"Babeş-Bolyai" University

Faculty of European Studies

The European Paradigm Doctoral School

Doctoral thesis summary

The digitization, management and long term preservation of digital documents from the collections of The Institute "Folklore Archive of the Romanian Academy"

Coordinator   Ph. D. Candidate

Prof. Univ. Dr. Ion Cuceu   Liviu-Ovidiu Pop

The digitization, management and long term preservation of digital documents from the collections of The Institute "Folklore Archive of the Romanian Academy" thesis summary

Coordinator   Ph. D. Candidate

Prof. Univ. Dr. Ion Cuceu   Liviu-Ovidiu Pop

Keywords:

digital folklore archive, digitization, long term digital preservation, implementing the OAIS model, the history of the Folklore Archive of the Romanian Academy, the history of digital technologies, analog - digital - postdigital, archived memory, the philosophy of technology, digital repository, Raspberry Pi, memory boxes, reverse archeology, preserving the immaterial culture, europeana, institutional SWOT analysis, archives roles in society, dark archives, open archives, digital humanities, ethnology, folklore

1. Introduction. The History of the Folklore Archive of the Romanian Academy

The introductory part is a general description of the Archive and its history, with an emphasis on the personality of the founder, Ion Mușlea.

1.1 Short History of the Folklore Archive of the Romanian Academy

In order to have a better understanding of the internal structure of the document corpuses from the Institute "Folklore Archive of the Romanian Academy", first I made a diachronic description of the different collections. One can identify four time periods in the evolution of the collections: the golden age of the archive (1930-1948), from the foundation up to 1948, when its founder, Ion Mușlea was no longer part of the institution; the rupture (1949-1964), starting with the "reform" of the old Romanian Academy into the People Republic of Romania; the third period (1964-1989), a time dedicated to the systematization of the documents gathered in the previous periods; the contemporary revival (1989 to present), a flourishing period of modernization.

1.2 Ion Mușlea and the Folklore Archive of the Romanian Academy

Ion Mușlea continues to be the most important figure from the history of the Archive. It is difficult to ignore his biography, if we want to have a correct presentation of the context in which the archive was founded and strengthen over its first two decades of existence. I focused on the biography details that cast a light on his first years as a researcher, when he had a study visit in Paris, during his Ph.D. studies, and on the later travels trough Northern and Central Europe, when he visited the folklore museums and archives for inspiration. I also tried to find the influences of his alternative role as a Director of the Cluj University Library in the management

of the Folklore Archive.

2. The Structure and the Digitization of the Document Collections from the Folklore Archive of the Romanian Academy

This chapter has a general introduction to digitization, the main trends and the options chosen for the digitization process. I explained how I applied the OAIS model to the particular case of the Archive, with a focus on the designated communities and the knowledge base. Further, I analyzed the differences between the analog and digital documents, explaining what is happening today while evolving to a post-digital era. After a part in which I evaluated five different solution for presenting the collections to the designated communities, I finished this chapter with a guide for installing a software on the cheapest platform currently available.

2.1 Short History of the Analog and Digital Technologies

In this part I'm reviewing the evolution of digital technologies, from the humble analogue beginnings, like the Jacquard loom, to Babagge's analytical and differential engines, Hollerith's electrical tabulating machine, Vannevar Bush's Memex, all the way to the historical context in which the Apple computers where first created and the influence of Steve Jobs in defining both the personal computer and the post-PC devices.

2.2 The Digitization. From analog to digital

This part defines the digitization as a transformation/transposition of the information from an analog format into a digital one and revisits the main moments when the analog technologies changed the course of media history. The digitization efforts are placed in the larger context of digital humanities, while giving a few examples: the first digital humanities project ever, the *Index Thomisticus*, but also exposing two more recent projects, an Italian and one from Cluj-Napoca.

2.3 Archived Memory - content and support

The relation between content and support evolved in two steps and it's about to enter it's third age. The metamorphosis applied to the archived memory nowadays is somewhere between the confluences of analogic, digital and post-digital. In this chapter I'm focusing on the relations between the content and the support for recording and replaying the information. The perspective is a technical one, focusing on the basic elements of a document as a territory of memory ant the archiving as a process applied to memory. One of the premisses is that all the documents are basically information encoded on a physical support. Starting from this, I identified three ages: the analog age., the digital age and the post-digital age.

During the first age, the analog way of imprinting the memory on the physical world is by leaving traces (handwriting or printing, impressing the celluloid or the magnetic tape). The information is deeply embedded into the support, creating an organic record. In the second age, trough digital

encoding, a rupture takes place between the content and the support. There is no more privileged original, as all the copies of a born digital document equally identical. The information becomes independent from the support, a document being perfectly replicable on a CD, HDD or memory stick. At last, in the post-digital age the information exist in a binary form, but the support becomes invisible and inaccessible. The documents are ethereal, kept in the clouds and accessible on post-PC devices. Those devices are defined today by the touch screens, but in the future new ways of accessing and interacting with the information will appear.

2.4 Creating the Digital Repository

The whole process of digitization has two main goals: to obtain a high quality digital copy of the original, the master copy, for long term preservation and to ease the access to the documents content. The first copy, the master, will be created using the best quality/time ratio offered by the available technologies and from this one working copies will be made for the day to day tasks. The digital repository would ideally become a Trusted Digital Repository by applying the OAIS principles. The most important ideas used in OAIS framework are the designated community (who are the people that need to have access to the repository) and the knowledge base (which are the minimum knowledge requirements in order to access and comprehend the content preserved). The digital repository will make the connection between the metadata and the digital files, but also will act according to the defined rules.

2.5 Case study: Installing Omeka on a Raspberry Pi for the Collection of Musical Folklore from Bihor by Traian Mârza

This is a detailed guide on installing the Omeka software on the Raspberry Pi platform via *nginx* webserver. After the installation I uploaded a fragment of the collection (over 1100 vocal songs recorded by Traian Mârza in Bihor region). This case study was realized in order to verify the viability of Raspberry Pi as a small memory box.

3. Long term preservation of documents from the Folklore Archive of the Romanian Academy

In this chapter I described the steps necessary in order assure the long term preservation of the documents and the content from the Archive. The first part is dedicated to a general introduction to the technologies used in the history of the Archive for the recording, management and the public presentation of the results. The chapter continues with a census of the main document collections from the Archive and an evaluation of the time and digital space necessary for the digitization of the Archive. A short analysis of the general context in which the digitization projects can take place is followed by a general description of the european context for preservation and access to the digital information, with a focus on the copyright legal

framework.

3.1 Older and Newer Tools Used in the Folklore Archive of the Romanian Academy

The Archive owns documents saved on a variety of supports. The information was used for research mainly, but also for the systematization of the collections and the public presentation of the research results.

3.2 The Census of the Collections from the Folklore Archive of the Romanian Academy

I made a general census of the collections from the Archive, trying to evaluate the working hours and the space on disk necessary for digitizing the main collections. For digitizing the Ion Mușlea collection, Literary Auxiliary Collection, Musical Auxiliary Collection, Papahagi Photo Collection, Sayings Cards collection, The Motifs Index of the Romanian Popular Lyricism, The Index Cards of Villages with Ethnographic Records, The Riddles Collection, The Index Folklore Genres and Species, The Saxon Lyricism Collection, Photos with descriptions, Video VHS Collection. The amount of disk space necessary for the digitization of all the above fonds is 22 TB. The time to complete the digitization is 4 and a half years, for a full time position.

3.3 The Evolution of Technology and the Planing of Long Term Preservation of Artifacts

In this part I tried to depict a larger context for the way in which the technology evolves, starting from the Kevin Kelly's volume "What Technology Wants?" and by giving examples of long term planing from the perspective of reverse archeology: the Rossetta Disk and the Global Seed Vault from Svalbard.

3.4 europeana.eu: Browsing Trough the Constitutive Documents and the Copyright Issue

Europeana is one of the most ambitious European cultural projects, with a major impact on the digitization and the access to digital information. *Europeana* puts the light on the legal issues that arise when you plan a unique access point to the digital cultural heritage from the European countries. In this part I detailed the initial planing of the project and the legal challenges that followed.

4. Sketches for Developing a Long Term Preservation System for the Folklore Archive of the Romanian Academy

In this last chapter I'm describing the future roles of the Archive, in a larger context, apart from the research one. In the first part of the chapter I'm analyzing the role of the archives and the political and ideological influences on the culture and society. The institutions like CNSAS and the initiatives like Wikileaks are trying to reveal publicly the documents from a difficult recent history. The efforts to rebuild the documents, using digital technologies, from the former STASI

and the openness of the Budapest Open Society Archive are examples of good practice. After a section dedicate to the role of the digital documents in the preservation of memory, I'm applying a SWOT analysis to the Folklore Archive of the Romanian Academy and I'm offering a few solution to strengthen the weak points and to avoid the identified threats. In Conclusions I'm offering a unique suggestion to the problem of long term digital preservation, by building an open source network of small memory boxes in the villages where the documents were recorded.

4.1 The Archives and the Society

The relation between the archives, history and political power is a complicated one, right from the beginning of the modern archives from France. The tension between the need of the politicians to present a convenable history and the raw information from the records is too often resolved by either publishing or hiding certain documents. Sometimes the archives are used as weapons, in totalitarian states, for influencing of both the macro-social evolution, but also certain individuals to act against their free will. Only by opening those archives publicly it is possible to start the process of making peace with the past. CNSAS, WikiLeaks, ex-STASI archive or Open Society Archives are just a few of the initiatives that are trying to reach the goal of bringing to light the dark archives.

4.2 Conclusions

In the conclusions I'm applying a SWOT analysis to the Folklore Archive situation and I'm emphasizing the possibilities to open the collections to a wider audience. One of the possible solution could be the creation of a parallel non-profit entity that could help capture the public attention more often. Creating small memory boxes to be returned in the villages where the records were taken, as a solution specific to the folklore archives, for revigorating the immaterial cultural heritage is one of the most interesting outcome that could follow this paper.

Partial bibliography:

1. Articles

1. Aikat, Debashis 'Deb' "Pioneers of the Early Digital Era: Innovative Ideas that Shaped Computing in 1833-1945" in *Convergence*, vol. 7, no. 4, 2001
2. Aldea, Maria; Bogdan Harhătă; Daniel-Corneliu Leucuţa; Lilla-Marta Vremir, "Primii paşi în realizarea ediţiei electronice a Lexiconului de la Buda (1825)" in *Philologica Jassyensia* an IX, nr. 1 (17), 2013
3. Bârlea, Ovidiu "Ion Muşlea (1899 - 1966)" in Idem *Efigii*, Bucharest, Publisher Cartea Românească, 1987
4. Biles, George E.; Alfred A. Bolton; Bernadette M. DiRe "Herman Hollerith: Inventor, Manager,

Entrepreneur––A Centennial Remembrance", in *Journal of Management,* vol. 5, no. 4, 1989

5. Bollacker, Kurt D. "Avoiding a Digital Dark Age" in *American Scientist,* Volume 98, March-April 2010

6. Busa, Roberto "The Annals of Humanities Computing: The Index Thomisticus" in *Computer and the Humanities* 14 (1980)

7. Bush, Vannevar "As We May Think", in *The Atlantic*, Iulie 1945

8. Crofts, Charlotte "Digital Decay" in *The Moving Image*, Fall 2008, 8 (2). xiii-35. ISSN 1532-3978

9. Curry, Andrew "Piecing Together the Dark Legacy of East Germany's Secret Police" in *Wired Magazine*, Issue 16.02, 18 Ianuarie 2008

10. Derrida, Jacques "Archive Fever: A Freudian Impression", in *Diacritics* 25, no. 2 (Summer 1995): 9-63.

11. Florea, Virgiliu "Arhiva de Folclor a Academiei Române. Memoriile întemeierii" in vol. *Metode şi instrumente de cercetare etnologică Stadiul actual şi perspectivele de valorificare Studii închinate memoriei savanților Ion Muşlea şi Ovidiu Bârlea*, Editors: Ion Cuceu and Maria Cuceu. - Cluj-Napoca: Publisher Fundației pentru Studii Europene, 2011

12. Hollerith, Herman, "An Electric Tabulating System" in *The Quarterly, Columbia University School of Mines*, Vol.X No.16, Apr 1889

13. Isaacson, Walter "American Icon", in *Time Magazine*, Monday, Oct. 17, 2011

14. Milligan, Jennifer S. "The Problem of Publicite in the Archives of Second Empire France" in *Archives, Documentation, and Institutions of Social Memory. Essays from the Sawyer Seminar*, Edited by Francis X. Blouin Jr. and William G. Rosenberg, The University of Michigan Press, 2007

15. Muşlea, Ion "Ion Bianu şi folklorul nostru" in *Anuarul Arhivei de Folklor* III/1935

16. Negroponte, Nicholas "Beyond Digital", in *Wired*, 6 (1998)

17. Steedman, Carolyn "«Something She Called a Fever» Michelet, Derrida, and Dust (Or, in the Archives with Michelet and Derrida)" in *Archives, Documentation, and Institutions of Social Memory. Essays from the Sawyer Seminar*, Edited by Francis X. Blouin Jr. and William G. Rosenberg, The University of Michigan Press, 2007

18. Timoce, Cosmina "Anuarul Arhivei de Folklor", in *Anuarul Muzeului Etnografic al Moldovei*, XII, 2012

2. Volumes

1. Arendt, Hannah *Originile Totalitarismului*, Humanitas, Bucharest, 1994

2. Castells, Manuel *The Rise of the Network Society, The Information Age: Economy, Society and Culture*, Blackwell, Oxford, 2000

3. Ceruzzi, Paul E. *A History of Modern Computing*, MIT Press Cambridge, Massachusetts London, England, 2003

4. Dawkins, Richard *River out of Eden*, Basic Books, New York, 1995

5. Domscheit-Berg, Daniel *Inside WikiLeaks*, RandomHouse, New York, 2011

6. Giaretta, David *Advanced Digital Preservation*, Springer-Verlag, Berlin Heidelberg, 2011

7. Harris, David Money; Sarah L. Harris *Digital Design and Computer Architecture*, Elsevier, San Francisco, 2007

8. Ianolide, Ioan *Întoarcerea la Hristos*, Christiana, Bucharest 2006

9. Kelly, Kevin *What technology wants,* Penguin, New York, 2010

10. Latour, Bruno *We have never been modern,* Harvard University Press, Cambridge, 1993

11. Mîrza, Traian *Folclor muzical din Bihor. Schiță monografică*, Publisher: Editura Muzicală a Uniunii Compozitorilor, 1974

12. Muşlea, Ion *Arhiva de Folclor a Acdemiei Române. Studii, memorii ale întemeierii, rapoarte de activitate, chestionare 1930-1948,* Ediție critică, note, cronologie, comentarii şi bibliografie de Ion Cuceu şi Maria Cuceu, Cluj-Napoca, Publisher: Fundației pentru Studii Europene, 2003

13. Papahagi, Tache *Images d'ethnographie roumaine I-II*. f. ed., București, 1928-1930

14. Pepperell, Robert; Michael Punt *The Postdigital Membrane*, Intellect Books, Bristol, 2000

15. Ricoeur, Paul *Memoria, istoria, uitarea*, Publisher Ideea Europeană, Timişoara, 2001

16. Sterling, Bruce *The Hacker crackdown. Law and Disorder on the Electronic Frontier,* Publisher Bantam, 1993

17. Teodorov, Tsvetan *Abuzurile memoriei*, Amarcord, Timişoara, 1999

18. Wolton, Thierry, *Roşu-Brun. Răul secolului,* Fundaţia Academia Civică, Bucharest, 2001

19. Woolley, Benjamin *The Bride of Science: Romance, Reason, and Byron's Daughter,* McGraw-Hill, New York - London, 2002

3. *Reports and Official Documents*

1. Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, 22 October 2003, http://www.zim.mpg.de/openaccess-berlin/berlin declaration.pdf

2. European Science Foundation, *Science Policy Briefing • Research Infrastructures in the Digital Humanities*, September 2011, http://www.esf.org/fileadmin/Public documents/Publications/ spb42 RI DigitalHumanities.pdf

3. Europeana, *Europeana Data Exchange Agreement,* http://pro.europeana.eu/c/ document library/get file?uuid=deb216a5-24a9-4259-9d7c-b76262e4ce55&groupId=10602

4. Europeana, *Europeana Semantic Elements Specification, Version 3.4.1,* 2012-24-02, http:// pro.europeana.eu/documents/900548/dc80802e-6efb-4127-a98e-c27c95396d57

5. Europeana, *Metadata Mapping & Normalisation Guidelines for the Europeana Semantic Elements, Version 2.1.1,* 2012-02-24, http://pro.europeana.eu/documents/ 900548/683de455-27a7-4dd6-81c7-928120957dfa

6. Europeana, *The Europeana Public Domain Charter,* http://pro.europeana.eu/c/

document_library/get_file?uuid=d542819d-d169-4240-9247-f96749113eaa&groupId=10602

7. Higgins, Sarah; Najla Semple *OAIS Five-year review Recommendations for update. Compiled on behalf of members of The Digital Curation Centre and The Digital Preservation Coalition,* https://www.era.lib.ed.ac.uk/bitstream/1842/3352/1/Higgins%20OAIS_5-Year_Review.pdf

8. *Letter suggesting a virtual European library – from six EU leaders to the Commission,* Aprilie 2005, http://ec.europa.eu/information_society/activities/digital_libraries/doc/letter_1/index_en.htm,

9. Open Society Archives, *Report on the Activities of the Open Society Archives 1995–2000,* Budapest September 2000,

10. RLG-OCLC, *Trusted Digital Repositories: Attributes and Responsibilities. An RLG-OCLC Report,* RLG Mountain View, California, USA, 2002, http://www.oclc.org/content/dam/research/activities/trustedrep/repositories.pdf?urlm=161690,

11. The Consultative Committee for Space Data Systems (CCSDS), *Reference Model For An Open Archival Information System (OAIS), Recommended Practice CCSDS 650.0-m-2, Magenta Book,* Washington, June 2012, http://public.ccsds.org/publications/archive/650x0m2.pdf

12. Wright, Richard *Preserving Moving Pictures and Sound,* raport disponibil la http://dx.doi.org/10.7207/twr12-01, accesat în 15 Aprilie 2013.

4. Online resources

1. Arnall, Timo; Jørn Knutsen, Einar Sneve Martinussen *Immaterials: light painting WiFi,* http://www.nearfield.org/2011/02/wifi-light-painting,

2. Athena WP3 Working Group, *Persistent Identifiers Recommendations,* http://www.athenaeurope.org/getFile.php?id=779

3. Creative Commons, *CC0 1.0 Universal (CC0 1.0), Public Domain Dedication,* http://creativecommons.org/publicdomain/zero/1.0/

4. Digital Preservation Coalition, *The Preservation Management of Digital Material Handbook* http://www.dpconline.org/component/docman/doc_download/299-digital-preservation-handbook

5. Digital Preservation Europe, *Persistent Identifiers for Cultural Heritage,* http://www.digitalpreservationeurope.eu/publications/briefs/persistent_identifiers.pdf,

6. Dublin Core Metadata Initiative, *Metadata Basics,* http://dublincore.org/metadata-basics/,

7. Erickson, Chris *Light, Dark and Dim Archives: What are they?* http://preservationmatters.blogspot.ro/2013/05/light-dark-and-dim-archives-what-are.html

8. *How Hash Algorithms Work,* http://metamorphosite.com/one-way-hash-encryption-sha1-data-software

9. *Inside Facebook's Lulea Data Center,* http://www.datacenterknowledge.com/inside-

facebooks-lulea-data-center/

10. Author Not Available, *Understanding "Post-PC"*, http://www.gottabemobile.com/2011/03/04/understanding-post-pc/

11. Frater, Jamie *Top 10 Incredible Time Capsules*, http://listverse.com/2009/04/27/top-10-incredible-time-capsules/

12. GNU, *What is free software?* http://www.gnu.org/philosophy/free-sw.html

13. Hillis, Danny *The Millennium Clock - An essay by Danny Hillis from 01995*, http://longnow.org/essays/millennium-clock/

14. L'officina scrittoria di Anton Francesco Doni. Archivio multimediale di stampe e manoscritti, http://www.ctl.sns.it/doni/

15. Lexiconul de la Buda, http://www.bcucluj.ro/lexiconuldelabuda

16. Ministry of Agriculture and Food Norway, *Arctic Seed Vault Opens Doors for 100 Million Seeds,* http://www.regjeringen.no/en/dep/lmd/campain/svalbard-global-seed-vault/news/arctic-seed-vault-opens-doors-for-100-mi.html?id=501721

17. Muhammad, Villayat *Introduction to IPv6*, http://www.txv6tf.org/wp-content/uploads/2010/08/Muhummad-Tutorial-ipv6-basics.pdf

18. NDSA Infrastructure &Standards Working Groups, *Checking Your Digital Content: How, What and When to Check Fixity?* http://blogs.loc.gov/digitalpreservation/files/2014/02/NDSA-Checking-your-digital-content-Draft-2-5-14.pdf

19. Nickolay Lamm, *What If You Could See WiFi?*, http://www.mydeals.com/blog/what-if-you-could-see-wifi/post

20. Novak, Audrey *Fixity Checks: Checksums, Message Digests and Digital Signatures,* http://www.library.yale.edu/iac/DPC/AN_DPC_FixityChecksFinal11.pdf

21. Novak, Matt "19 Amazing Time Capsules Still Underground (And What's Inside Them)" in *Paleofuture - Gizmodo,* http://paleofuture.gizmodo.com/19-amazing-time-capsules-still-underground-and-whats-512832682

22. Open Archives Initiative - Object Reuse and Exchange, *ORE User Guide - Primer,* http://www.openarchives.org/ore/1.0/primer

23. Open Compute Project, http://www.opencompute.org

24. Open Folklore, *American Folklore Society Ethnographic Thesaurus,* http://www.openfolklore.org/et/tree.htm

25. Open Society Archives Budapesta, *Kokretum,* http://w3.osaarchivum.org/galeria/catalogue/2008/concrete/virtual/konkretum.html

26. Pidd, Helen "Germans piece together millions of lives spied on by Stasi", in *The Guardian,* http://www.guardian.co.uk/world/2011/mar/13/east-germany-stasi-files-zirndorf

27. Pop, Liviu *Open Source Folklore Archives - Disseminating Small Memory Boxes,* https://

www.academia.edu/7291127/Open_Source_Folklore_Archives_-_Disseminating_Small_Memory_Boxes

28. Presto Prime, *PrestoPRIME Cost Model for Digital Storage (PP-CMDS)* http://4cproject.eu/summary-of-cost-models/16-community-resources/outputs-and-deliverables/110-prestoprime-cost-model-for-digital-storage-pp-cmds

29. Robinson, Andrew; Karatzogianni, Athina *Digital Prometheus: WikiLeaks, the State-Network Dichotomy and the Antinomies of Academic Reason,* From the SelectedWorks of Athina Karatzogianni, http://works.bepress.com/athina_karatzogianni

30. Rosetta Projecthttp://rosettaproject.org/about/,

31. Rusbridge, Chris *Representation Information: what is it and why is it important?* http://www.dcc.ac.uk/news/representation-information-what-it-and-why-it-important

32. Simple Knowledge Organization System http://www.w3.org/2004/02/skos/

33. Svalbard Global Seed Vault http://seedvault.no

34. The Federal Commissioner for the Stasi Records, *History and tasks of the Federal Commissioner for the Stasi-files* http://www.bstu.bund.de/EN/Home/home_node.html

35. Vance, Ashlee "Inside the Arctic Circle, Where Your Facebook Data Lives" in *Bussines Week,* 4 Octombrie 2013 http://www.businessweek.com/articles/2013-10-03/facebooks-new-data-center-in-sweden-puts-the-heat-on-hardware-makers

36. Wright, Richard "In a post-media world - what are we keeping and where are we keeping", in *MIT-6: Stone and Papyrus, Storage and Transmission conference,* http://videolectures.net/mitworld_media_transition6/

37. Xeoncross, *Why are many programmers moving their code to github?* http://programmers.stackexchange.com/questions/164618/why-are-many-programmers-moving-their-code-to-github

38. Yi Zhuang, *Building a complete Tweet index,* https://blog.twitter.com/2014/building-a-complete-tweet-index

5. Resurse audio-video

1. Bălănescu, Alexander *Bălănescu Quartet şi „Maria T."* http://tiff.ro/tiff/stiri/balanescu-quartet-si-maria-t

2. Berners-Lee, Tim *Tim Berners-Lee on the next Web,* http://www.ted.com/talks/tim_berners_lee_on_the_next_web.html

3. Brudaşcă, Maria *Cum s'a făcut lumea,* http://vimeo.com/79924087,

4. Danaga, *Întreaba muntele (cu Surorile Oșoianu)* https://soundcloud.com/danaga/06-danaga-intreaba-muntele-cu

5. Danaga, *Mă uitai spre răsărit (cu Maria Lătăreţu)* https://soundcloud.com/danaga/04-danaga-ma-uitai-spre

6. Danaga, *Paparudele, șamanul și artiștii (cu Surorile Oșoianu, Terence McKenna)* https://soundcloud.com/danaga/16-danaga-paparudele-samanul

7. Danaga, *Zâna zorilor*, https://soundcloud.com/danaga/zana-zorilor

8. Europeana, *Linked Open Data - What is it?* http://vimeo.com/36752317

9. Graham-Cumming, John *The greatest machine that never was*, http://www.ted.com/talks/lang/en/john_graham_cumming_the_greatest_machine_that_never_was.html

10. Jobs, Steve *Steve Jobs on Post-PC Products*, http://www.youtube.com/watch?v=XdSQbVFobu4

11. Subcarpați, *Când a fost la '89*, https://www.youtube.com/watch?v=cmut6G74DHw

6. Software

1. *Ajenti* http://ajenti.org.

2. *AntConc* http://www.laurenceanthony.net/software/antconc/.

3. *BWFMetaedit* http://sourceforge.net/projects/bwfmetaedit/.

4. *Dropbox* http://dropbox.com

5. *Dokuwiki* https://www.dokuwiki.org.

6. *MediaInfo* http://mediaarea.net/en/MediaInfo.

7. *Musescore* http://musescore.org/en.

8. *NOOBS (New Out Of the Box Software)* http://downloads.raspberrypi.org/NOOBS_latest.

9. *Omeka,* http://omeka.org

10. *Open Refine* http://openrefine.org.

11. *Scripto* http://scripto.org/documentation/about/.

12. *SD Formatter* https://www.sdcard.org/downloads/formatter_4/index.html