

Pregledni članak

## Condition of Croatian Music Heritage. Croatian Art Music Sound Recordings

Željka Radovinović  
Academy of Music, Library  
Berislavićeva 16, Zagreb, Croatia  
zradovinovic@muza.hr

### Summary

*Just over 130 years ago Thomas Edison invented the first practical machine for recording a sound. That event has changed the whole historical and sociological picture of sound-expressing arts – first of all music. The media for sound recording and reproduction have been developing rapidly – the older ones are going to ruin physically, and/or vanish in the flow of novelties on the market. Serious information institutions all over the planet make great efforts to preserve the recorded echoes of the history and keep them in a safe and wide accessible form.*

*Croatia came up early with the beginnings of sound industry. The changes in the cultural politics in the decades of state administration led it to a retardation in care for both material and intellectual value of recorded sound heritage – especially that of art music of Croatian composers and interpreters. The recordings have been recently kept on a few locations: Croatian Film Archive, sound archives of Croatian Radio in Zagreb and seven local stations; rich but closed for the general public are the archives of publishing companies. Some sound recordings, mostly gramophone records and CD-s are kept in the music departments of The National and University Library, public libraries and Academy of Music Library in Zagreb.*

*Until now, nobody has taken care of Croatian sound heritage systematically. Initiative is reduced to persistent private efforts of a group of enthusiasts, without official support of information experts and funds. The purpose of this article is to initiate activities in collecting information, listing, determining priorities in digitisation for preservation, organising funds, resolving the copyright-problems and establishing a digital repository opened for scientific and educational purpose.*

**Key Words:** Croatian music heritage; preserving musical sound recordings; digitisation of sound; sound archive; digital repository

### **Introduction – Short history of sound recording**

Humans always tried to keep and interpret complexes of sound they liked – imitating, orally, writing down, using mechanical devices and finally recording. The first appliance that could record the sound mechanically, but not to reproduce it, was “phonoautograf”, invented 1857 by Edouard-Leon Scott. The first practical device for sound recording and reproduction was invented by Thomas Edison 130 years ago. His mechanical phonograph with cylinders from 1877 spreaded fast over the planet, initiating the inception of the new industry. In 1887 Emile Berliner issued a patent of the zinc disc coated with fatty film, and 1888 promoted a machine for the reproduction – gramophone. With many reconstructions and improving, in accordance with the development of electronic recording and reproduction of the sound, such as the new plastic materials, the gramophone remained the most popular media of sound industry until well into the 20<sup>th</sup> century. In the fifties of the last century began the fast development of magnetic tape as recording media, enabling the enrichment of the broadcast-production conceived in the 20-ies. The changes in media are getting faster and faster – in the 80-ies the sound was recorded in electronic machine readable zooming patterns of digits, formats were created and became obsolete, immense amount of information accumulated and interwave following the imperative of “development” for the purpose of increasing the consummation ... and where is here the history here, as the solid point of support that will not allow us to drown in oblivion?

Sound recordings are preserved from the beginning in the countries that systematically take care of the whole national cultural heritage. The first sound archive – *Phonogrammarchiv* of The Academy of Science in Vienna was funded 1899. Among scientific, very rich and important are the publisher’s archives and recordings collections of the broadcasting institutions. Libraries started to collect the sound recordings after the 2.nd World War.

### **Recorded Sound in Croatia**

Croatia is a country with proportionally rich music culture. The beginning of the sound recordings production on its territory had already begun in 1908, when the engineer Slavoljub Penkala cut the first gramophone records. In that time Croatian musicians were recorded by the foreign companies like *Berliner Grammophon*, *Columbia Co.*, *Victor*, *Oesterechische Grammophon Gesellschaft* etc.

M.(Mavro) Drucker (Ilica str. 39) had some kind of the publishing house of his own, for the Croatian music. In the catalogue were the recordings of Croatian interpreters: his own with the symbol of hawk, as well as the *Odeon*, *Writing Angel* and *His Master’s Voice*.

The first big discography house in Croatia was founded in 1927, named *Edison Bell Penkala* – as a branch of the English company *Edison Bell International*. The market in discography, without any copyright at all, was very convenient

for the development of such industry, and a production was huge. It covered the market of contemporary Yugoslavia, Austria, Poland, Czechoslovakia of that time, Rumania, Albania, Greece, Little Asia, Syria and Palestine. Beside their own records, *EBP* sold the products of a dozen other companies. In the time of its production 1927-1933, *Edison Bell Penkala* generated a big number of records. The participation of Croatian interpreters were about 5%.

A year after the closing of *Edison Bell Penkala*, the new factory named *Elektroton*, was founded. After the II. World War the company was nationalised and was named *Jugoton*. Her authentic and licence production covered the territory of the whole Yugoslavian federation. From the 60-ies, particularly in the independent Republic of Croatia, the manufacturing of the commercial sound recordings had increased among growing number of publishing houses.

In 1926 in Zagreb the radio broadcasting station began to work. Allready in 1934 The Croatian Radio had started the proper production of records, using the *Philips* technology. Today it has seven regional radio-stations, three national and seven regional radio programmes.<sup>1</sup>

### **The state of sound heritage in Croatia – recordings of the Croatian composers and interpreters of art music: initial research**

The music heritage – the segment of the recordings of Croatian composers and famous interpreters of art music – until now it hasn't been a subject of systematic research and care, although the Croatian Law on archival material and archives<sup>2</sup> as well as The Law on protection and preserving cultural goods<sup>3</sup> obliges every institution and individuals who owns them to protect them and permit the access for the research and education purpose. Depending on the investment amount and decisions of every single owner, the recordings are kept in different physical conditions, and the access to the information about their existence is more or less possible.

My research began with the list of the music libraries and collections in Zagreb.<sup>4</sup> The figures are completed in contacts with colleagues from some of the collections. According to this list, the following institutions are keeping the sound materials in Zagreb:

**The Croatian State Archive** unfortunately is not in function as a state music sound archive.<sup>5</sup> The efforts of the retired director of the Archive, dr Josip

---

1 IZLOŽBA fonografija u Hrvatskoj 1927-1997. (1997-1998; Zagreb).

2 ZAKON o arhivskom gradivu i arhivima. Zagreb, 29. rujna 1997.

3 ZAKON o zaštiti i očuvanju kulturnih dobara. Zagreb, 25. lipnja 1999.

4 Juričić, Vedrana. Vodič kroz glazbene knjižnice i zbirke Zagreba.

5 Vidačković, Zlatko. Nova zgrada nakon trideset godina čekanja // *Vijenac*, Broj 301, 29. rujna 2005.

Kolanović, were continued by the new management in a very modest way.<sup>6</sup> In Croatian State Archive, within the competence and in the space of *The Croatian Film Archive*, without any qualified person employed, with very modest annual funds from *The Croatian Ministry of Culture*, the researches of the Croatian sound heritage in the institutions and private collections in Croatia and abroad are being done. There is some internal computational list with 1168 gramophone records (shellac and vinyl) looking like an ordinary table in word-format (with columns named order-number; title; interpret; producer; note). The interested person can get the printout of the list. The records are property of *The Croatian State Archive*, *The Croatia Records* and *The Croatian Radio*. The records that are not in possession of *The State Archive* were given to that institution for the restoration, which has been done partially.

The restoration is conducted by the outside collaborator who repairs them physically, than making an archival magnetic tape copy from the original historical gramophone device on his own, and finally cleaning the sound of any non-musical noises. The tapes are for now possible to listen in the Croatian Film Archive, on the tape-recorders borrowed from *The Croatia Records*. In a short time, when the devices will be returned, it would not be possible to reproduce the materials preserved in a such way. Talking to Ms Carmen Lhotka, the person in authority for the sound recordings in *The Film Archive*, I was told that they were planning to ask for the funds to buy some ordinary audio-CD-burning-device and a mini hi-fi appliance for the reproduction. Their idea is to digitise the archival tapes by themselves in so primitive way, and giving the copies to the disposal for listening on the mini-hi-fi within the Archive. They are not planning to create either a computerized data-base with the inventory list, or to fullfill the description of items, or to put the recordings on the Internet.

**The Croatian Radio Sound Archive** in Zagreb is the richest Croatian sound archive. Although it is a part of the public institution, until 1994 owned by the state, and even though it contains a great number of items in the category of heritage, it is closed for the outside users. It was founded after the foundation of the radio-station, for the program needs. The initial holdings was consisted only of gramophone records (they still keep the collection of so called hard – PVC records – some of them are lent to *The Croatian Film Archive*, for the restoration). In the fifties, the new technology of copying on the magnetic tapes had been accepted. The important parts of the collection of sound documents are documentary recordings (i.e. concerts) – some of them have a special value for the Croatian cultural heritage. Recent fund of the radio-archive includes gramophone records – PVC, shellac, vinyl, magnetic tapes on the opened and closed reels, DAT-tapes and CD-s. They are kept in metal compact archival closets, in the rooms with inappropriate climate. The records are listed in the paper-cata-

---

<sup>6</sup> Vidačković, Zlatko. Treba nam arhiv glazbe i govorne riječi // *Vijenac*, Broj 340, 15, ožujka 2007

logues, and mainly registered in the unique computational data base. The base was formed out by the international accepted standards. The data input is frequently inconsistent, with the wrong subject references, taken in by the group of ad hoc gathered outside co-operators.

The Croatian Radio has been trying for years to save and to bring up to date the fund of its sound recordings, in their own studios for digitisation; the results are being kept on the few hard-discs. The selection of the materials for the digitisation is adequate to the needs of that commercial institution (everyday program) – so called serious music is at the end of every list of priorities.

The Croatian Radio is a member of The European Broadcasting Union. The people engaged in its sound archive are also striving to synchronize their work on digitisation with the standards accepted by the EBU members. The technique of the treatment for the old records is submitted to the needs of broadcasting (with cleaning of the non-musical-sounds, lowering the loudness etc.), in consistence with the NOA standard for the radio broadcasting.

The sound archives of the local radio-stations of the Croatian Radio: in Dubrovnik, Knin, Osijek, Pula, Rijeka, Split and Zadar, also contain a bigger amount of the sound recordings of Croatian composers and interpreters. Their lists were for this occasion not available to me.

**The Music Collection of the National and University Library in Zagreb** contains ca 25,000 gramophone records, ca 12,000 audio cassettes and some 9,000 audio CD-s. By a simple search it is not possible to know how many recordings contain the art music of Croatian authors. The items of the fund are mainly obtained as obligatory copies, from the year 1965 when the obligation had been legalized. They are listed in the library catalogue, according to the standards ISBD(NBM) and UNIMARC, and mainly available to the public in the very well equipped listening room. The older records (speed 78) are protected and not publicly available (there is no reproducing device either), so they are the candidates for the priority in the selection for the possible digitisation. The concrete plan of the digitisation of the sound-recordings is not included in the project of the digitisation of heritage within the *National and University Library*.

Some ten music collections of the **public libraries in Zagreb** and other Croatian towns also contain a number of older gramophone records and audio CD-s. The oldest of them – *The Zagreb City Library* collection (founded in 1962), is the biggest. The fund is described and listed in the computational data base, by the library standards and available for the research in the Internet. It is mainly mechanically damaged. It is planned to digitise some rare titles for the purpose of protection of the endangered media (gramophone records) because of the inaccessibility in any other format.

The collection of **The Academy of Music Library in Zagreb** contains a number of important gramophone records and commercially accessible audio CD-s. Some of the gramophone records are rare. They are inventoried and described in

the library catalogues, and accessible for the listening in the reading room. For now, there are no plans for digitisation.

The **archives of publishing houses** should keep the master copies of their issues. As a former director of *The State Archive*, dr Josip Kolanović told me, the result of his efforts was that, the company named *Hrvatska naklada zvuka i slike d.d. Croatia Records* (until 1991. under the name *Jugoton*), excluded the archive from its means of the privatisation, preserving it from the probable destruction. It is formally under the jurisdiction of *The State Archive*, but still in the premises of the company. The archive contains the collection of gramophone records and magnetic tapes, audio cassettes, video cassettes and CD-s (in 1997 about 40,000 titles)<sup>7</sup>. The collection contains their own publications (including the licence recordings of Croatian artists published on the gramophone records), as well as the issues made for the other publishers. It is listed for the internal use – since 1987 the list has been run in the computational data base, with no ambitions to obey any standards of the information branch. They keep one copy of every issue. Some recordings of 78rpm are preserved and wait for the restoration in *The Croatian Film Archive*. *The Croatia Records* digitise just the items for the re-publishing on the audio CD-s, and for that purpose the recordings are cleaned from the unwanted sounds. The selected titles from the gramophone records, under the serial title *Glazbeni spomenar* are prepared for the publishing in the last years of the vinyl era. A few music-lovers within the company, led by mr Veljko Lipovšćak, have prepared some 30 records. Only the small part of that uncommercial series is really published.

The single items of the first phonograph and gramophone issues are kept in the **museums of bigger Croatian cities** (Zagreb, Rijeka).

In the project named *Croatian Heritage* by the **Croatian Ministry of Culture** the sound recordings are not even mentioned.

In the daily press it is from time to time possible to find the stories about the collections of some old-sound-media lovers – especially gramophone records. The doctor of the technology science and composer from the town Split, Damir Tomčić, possesses some 20,000 gramophone records and 14 antique gramophone devices. Beside his collection, some private expert-group also mention the other collections, like Čapka, Kraker and Mirnik. Some of them are prepared to entrust their heritage treasure for the preservation and use to some serious institution, but there is no such one in Croatia<sup>8</sup>.

Interesting and totally realistic is the initiative of three stubborn lovers – by already mentioned Damir Tončić, another two retired persons – Veljko Lipovšćak and Ivan Stamać from Zagreb. They, mostly research by themselves and at their

---

<sup>7</sup> Juričić, Vedrana. Vodič kroz glazbene knjižnice i zbirke Zagreba.

<sup>8</sup> Čelan, Joško. Hrvatska je gluha za svoju zvučnu baštinu // *Nedjeljna Slobodna Dalmacija*, 04/02/2007., str. 34-35.

expense the older history of the Croatian music sound heritage, consulting the recent press materials and publishers' catalogues, as well as the catalogues of foreign sound archives. From time to time they present the results of the research by organising the popular exhibitions in museums, or writing for the newspapers and serials.

They have, for some ten years asked for help from the state institutions – from *The National and University Library* to *The Croatian Ministry of Culture* – unfortunately until now without any success. With the support of respectable institutions (*Croatian Composers Society, Croatian Section of The Audio Engineering Society, Section for the literature of The Croatian Academy of Arts and Science*, as well as *Oesterreichisches Phonogrammarchiv and Oesterreichisches Mediathek*), this year they have asked for the funds from the pre-accession fund of the European Union, for establishing the Croatian sound archive. They are planning to find and equip their own place where the rare materials would be kept in ideal conditions, the whole Croatian sound heritage restored and digitised, and founded the digital repository<sup>9</sup>.

For the complete review of the state of Croatian art musical sound heritage it is necessary to consult the lists of the items of all institutions already mentioned, and interview other possible owners. It is necessary to contact the similar institutions abroad – in the countries where the Croatian artists stayed and/or made any sound recordings.

### **Criteria for the selection of materials for the digitisation**

Inevitable systematically digitisation of sound recordings that are worthy preserving of the national music heritage is complex, expensive and time-consuming process. Therefore it is necessary also in Croatia to determine priorities for the conversion of materials – in the segment of the art music of Croatian composers and interpreters, taking into consideration the following criteria:

1. the condition of sound carriers (by the recommendations of IASA<sup>10</sup>)
2. cultural, scientific and academic meaning of the content
3. rarity of the title

**ad 2)** Music is the kind of art in continued recreation, where interpreters take a part as well as the composer. By the selection it would be necessary to give the priority to the valuable interpretations of the artist that took the part in the Croatian history

**ad 3)** The recordings of some compositions survived just in documentary form (i.e. the live concert recording), on the magnetic tape, when others are published on many media and/or editions. Some compositions – especially of the recent

---

<sup>9</sup> Disopra, Tina: Prvi fonoarhiv // *Globus*, 29/06/2007, str. 66-67.

<sup>10</sup> Task force to establish selection criteria of analogue and digital audio contents for transfer to data formats for preservation purposes. [s.l.], IASA, 2004.

authors, are not written down at all, or they contain the element of improvisation, that makes the performance recordings unique.

How long is the life of the digital archive? – ask the sceptics<sup>11</sup>. Is it possible to loose the history trusted to the machines in constant changes? – is “five years or eternity” enough guaranties for the preservation of the digitised documents?

By selecting priorities for the preserving of the recordings by digitalisation it is necessary to take in consideration the following parameters:

4. the physical durability of sound carriers
5. obsolesce of the reproduction devices
6. disappearance of experts

#### **ad 4) The physical durability of sound carriers**

The IASA document mentioned above gives the list of the physical durability of sound carriers. About the **magnetic tapes**: “... Generally, only standard play tapes open reel tapes (SP, 52 µm total thickness) should be trusted to be mechanically stable... The lesser the mechanical stability, the greater the chance that the tape suffers from inadequate winding, which is one of the most underrated risks for magnetic tapes... prolonged storage of badly wound tapes causes irreversible deformations, which may lead to severe replay problems, specifically with thin tapes and high density recordings, e.g. R-Dat.”

The same IASA document describes the new, **optical carriers**. “The data integrity of CD-s, like all other digital media, is objectively measurable by special CD players and suitable software ... According to digital archival principles (cf. IASA-TC 03, § 11), every CD must be free of uncorrectable errors.” The replicated audio CD-s may contain the interpolations that are not original signal. It is advisable to test them for full error correction repeated in regular intervals.

#### **ad 5) Reproduction equipment**

All audio carriers are machine readable. Following the IASA *Task force*, by choosing the priorities for the migration in the new (digital) media it is necessary to take into consideration the availability of professional equipment of high quality. There are some new inventions in the sound reproduction technology, where the gramophone record in the absence of the historical gramophone, or for the preservation of mechanical damage, could be “read” by a laser ray<sup>12</sup>. In the American *Library of Congress* a machine for the scanning of gramophone discs, even broken ones is being improved, and reproduced by a computer.<sup>13</sup>

---

<sup>11</sup> Warnke, Martin. Speicher, Archiv, Gedächtnis. Das Paradox der digitalen Archive. // Musik-Sammlungen – Speicher interkultureller Prozesse : Teilband A, pp. 95-111.

<sup>12</sup> <http://www.laserturntable.com/> (01/09/2007)

<sup>13</sup> Boyce Nell. You Can Play the Record, but don't Touch



### **Techniques of music digitisation – standards for the archival custody of digitised music recordings**

Digitisation of sound in the information institutions all over the world started in the 90-ies in last century. Leading were the rich countries with highly developed tradition in archives and libraries (Australia, the USA, the United Kingdom, the Netherlands etc.). From their practice in the short time the standards have developed – first on the national level and by the time on the level of the international community of information branch. As a subject of the new scientific and professional research, it has generated a list of relevant studies, helpful for the new beginners to find the proper solutions.

The study entitled *Moving Images and Sound archiving Study AHDS*<sup>14</sup> recommends the following technical standard for the archival custody of digitised sound recordings:

- 96kHz and 24 bits for the archival copy, that enables the dynamic range of 110 decibel, without compression, and at least stereo
- for the users copy rather AAC compression than MPEG(MP3)

The data migrated in the digital media, like born digital, due to obsolescence need to be copied using the new technical devices – to emulate.

### **Metadata**

To organise the collection of digitised recordings and to ensure the possibility to access of the information, it is necessary to describe it. The description contains three types of data: technical, administrative and data for research and use. Some institutions developed the standards for the description (Dublin Core, CD Terms, PB Core, METS, PREMIS, AudioMD etc.). The automation of the metadata extraction is increasing.

It is recommended to use existing sets of metadata – the creation of the new set is expensive and not worthy the trouble.

### **Organising repository**

Audio-visual collections are deposited and available for the use in various organisations, better or poorly functional equipped. Making efforts to improve the accessibility to the information, it is necessary to make a decision whether the depository will be associated with the institution, or to become a part of the collaborative service of the group of other repositories, or to give it for the administration to the external agency or some national service. The good practice has proved that the most profitable is to develop separate but networked collections, with the use of network technology and tools like the Storage Resource Broke (SRB).

---

<sup>14</sup> Moving Images and Sound Archiving Study // Arts and humanities data service.

### **Examples from the neighbourhood**

#### **National and University Library in Ljubljana**

With the funds from abroad, the employees of the *National and University Library in Ljubljana* (3 computer specialists and 1 musicologist-librarian) carried out the project with a simple title *Digitisation of old sound recordings*. They have selected a delimited collection of physically endangered and historical interesting shellac gramophone records with the recordings of approximately 100 Slovenian compositions. They have followed the good practice of the European project *Minerva*, and recommendations of information experts. As they didn't have the original historical gramophone for the old 78rpm recordings, they played them at 33rpm and the speed adjusted by means of a computer. The sound recording is accurately transcribed from the analogue to digital medium with all scars, noises and cracks and by means of the program Adobe *Audition* digital recording is cleansed from all non-musical compositions. Digital copy is stored in WAV (standard Windows audio format in big files) and in user, quality controlled MP3 files. For the preservation of the visual image of the original source, both sides of a record are scanned. A metadata scheme is made according to the Dublin Core standard, accepted by the European projects TEL-MEMORE and TEL, as well as OAI protocol. To fit in Slovenian OPAC named COBISS, based on the UNIMARC standard, a computer interface was designed which obtained data from COBISS(UNIMARC), adjusted to fit Dublin Core and transferred them into another database. Searching the database is possible according to the general parameters of the bibliographic description.

Users can export the electronic source, by a telephone or mail order. Because the recordings are no longer under Copyright Law, reproduction is legal. The next step in digitisation process will be digitisation of catalogues and documentary materials of Slovenian musicians and institutions, followed by the digitisation of endangered music periodicals and their archives<sup>15</sup>.

#### **National Library of Serbia**

According to the text from the beginning of August this year<sup>16</sup> the *National Library of Serbia* is planning to establish the national sound archive, to keep digitised sound recordings of all available sound recordings from all over the Serbia – on the model of the national archive of Great Britain.

The four years work on the digitisation of the complete library collection of 78rpm gramophone record is coming to an end (about 600 of about 1000 records). Their plan is to consolidate all Serbian institutions with the similar fund.

---

<sup>15</sup> Moličnik Šivic, Simona: From presentation to reality, from preserved to hard. Experience in the digitization of analogue sound recordings in the Music Collection of the National and University Library in Ljubljana // *Pregled NCD* 8 (2006), 75-79.

<sup>16</sup> Tanjug, 08.08.2007.: NSB planira osnivanje Nacionalnog zvučnog arhiva // *Blic Online* I Kultura.

### **How to preserve Croatian music sound heritage – proposal instead of conclusion**

Based on the limited picture of the condition of materials in institutions and collections, as well as on good practices from the developed countries, I'm willing to first of all propose the strategy to save the important segment of Croatian history – sound recordings of art music in the first place – composers and interpreters.

At the moment, the whole responsibility for the preserving the materials is given to the employees initiative. According to the Law, authorized institutions – among all the *Ministry of Culture* and *The Croatian State Archive* should take over the responsibility and to determine the standards for the preservation. Before all it is necessary to make a detailed study, or a comprehensive project in following steps:

1. making a detailed list of owners of sound materials (according to the survey directed to the institutions and private persons)
2. making a detailed standardised list of materials – with the specification of the media format, age, deposit and physical conditions
3. based on the list to select the priorities for the preservation, considering the physical endangered condition, intellectual value of materials and rarity of items
4. to determine the standards for the migration in digital media, according to the above mentioned recommendations; to instruct the institutions that are already working on the digitisation to coordinate with standards
5. to educate the employees in the institutions that take care of the sound materials
6. according to above mentioned recommendations to make at least two copies of the recording – archival and compressed, for the public access – it would perhaps be of greatest worth to equip the unique studio for the digitisation (by the Croatian State Archive or some future Croatian sound archive?)
7. to determine the unique standard for the description (metadata) of the digitised recordings
8. to establish a unique repository for the sound recordings, by some institution – *Croatian State Archive* or some future Croatian sound archive?
9. to harmonize the variations of the explanations of the Copyright Law – enabling the free access to the heritage materials for the educational and scientific purpose
10. the project should be financed by the Croatian State and, in future perspective, European institutions that are helping to the approaching countries

## References

- Aleksandrović, Vesna. Digitalizacija građe posebnih fondova Narodne biblioteke Srbije // *Glasnik Narodne biblioteke Srbije* (1), pp. 107-120 <http://eprints.rclis.org/archive/00002166/> (18/01/2006)
- Boyce Nell. You Can Play the Record, but Don't Touch . <http://www.npr.org/templates/story/story.php?storyId=11851842> (01/09/2007)
- The British Library. The world's knowledge. <http://www.bl.uk/collections/sound-Archive/nsaabout.html> (23/08/2007)
- Brygfjeld, Svein Arne ; Solbakk, Svein Arne. Norwegian Digital Radio Archive Initiative <http://www.rlg.org/preserv/diginews/diginews2-6.html> (01/09/2007)
- Commission of the European Communities. On the digitisation and online accessibility of the cultural material and digital preservation. Brussels, 24.8.2006. [http://ec.europa.eu/information\\_society/newsroom/cf/document.cfm?action=display&doc\\_id=160](http://ec.europa.eu/information_society/newsroom/cf/document.cfm?action=display&doc_id=160) (01/09/2007)
- Čelan, Joško. Hrvatska je gluha za svoju zvučnu baštinu // *Nedjeljna Slobodna Dalmacija*, 04/02/2007, pp.34-35.
- Digitalizirana baština. <http://www.nsk.hr/Heritage.aspx?id=25> (01/09/2007)
- Digitisation of Records. Better practices Checklist. Version 1, 2004 <http://www.agimo.gov.au/checklists> (25/05/2007)
- Disopra, Tina: Prvi fonoarhiv // *Globus*, 29/06/2007, pp. 66-67.
- Dubrović, Ervin. Čarobna igla // *Sušaćla revija* no. 46/47. <http://www.klun-suscana.hr/revija/clanak.asp?Num=46-47&C=6> (21/08/2007)
- Europe's cultural and scientific heritage at a click of a mouse. [http://ec.europa.eu/information\\_society/activities/digital\\_libraries/index\\_en.htm](http://ec.europa.eu/information_society/activities/digital_libraries/index_en.htm) (01/09/2007)
- Fleischhauer, Carl. The Library of Congress Digital Audio Preservation Prototyping Project. [http://www.arl.org/preserve/sound\\_savings\\_proceedings/fleischhauer.html](http://www.arl.org/preserve/sound_savings_proceedings/fleischhauer.html) (1 of 9). December 15, 2003 (20/05/2007)
- Going Digital: Strategies for Access, Preservation, and Conversion of Collections to a Digital Format. New York, London : The Haworth Press, Inc., [s.a.].
- Handbook for Digital Projects: A Management Tool for Preservation and Access. December 4, 2004. Andover, Massachusetts : Northeast Document Conservator Center, 2000. <http://www.nedcc.org/oldnedccsite/digital/dman.pdf> (01/09/2007)
- Harvey, Ross. Preserving Digital Materials. Muenchen : K.G. Saur, 2005.
- HRTweb. <http://www.hrt.hr> (01/09/2007)
- Hrvatska kulturna baština. 20.03.2007. <http://daz.hr/bastina/> (01/09/2007)
- Hunter, Gregory S. Preserving Digital Information. New York, London : Neal-Schuman Publishers, Inc. [s.a.].
- IASA Technical Committee. The safeguarding of the Audio Heritage: Ethics, Principles and Preservation Strategy. Version 3, December 2005. <http://www.iasa-web.org> (01/09/2007)
- IFLA Guidelines for Digitisation Projects. March 2002. <http://www.ifla.org/VII/s19/sconsv.htm> (01/09/2007)
- IFLA. Smjernice za audiovizualnu i multimedijску građu u knjižnicama i drugim ustanovama. Zagreb : Hrvatsko knjižničarsko društvo, 2005.
- IZLOŽBA fonografija u Hrvatskoj 1927-1997. (1997-1998; Zagreb). Zagreb : Tehnički muzej, 1997.
- Juričić, Vedrana. Vodič kroz glazbene knjižnice i zbirke Zagreba. Zagreb : Hrvatsko muzikološko društvo ... [ et al.], 1997.
- Laser Turntable. <http://www.laserturntable.com/> (01/09/2007)
- Lipovščak, Veljko. Zaštita audiozapisa // *Arhivski vjesnik*, 43 (2000), pp.109-136.
- Moličnik Šivic, Simona: From presentation to reality, from preserved to hard. Experience in the digitization of analogue sound recordings in the Music Collection of the National and University Library in Ljubljana // *Pregled NCD* 8 (2006), 75-79. <http://www.ncd.matf.bg.ac.yu/casopis/08/NCD08075.pdf> (01/09/2007)

- Moving Images and Sound Archiving Study // Arts and humanities data service, <http://ahds.ac.uk/about/projects/archiving-studies/moving-images-sound-archiving-final.pdf>. (01/09/2007)
- NOB Cross Media Facilities. Digital Facility for Payout and Archiving, Netherlands. [http://www.broadcast-technology.com/project\\_printable.asp?ProjectID=2978](http://www.broadcast-technology.com/project_printable.asp?ProjectID=2978) (22/08/2007)
- Sapunar, Marko. Radiodifuzni sustavi. Zagreb : Alinea, 1994.
- Stančić, Hrvoje. Proces digitalizacije // *Informacijske znanosti u procesu promjena*. Zagreb, Filozofski fakultet, Zavod za informacijske studije Odsjeka za informacijske znanosti, 2005., pp. 45-83.
- Stančić, Hrvoje. Teorijski model postojanog očuvanja autentičnosti elektroničkih informacijskih objekata. Doktorska disertacija. Zagreb : Filozofski fakultet, 2005.
- Tanjug, 08.08.2007.: NSB planira osnivanje Nacionalnog zvučnog arhiva // *Blic Online*, Kultura <http://www.blic.co.yu/kultura.php?id=10154>. (21/08/2007)
- Task force to establish selection criteria of analogue and digital audio contents for transfer to data formats for preservation purposes. [s.l.], IASA, 2004.
- Vidačković, Zlatko. Nova zgrada nakon trideset godina čekanja // *Vijenac*, Nr 301, 29/09/2005. [http://www.matica.hr/Vijenac/vijenac301.nsf/AllWebDocs/Razgovor,\(01/09/2007\)](http://www.matica.hr/Vijenac/vijenac301.nsf/AllWebDocs/Razgovor,(01/09/2007))
- Vidačković, Zlatko. Treba nam arhiv glazbe i govorne riječi // *Vijenac*, Broj 340, 15/03/2007 [http://www.matica.hr/Vijenac/vijenac340.nsf/AllWebDocs/Treba\\_nam\\_arhiv\\_glazbe\\_i\\_govorne\\_rijeci\\_\(01/09/2007\)](http://www.matica.hr/Vijenac/vijenac340.nsf/AllWebDocs/Treba_nam_arhiv_glazbe_i_govorne_rijeci_(01/09/2007))
- Warnke, Martin. Speicher, Archiv, Gedächtnis. Das Paradox der digitalen Archive. // *Musik-Sammlungen – Speicher interkultureller Prozesse : Teilband A*, Stuttgart : Franz Steiner Verlag, 2007, pp. 95-111.
- ZAKON o arhivskom gradivu i arhivima. Zagreb, 29/09/1997 <http://www.nn.hr/clanci/sluzbeno/1997/1617.htm> (01/09/2007)
- ZAKON o zaštiti i očuvanju kulturnih dobara. Zagreb, 25/06/1999 <http://www.nn.hr/clanci/sluzbeno/1999/1284.htm> (01/09/2007)