Digitization of Audio Visual Collections: Empowering Public Libraries through the Public-Private Partnerships

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Abstract: This paper will analyze how one relatively small public library, limited in funds and resources, managed to cope challenges of digitization of audiovisual material related to local heritage. The paper will also tackle the problem of preservation of information on obsolete media and their digitization in an effort of preserving one important part of cultural legacy of the 20th century, which is in danger of being lost due to technology advancement or human negligence. The public libraries should pay attention of their old collections of audio tapes, VHS, Betamax and other media nowadays out of usage, as well as of other audiovisual collections important for local heritage kept by institutions and individuals in the community. The author will describe one possible solution of obtaining such a material and its digitization through established public-private partnership between the Public Library Čačak and private enterprise sector. This partnership forced librarians to introduce new technologies, equipment and practice in their everyday work, to be able to successfully answer challenges of digitization and preservation of audiovisual material. On the other hand, an important segment of this paper will deal with the question of including these local collections into bigger digital library systems and repositories, for obtaining metadata exchange, availability and long-term preservation of digitized materials.

Keywords: audiovisual, collections, public libraries, digitization, local heritage, public-private partnership.

Introduction

The Public Library "Vladislav Petković Dis" is the oldest cultural institution in Čačak and one of the oldest public libraries in Serbia. Founded in 1848, nowadays it is the main library for the district of Morava, situated in the western part of Serbia, and it is in charge of public libraries of Gornji Milanovac, Guča and Ivanjica, also responsible for three special libraries, 10 high school and 34 primary school libraries. Čačak, with 100.000 inhabitants on average, is the administrative centre of the district of Morava and it is industrial, trading and cultural centre in this part of Serbia.

Our library is particularly engaged in the activities related to poetry programs, work with the children, local heritage and digitization of library material. In 2009 our project "Digital Library of Čačak" was selected as the best public library project in Serbia for the period 2006-2009 by the Association of Serbian Libraries. In 2008 the Library has established its Digitization Centre, the first of its kind among the public libraries in Serbia, which is responsible for the activities concerning library material digitization and digital preservation. The Digitization Centre runs all activities concerning digitization of Local History Collections in our institution, as well as those regarding digitization and digital preservation of other collections, held by cultural institutions, organizations or individuals, which are connected with the legacy, cultural and scientific heritage of this part of Serbia. Two full-time librarians and two part-time employees are tasked with all of duties in Digitization Centre. The most important of these tasks are management and maintenance of Digital Library, visible online at <http://cacak-dis.rs/dig_bibl/index.html>.

Digitization of audio and video material

For the definition of audiovisual material identified as a part of local heritage, we use IFLA's "Guidelines for audiovisual and multimedia materials in libraries", stating that audiovisual materials are "any recorded sound and/or moving and/or still image items".[1]Generally, this paper applies that the term audiovisual will be used for contents of the collections of all types of library and information services regarding sound and still and moving images. We regard digitization of audiovisual collections as a way of providing access in the future to old and usually closed archives of audio and video material, holding an important part of our memory, as a "major link to the past".[2] IFLA's Guidelines also lists a range of analog and digital formats on various carriers. Here we will mention several types of carriers of analog and digital formats for sound and image, which our Library has some experience with or are part of our collections:
– Mechanical carriers
   – microgroove disc or "vinyl"
– Magnetic tape carriers
   – compact cassette IEC I, compact cassette IEC II
   – VCR, VHS, SVHS, Betamax, Betacam
– Magnetic disk carriers

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[1]*Guidelines for audiovisual and multimedia materials in libraries*. IFLA, March 2004. Online: <http://www.ifla.org/publications/guidelines-for-audiovisual-and-multimedia-materials-in-libraries> (accessed September 19, 2012).
[2] Teruggi, Daniel. *Can We Save Our Audio-visual Heritage?*. Ariadne, Issue 39, 2004, <http://www.ariadne.ac.uk/issue39/teruggi/> (accessed September 10, 2012).

    – Floppy Disks – 5.25 inch, 3.5 inch
    – Hard disks
– Photochemical carriers
    – Film formats – 16 mm, Super 8
– Optical carriers
    – CD, MD MiniDisc, DVD

This paper concentrates mostly on our experience gained through working with the magnetic carriers (compact cassette, VHS, SVHS, Betamax).

Our Library had started negotiations with local media and their representatives in 2010, about the possibility of digitizing old archives of audio-video content which were kept in several TV and radio stations in Čačak. We recognized the need of preserving an important part of recent history, cultural heritage and information which were recorded from 1960s until the beginning of the 21st century on, now, obsolete information carriers: vinyl records, audio tapes, VHS tapes, S-VHS, Betamax, etc.[3] As "the overwhelming majority of production of the 20th Century was not accessible to the public except by dint of random and eventual reuse of material in subsequent television productions", it was clear that huge segment of modern information was fading as a possible source for knowledge and memory. "Thus research for historical, societal or sociological purposes is currently almost impossible. It was then clear that the only way to open access was through digitisation, i.e. via online access to digital content."[4] We found that many of the media houses did not pay attention to how old carriers were stored and if information on them would be preserved. When we realized that most of the media were reluctant to provide us with their archives for digitization and organization of information, because of the legal obstacles, complicated copyright issues, non-existent partnership between the Library and them in the past, the Library chose different approach and proposed public-private partnership. This partnership was based on an assumption that the Library will get the community valued content and cultural heritage for preservation, while the other party (the media) would have a clear economical benefit and an improvement of their services based on solutions proposed by the Library for free.

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Image 1. The conditions of keeping old recordings

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[3] Wright, Richard. *Preservation of Digital Audiovisual Content*. DigitalPreservationEurope Briefing paper, 2009, <http://www.digitalpreservationeurope.eu/publications/briefs/audiovisual_v3.pdf> (accessed August 17, 2012).
[4] Teruggi, D. *Op. cit*.

In 2010 our library obtained rights to digitize valuable old archive of the most important radio station in the western part of Serbia, which was successfully ended in the November of that year. Several hundred hours of valuable materials were digitized and metadata were generated. For the digitization of these materials we relied on outsourcing, provided by professional radio technician. That way a certain process of sound remastering was applied, for providing better sound quality in digital format, which could not have been done by librarians themselves. We have chosen to keep digitized audio recordings in mp3 file format at the moment (as digitized materials have been delivered to us in that format), fully aware of its restrictions based on encoding of mp3[5], with the perspective of converting all mp3 files to ogg file format for the long-term preservation.

For the metadata part, the audio material has been very rudimentary described. The information contains the data like the title, year of publication or recording, the length of recording, the size of the file, the name of the file and its location in our Digital Library.

A groundbreaking contract of technical and business partnership was signed in January 2011 between the Library and local TV "Galaksija 32". The library was granted permission to take television tapes, make the content digital and store it for long-term preservation, thus providing a copy of every tape on an optical medium (DVD) and permanent online access to the metadata generated in the process of digitization, for the television staff and journalists.

Image 2. Relatively organized part of television's AV archive

Thanks to successful project application in 2010 the Ministry of Culture provided funds for buying necessary equipment: a computer, TV, DVD recorder, SVHS and VHS tape player and large hard drive storage. The TV station agreed to cover the costs of obtaining 50% of DVD media needed for digitization, as well as all specialized equipment which would be used in the process of digitization. In that way the Library could rely on additional SVHS player, audio tape player and, which is very important, on the rare and expensive Betacam and Betamax players.

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[5] <http://en.wikipedia.org/wiki/MP3> (accessed September 10, 2012).

Image 3. Digitization workstation for VHS and SVHS tapes

The process of digitization of video material in the Centre relies on the procedures built by librarians and obtained equipment. The Digitization Centre created procedures and rules for digitization of audio-video material, particularly for VHS and S-VHS video tapes, which was new field of work for us, but also for the libraries in Serbia in total.[6] We have created an internal document, "Procedure for digitization of VHS/SVHS tapes", which is used as a guideline for this job. This procedure identifies twelve phases in digitization of VHS/SVHS tapes, starting from cleaning the tapes from dust and dirt, rewinding them, checking the quality of audio and video signals, digitization, metadata creation, disc burning and disc envelope printing, just to name a few of phases. One librarian is tasked on working with the hardware, digitizing video tapes using VHS and SVHS recorders and DVD recorder, one PC and a TV set. He is also responsible for creating the metadata. For the metadata we follow Dublin Core metadata standard. This choice was made on our experience with Dublin Core standard for describing networked resources, its simplicity and optionality of elements. Moreover, this standard could allow us easy connection and metadata exchange between our other projects (Digital Library at the first place, <http://cacak-dis.rs/dig_bibl/index.html>) and planned development for the future (like introduction of Omeka[7] platform for creating online collections and exhibits of digitized materials). The following metadata elements are obligatory for resource description: contributor, date, description, format, identifier, language, source, subject, title. If it is possible to identify, the metadata element set also includes the following elements: creator/author, publisher, relation, rights (copyright). As most of the materials are raw footages, non-edited, sometimes it is impossible to identify who the primary author or the publisher of material is, as shown in the following example of a record in DC XML metadata scheme, where the information about the author and the publisher are missing.

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[6] As an example, digitization of audio sound is generally unexplored field of work for the cultural institutions in Serbia, regardless of size and level. See: Aleksandrović, Vesna. *Analog/Digital Sound. National Library of Serbia Digital Collection of 78 rpm gramophone records*. Review of National Center for Digitization, 12/2008, Belgrade, 37-42.

[7] <http://omeka.org/>.

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<?xml version=”1.0” encoding=”UTF-8”?>
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xmlns:xsi=”http://www.w3.org/2001/XMLSchema-instance”
xmlns:dc=”http://purl.org/dc/elements/1.1/”>
<dc:title>ПорибљавањејезераМеђуврще</dc:title>
<dc:subject>ГрадЧачак – месназаједницаОвчарБања – интервентнопорибљавање</dc:subject>
<dc:description>Немонтиранматеријал – ИнтервентнопорибљавањејезераМеђуврще, пословнасарадњасарибњакомБраћаМарковићизЛучана, апелнариболовце, МирославКовачевићпредседникМеснезаједницеОвчарБања, СашаПетковићпредседниккомисијезапорибљавање, БранкоБојовићпредседникчуварскеслужбе, Спортско-риболовнисавезСрбије</dc:description>
<dc:contributor>Ана Нешић</dc:contributor>
<dc:date>2011.11.29</dc:date>
<dc:type>аудио-видео</dc:type>
<dc:format>DVD-Video, MPEG2</dc:format>
<dc:identifier>BM302</dc:identifier>
<dc:source>VHS</dc:source>
<dc:language>српски</dc:language>
<dc:rights>ТВГалаксија 32, Чачак</dc:rights>
</metadata>
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The other librarian in the process of digitization is tasked with handling with DVDs, their markings and making of covers with the metadata printed in organized manner, for easy usage by employees and patrons of the library. The DVDs are stored in purposely built wooden shelf with drawers, capable of holding some 1500 disks. A better solution would probably be standardly recommended metal closed shelves, but at the moment that solution is unaffordable for the Library.

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Image 4. Drawer cabinet for DVDs

The third member of this small team is working on the future online access to digitized material, ripping of DVDs and establishing the server based system for storing material on hard drives. For the purposes of ripping and copying DVDs the library is using free (non-commercial) software solutions suitable for Linux operating systems: AcidRip DVD Ripper

and k9copy. As all material at the moment are burned on DVDs, the video is in DVD Video format (MPEG 2 encoding), which is not suitable for long-term digital preservation, not to mention the unreliability of DVD and other optical media in general.[8] What needs to be emphasized is that DVD Video must be used as a first choice for information container, because our partner, TV station, wants all material on DVDs. But the library has different strategy, enforced from the very beginning of digitization program back in 2007, that CD, DVD and all optical media are used primarily as physical copies for backup purposes (in the case of a major failure of hard drives). Our aim is to preserve everything digitized on hard drives, which imposed on us the choice of file formats. For video (moving images) formats so far we rely on AVI (Audio Video Interleaved) format for master preservation copy, because it wraps a video bitstream with audio data and keeps everything in one file, unlike DVD Video. Although AVI is well documented and widely used format, the size of large .avi files is very hard to cope with limited resources of one public library. So for the future the choice of more suitable long-term file format for digital preservation of video materials must be made. For the software part, our team relies on open-source and non-commercial solutions, so we have built a FreeNAS based file server for storage purposes, with the total of 8TB of hard drive space. On the web server we have created a digital repository, based on DSpace repository software, which supports, among others, Dublin Core metadata standard and OAI-PMH protocol for metadata harvesting. In that way future integration into larger digital systems, metadata exchange and interoperability is mostly secured.

Image 5. DVDs holding digitized AV material with printed metadata

The process of digitization of video material started in November 2011. At the moment our "Local Media Digital Archive and Repository" has over 500 hours of digitized video material originally recorded on analog media before 2005, more than 750 hours of born-digital material and some 430 hours of audio recordings made in the period 1961-2000. The access to the repository will be restricted to registered users, based on the contracts we have signed in 2011. Registered users could browse and search records about digitized material and have full access to metadata, stored in DSpace system. We believe that this way the most usable and viable solution at the moment is established for preservation, considering the resources,

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[8] There was interesting online discussion recently, related to the question of digital preservation and information carriers, which occurred at Digital Preservation mailing list of the American Library Association, <http://lists.ala.org/wws/arc/digipres/2012-05/msg00004.html>, (accessed August 24, 2012).

user demands and future usage, where "these service requirements will increasingly be based on electronic mass storage and direct, networked end-user access – probably using web technology".[9]
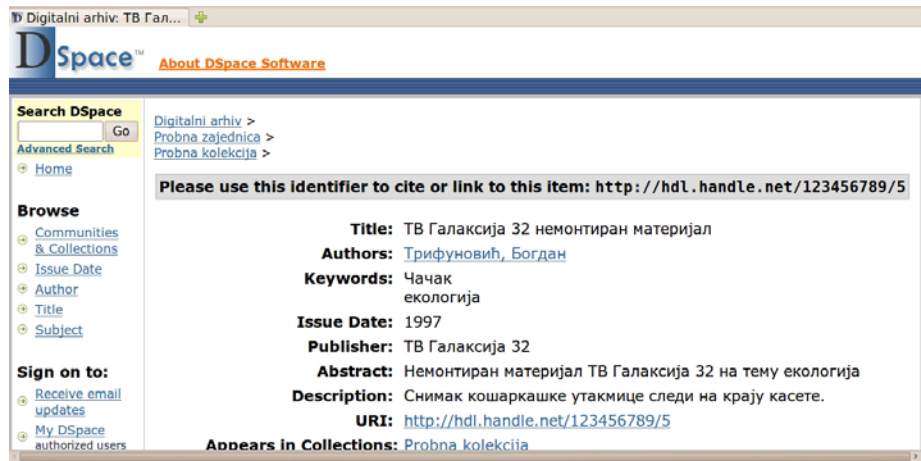

Image 6. Testing of DSpace digital repository software as a digital archive solution

The Library has started or successfully ended partnership with five media from Čačak: Radio Čačak, Radio Ozon, TV "Galaksija 32", "Čačanski glas" Ltd and "Čačanske novine" Ltd. The fact that various media houses, of different size and public profile, participate in this service, is encouraging for the librarians. At the moment our Library is negotiating with the TV "Čačak" (the most important electronic media in this region of Serbia for the past 13 years) to enter the service.

Conclusion

The impact of our service on the business of the local media is significant, as well as on the preservation of endangered part of local cultural heritage.[10]First, the local media got an opportunity to obtain very important service free of charge and from an institution which functions in local community. In the troubled times of economical crisis the notion of preserving the past usually is not on agenda. Thus, thanks to our service part of the local media houses now have access to the old recordings and metadata, which save money, time and resources, already very limited.

Second, the library and community it serves are enriched with the valuable part of local cultural heritage, before 2011 kept and hidden far away from public, either due to technical or rights issues. Not just that someday all digitized and archived material will be used for research or presentation purposes, they will be preserved for the future generations as well. This aspect is extremely important in considering the final impact, which is hard to value in terms of money or immediate benefits on the local community. Nevertheless, if we

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[9] Wright, Richard. Preserving Europe's Memory. Cultivate Interactive, issue 7, 2002,
<http://www.cultivate-int.org/issue7/presto/> (accessed September 15, 2012).

[10] Although the future of original (analog) information carriers in this case is uncertain, because the Library does not have impact on this issue, we are adopting "preservation for access" principle for preservation of audiovisual collection, introduced by PRESTO Project (<http://www.presto-project.eu>). See: Wright, Richard. *Preserving Europe's Memory.*

count the number of media involved in our service and the number of people which should work on digitizing and organizing old archives individually, it could be concluded that at the moment Library is saving significant funds needed for full-time employees, their training and obtaining necessary hardware and software in every institution individually. Instead, the Library and its Digitization Centre are providing everything at one place and with the same price – free of charge for the partners, while in the future the archive and repository will be available to the researchers and later to the general public. This way, the ultimate resource for this activity, the tax-payers in Čačak and Serbia, could clearly recognize how their money is spent and the goals of funding such activity. The last statement has its ground also in the words of the journalist Aleksandar Radović, who made a video story about the Digitization Centre and its activities on preserving old audio-video archives: "This is extremely important task, because an enormous amount of local cultural heritage is being transferred in the Library on the DVDs and into the computers. In that way the priceless treasury of our past and present has been saved from the oblivion."[11]

As "audiovisual (AV) record of the 20th century is at risk, and digitisation has been a solution"[12], the Public Library "Vladislav Petković Dis" addresses this issue with its own solution in tackling the question of preserving local heritage kept on obsolete media carriers. It proves that limited resources, which public libraries have at their disposal regarding audiovisual collections and digitization, could be surpassed through new kind of partnerships and limited usage of outsourcing services when needed. In our case the major partner in digitization of audiovisual collections were or are broadcasters: local TV and radio stations. Although broadcasters do not pay much of attention or simply do not know much about digitization and digital preservation of audiovisual material, the effort made by our library managed to connect seemingly two separated worlds and to provide viable and, at the same time, useful solution for both sides. While the media houses have final product delivered to them almost without any costs, providing to them better organized archive, metadata about old recordings and enhancing their future work, the Library's gains are multi-layered. These benefits, so far, include: 1) a collection of approximately 1.700 hours of digitized audio and video recordings, which is still growing; 2) fully developed skills, procedures and a system of digitization and digital preservation of audiovisual collections, usable in similarly sized cultural institutions; 3) better integration of various collections and metadata into Library's Digital Library system; 4) further development in planning of Library's long-term digital preservation strategy; 5) new experience in establishing partnerships with a non-public services and institutions; 6) and, finally, better positioning of one local cultural institution for the future preservation of cultural heritage.

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[11] full video recording is available on YouTube, at <http://www.youtube.com/watch?v=tjJ2TBR4Meo> (from minute 7:36 until 8:56).

[12] Wright, Richard. *Preservation of Digital Audiovisual Content.*

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