian Musical Heritage in the Sound Form: Digitisation of the Oldest 78 rpm Gramophone Records (Hrvatska glazbena baština u zvuku – digitalizacija najstarijih gramofonskih ploča na 78 okretaja). It was launched as a one-year project, with the support of the Croatian Ministry of Culture (Ministarstvo kulture Republike Hrvatske) twice, in 2009/2010 and 2015/2016. The aim of the project was to preserve and provide access to the sound content published on obsolete media lacking the reproduction equipment. The project made it possible to listen to the digitised sound recordings as well as to access other material closely linked to gramophone records. It also provided some contextual data dating from the early period of the Croatian phonography (for instance the disc labels, newspapers clips, and so on).

1.2.1 *Migration and challenge of preserving digital audio content*

What the project assumed was that the most endangered part of the collection was a sub-collection of old 78 rpm gramophone records, whereas other, more recent media were rather neglected and not even discussed. The recent media are primarily related to digital optical media. However, numerous older media, which were widely used by music publishers in the last few decades, must not be forgotten either. In addition to those, a new digital era in music publishing and dissemination began, bringing along new types of music releases, such as born-digital sound that requires a new approach to selection, cataloguing, metadata producing and, above all, a new set of guidelines for long-term preservation.

For quite some time now, the sound experts have been focused on the digital optical media content durability issue, for instance, that of the compact discs (CD). The Library of Congress carried out a research on the durability of this type of media, and the research confirmed what the practice had already shown: the estimated

16 “Intellectual property guidelines”, Version 1.0, edited by the MinervaEC Working Group September 2008, http://www.minervaeurope.org/publications/MINERVAeC%20IPR%20Guide_final1.pdf.

17 According to the Croatian Copyright and Related Rights Act, Article 84 (Zakon o autorskim i srodnim pravima), “public archives, public libraries, educational and scientific institutions, institutions for pre-school and social (charitable) institutions, which are not charged for their services, may use their own copy of a copyright work to reproduce the said copyright work on any medium, for the purposes of preservation and protection, technical renewal and repair of materials, collection management and other personal needs, if they have no direct or indirect commercial gain”. See Hrvatski sabor, Zakon o autorskim i srodnim pravima (Zagreb: Hrvatski sabor, 2017), Article 84, <https://www.zakon.hr/z/106/Zakon-o-autorskom-pravu-i-srodnim-pravima>.

duration of a CD cannot be determined with certainty.¹⁸ Although the preservation of CDs largely depends on their physical characteristics (material, production), the standardized storage conditions and careful handling, their durability cannot be precisely predicted. Although new advances and quality improvement are believed to come with new production technologies and repeated tests, none of this guarantees long-term preservation. The Library of Congress recently launched a migration project in order to preserve content on tangible media – The Tangible Media Project.¹⁹ Working on the project resulted in a content reformatting manual, published in 2015, containing very useful material. It can be used as a guide for any project of this type.²⁰

The NUL also had ideas for a migration project, but the most frequent issue was the lack of financial resources for project implementation. The problem was solved thanks to the Faculty of Electrical Engineering and Computing, Department of Electro Acoustics, the University of Zagreb (Fakultet elektrotehnike i računarstva, Zavod za elektroakustiku, Sveučilišta u Zagrebu), which supported the Library project by providing the necessary equipment, as well as professional expertise and advice.²¹ When the necessary computers were obtained, all the preconditions were fulfilled and the project was launched in 2015. The initial project phase included testing the conversion programs for the migration. Here, we will mention BitCurator, an open-source program.²² BitCurator works with Ubuntu-derived Linux and the program test-run did not appear to be the best solution. On the other hand, a Windows-based open source software for CD ISO image mounting proved to be an excellent choice. Creating a CD image included documents in .cue and .bin files, and copies were made in the uncompressed (lossless) format (WAV) and then in the compressed mp3 (lossy) format. The standard bitrate and the highest quality (320 kbit /s) were also set as default.²³ The migration required

18 “CD-R and DVD-R RW Longevity Research”, The Library of Congress, accessed November 15, 2017, https://www.loc.gov/preservation/scientists/projects/cd-r_dvd-r_rw_longevity.html.

19 Butch Lazorchak, “Rescuing the Tangible From the Intangible”, accessed November 15, 2017, <http://blogs.loc.gov/thesignal/2012/07/rescuing-the-tangible-from-the-intangible/>.

20 Kimberly Jackson, “The Tangible Media Project: Information Guide & Process Manual”, accessed November 15, 2017, http://kmjackson.org/wp-content/uploads/2015/06/TMP-Guide_Encrypted-2016.pdf.

21 The Department of Electroacoustics is one of the reference centers for sound teaching and research in the area related to electroacoustics and acoustics, accessed November 15, 2017, <http://www.fer.unizg.hr/zea>.

22 BitCurator is an open source program of The BitCurators Consortium, developed by professors at the Department of Information Science at the University of North Carolina, Chapel Hill (USA). The program primarily deals with the preservation of digital (born digital) documents with special emphasis on digital forensics and data analysis tools to help help ensure the longevity and reliability of records, “BitCurator”, The BitCurator Consortium, accessed November 15, 2017, <https://www.bitcurator.net/>.

23 There are some recent assessments of the British Library about WAVE uncompressed sound format. Despite some objections to the format (size limitation, lack of official published standards), they still recommend choosing WAVE as primary file for long-term preservation of sound files for the migration projects as well. An additional benefit of WAV file is the possi-

the production of descriptive, technical and preservation metadata. There were some problems in some cases of descriptive metadata, which had to be manually edited (the most frequent cases were examples of classical music). The migration procedure required a connection to the library information system so the link to the digital repository of the library was established, facilitating direct storage of digital objects. Display of all metadata was enabled through the digital content management system, and the process of creating a model that can enable long-distance access to the sound recordings is currently in progress.

2. PRESENTATION OF THE DIGITISED MUSIC MATERIAL FROM THE MUSIC COLLECTION

The publication and presentation of the digitised music material from the Music Collection were enabled in 2005 through the Digitised Heritage portal. The portal contained valuable material from the special collections of the NUL. The music material was available as a thematic portion containing solo songs of Croatian composers. The music material consists of original musical sources – autographed music manuscripts from the Music Collection. The portal had limited functionalities, so it was inadequate for other kinds of music material, such as sound recordings. After the sound digitisation project completion, the Sounds of the Past (*Zvuci prošlosti*) portal was launched, and it contained various kinds of music material.²⁴ The portal was conceived as a thematically unique website where the wide public can get access to early sound recordings of the old Croatian phonographic production, as well as to get insight into the accompanying content, which has contributed to the overall value of the project. Besides, the Library has established a new library service that has enabled sound streaming for users. The Sounds of the Past portal has met some requirements related to the functionality of digitised music, and at the same time, it also represents a new stage in the process of building the digital library. It has contributed to the improvement of metadata, metadata linking and it has provided a foundation for the creation of the semantic web.

2.1 Music on digitalna.nsk.hr

With the establishment of the digital content management system Digital Collections of the NUL (Digitalne zbirke NSK) at the end of 2015, new possibilities for online publishing of all types of digital music sprung. Digital Collections (DC) consist of notated music from the Digitised Heritage website and sound recordings from the Sounds of the Past portal, including all other music material digitised in

bility for embedding any kind of metadata in the file, see “WAV Format Preservation Assessment”, The British Library, 5/01/2016, http://wiki.dpconline.org/images/4/46/WAV_Assessment_v1.0.pdf.

24 “Zvuci prošlosti”, Nacionalna i sveučilišna knjižnica u Zagrebu, accessed November 16, 2017, <http://mz.nsk.hr/zbirka78/>.

the meantime.²⁵ The characteristics of the digital library management system have made it possible to create different concepts related to the semantic web.²⁶ There are many concepts that can be created for all types of music metadata (e.g. for collections, authors, collaborators, place of publishing, publishers, the subject, and so on), which is a very important aspect of the digitised music material.

Furthermore, the DC does not include only the digitised material, but the born-digital material as well. When it comes to the born-digital material, there is an additional value in the preservation of such material, as it doesn't have an analogue equivalent. In addition, the formats or reproduction equipment will certainly become obsolete at some point in time. The born-digital music material can be identified as part of the Croatica music collection that is published online, including sound recordings and online music scores²⁷ without a physical representation.

It should be mentioned that online music scores are still quite rare on the Croatian digital publishing market. Nevertheless, they still meet the selection criteria for digital material harvesting. They have a lasting artistic value for the cultural and artistic scene and the best solution is to catalogue them and enable access through the Digital collections of the NUL²⁸, as well as to harvest and store them in the Croatian Web Archive (Hrvatski arhiv weba).²⁹ The same criteria could be applied to online sound recordings but ways of collecting and cataloguing sound recordings released online without originals on tangible media represent a current library management challenge.

All the DC material has to be catalogued in the library cataloguing system, in the MARC 21 bibliographic format. Librarians often cite the fact that MARC records describe one level in the process of creating a musical work as their main disadvantage. An example of this is when one performs a symphony and does not bring it into the context of its creation, which is an increasingly important aspect for researchers.³⁰ The new possibilities for improving concepts, provided by the digital

25 For more detailed chronology of the development of Digital Content Management System of the NUL, see Sofija Klarin Zadravec, "Portal digitalnih zbirki Nacionalne i sveučilišne knjižnice u Zagrebu", accessed November 16, 2017, <http://dfest.nsk.hr/2016/wp-content/uploads/2016/05/Klarin-Zadravec-Sofija.pdf>.

26 Creating concepts for agents is of great importance for music because it opens up the possibility of linking different kinds of responsibilities, such as songwriters, performers, music arrangers (especially for audio) and others.

27 Digital scores are born-digital notated music with no analog equivalent or digital items which are created and managed only in digital form, see Ricky Erway, "Defining born digital", accessed November 16, 2017, <http://www.oclc.org/content/dam/research/activities/hidden-collections/borndigital.pdf>.

28 The experience of identifying, selecting and cataloguing born-digital notated scores is unique on the Croatian websites and therefore represents a rare and valuable example of Croatian born-digital music editions.

29 "Hrvatski arhiv weba", Nacionalna i sveučilišna knjižnica u Zagrebu, accessed November 16, 2017, <http://haw.nsk.hr/>.

30 Elizabeth Joan Kelly, "Linked Data and Music: Current Projects and Opportunities", accessed November 17, 2017, https://figshare.com/articles/Linked_Data_and_Music_Current_Projects_and_Opportunities/3206083.

library system, enable cross-linking and additional information about a particular work, composer, subject, or collaborator.

As stated above, every item that is to be published in the digital library needs to be catalogued, because the conversion of records to a digital library is done from the library system, where a bibliographic record in MARC 21 is uploaded to the digital library system. Then, the metadata is edited and linked to specific digital objects. Authority files are also converted from the library system, and identifiers, such as VIAF and ISNI, are also included.³¹ The same conversion procedure applies to all types of music material, except for sound recordings (for example, a gramophone record) for which hierarchical records are created in order to express the structure of the discs that have two reproduction sides. The link from the library catalogue to the DC is created through the MARC 21 record, where the electronic location and access field are entered with the corresponding link containing the URI of the digital object in the DC.

An important part of retrieving music in the digital library is based on the cataloguing of analytical entries. Since such data are often entered in the field of notes, it is difficult to find the data in the library catalogue or search for the desired musical piece. By cataloguing analytical entries, bibliographic records gain great importance in retrieving musical works and the user can find the desired music piece very quickly. The practice of analytical entry cataloguing is also used in the digital library. Since the creation of analytical fields is not automated, the digital content management system upgrade was necessary. This is important for all types of published material (notated music and sound), but it has also proved to be very useful for music manuscripts. Most of the material published in the DC are music autographed manuscripts, which proved to be very demanding for online publishing because of their number and the need for prerequisite skills of notation reading. The legacy of Ivan pl. Zajc is a good example. He bound his own manuscripts in books, which often consist of multiple musical pieces with over a thousand pages, which makes the material difficult to be presented. To a user, it is very difficult to search through this work part by part. However, thanks to analytical entry cataloguing, it is possible to track music notation and text.

Further system development will include creating the possibility of adding relationships on each level of analytical entry, which will contribute to the functionality of the system, and will also surely increase the number of patrons of digital/digitised music published in the DC.

31 Ana Cerovski Knežević, Petra Pancirov, "Normativna baza NSK danas", *Vjesnik bibliotekara Hrvatske* 58, 1/2 (2015): 177.

CONCLUSION

Music as a part of the heritage is often observed through different sources recorded in the form of musical notation. Sound recordings are an inseparable part of every type of music expression, and thus, a part of our musical legacy. Moreover, due to their fragility and instability, the sound media are in danger and need special care when it comes to preservation. Heritage institutions have only just begun to pay more attention to sound recordings in terms of preservation and access, including the context of long-term preservation in particular.

The National and University Library in Zagreb is continuously working on the preservation of its holdings, especially by digitising different types of material. In addition to the digitisation of notated music in prints and manuscripts, the Library has also launched the sound digitisation and migration projects, because of the obsolescence of their storage media. The digital optical media have proved to be very disputable in the context of long-term preservation and some actions have to be taken in order to preserve the sound digital content stored on physical storage media, such as compact discs. Due to the increase in the quantity of digital music, there was an indispensable need for the development of a digital content management system, which was achieved by the end of 2015. The system has made it possible to publish all kinds of digital music material online, as well as to create the necessary concepts, hierarchies, relationships and links between them. The system development and its upgrades have enabled some functionalities, such as analytical entry cataloguing, which is important for digitised (and digital) music management.

Further development guidelines will focus on increasing the quantity of digitised music, and on its preservation and accessibility, in accordance with the strategic aims of the Library. The library digital management system will continue its development in terms of creating new functionalities and different possibilities of gathering and linking metadata in the digital domain.

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Summary

Očuvanje i dostupnost baštinskih izvora kulture

Muzička građa u Digitalnim zbirkama Nacionalne i sveučilišne knjižnice u Zagrebu

Posebne zbirke unutar nacionalnih biblioteka sadrže u svojim fondovima materijal od značajne kulturne vrednosti. To je slučaj i sa fondovima Muzičke zbirke Nacionalne i sveučilišne knjižnice u Zagrebu. U kontekstu nasleđa u celini, posebno treba istaknuti muzički materijal kao što je notna građa, ali i zvučne reprezentacije muzike. Notna građa, posebno muzički rukopisi, jedinstveni su i nezamenjiv izvor za muzičko istraživanje. Pri tome ne treba zaboraviti niti zbirke zvučnih zapisa koji okupljaju takozvane istorijske snimke zajedno sa novijim izdanjima nacionalne muzičke produkcije. Sa svojim specifičnim načinima distribucije i objavljivanjem na različitim medijima, zvučni snimci predstavljaju izazov u očuvanju sadržaja, ali čini se da tu temu zajednica bibliotekara još nije dovoljno osvestila. Stoga je obaveza institucija, naročito onih koje imaju vrednu baštinsku građu, da daju prioritet očuvanju zvučnih snimaka uz konsultovanje recentnih smernica, standarda i praksi za dugoročno očuvanje. *Nacionalna i sveučilišna knjižnica u Zagrebu* kontinuirano radi na očuvanju svojih fondova, posebno digitalizacijom različitih vrsta materijala, od kojih se ističu muzički rukopisi i stariji zvučni snimci. U kontekstu dugoročne zaštite, kao i zbog nestabilnosti medija, digitalni optički mediji nedavno postaju glavni fokus biblioteke te je u te svrhe biblioteka pokrenula projekat migracije sadržaja sa kompakt-diskova. Sa razvojem sistema za upravljanje digitalnim sadržajima pod nazivom *Digitalne zbirke NSK*, postalo je moguće predstaviti i objaviti najvredniji deo materijala iz fonda *Zbirke muzikalija i audiomaterijala*.