Web Based System of BNR Archive
First Stage: Multimedia Web Portal of the BNR Archive

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Abstract. The paper describes Multimedia Web Portal of the Bulgarian National Radio (BNR) archive. The Web Portal provides efficient services of modern information technologies in radio archiving.

Keywords: Digital Radio Archive, Multimedia, Radio

1   1. Introduction

UNESCO's Director-General Irina Bokova defines archives as: "…humanity's collective memory bank, maintained in many public and private organizations. Especially in remote areas, they are in desperate need of preservation."

In recent years the EU radiobroadcasters began to expand the distribution of their production to new media platforms to meet the new needs of the audience. Almost all radio stations in the European Broadcasting Union (EBU) offer web pages supported by the archive funds of the respective media. The information can be accessible also through direct access to publications, data and material in so-called media portals (funds and repositories), such as ARD Mediathek (Germany), BBC Player (UK), O1 (Austrian Radio 1), Digit (WDR – Westdeutsche Rundfunk), RTE Archives. Examples of existing radio archive portals are: https://www.rte.ie/archives/exhibitions/2770-weird-and-wonderful/, https://www.facebook.com/Programski-arhiv-RTS-132146420308868/. Audiovisual philosophy and principles are described in details in (Edmondson, 2016). Digital disaster recovery for audiovisual collections: testing the theory is outline in SEAPAVAA Manual for AV Archives - http://seapavaa.net/wp-content/uploads/2016/02/Digital-disaster-recovery.pdf. A booklet prepared for UNESCO by Ray Edmondson is given in http://seapavaa.net/wp-content/uploads/2016/02/SEAPAVAAMANUALoutline.pdf and describes the building blocks of radio archives.

As public broadcaster, BNR is called upon to generate, to preserve and to make available the material that will offer to its own programme-makers the opportunity of greater understanding of the experience of our time. By providing access to materials from his archives the Bulgarian National Radio develop a Multimedia Web Portal of the Bulgarian National Radio Archive. The Web Portal adds a new moment in fulfilling BNR public mission through open access for users of a limited number of publications (audio, text and images files) to part of its archive fund and multimedia publications

using archives materials. The rest of the paper is organized as follows: Section 2 presents a brief overview of the analysis of the EBU online radio archives and projects; Section 3 presents the functionality and realization of the Multimedia Web Portal of the Bulgarian National Radio Archive; the last section contains some concluding remarks.

2   Analysis of Some EBU Online Radio Archives

In this section we present the current stage of online radio archives and projects in some of the leading EBU stations.

The **MED-MEM archive web site** represents the culmination of a four year project led by the French National Audiovisual Institute (INA), along with partners including the Rome-based Permanent Conference of Mediterranean Audiovisual Operators (COPEAM), Algerian public television (EPTV), Jordanian broadcaster JRTV, RAI Italian television, and Morocco's national broadcaster SNRT. The project was financed in part by the European Union Euromed Heritage IV Programme.

The Irish Radio offers open online access to some of the archives - numerous and extremely rich collections of sound, image and text. Temporary collections of the sound archive, as well as of event and documentary archives are available online via a dedicated web Portal for archives - http://www.rte.ie/archives/. The project at Deri (NUI Galway) at INSIGHT develop innovative semantic cross-archive platform to search and find content in order to ensure full open access to treasures in the Irish radio archives. The opening of these rich archives is an extremely global challenge and through it the radio allows for further research into the cultural, historical and sports life in the country, as well as adding new ones materials to the language heritage

The Spanish Radio RNE (Radio Nacional de Espana) has an archive section on its website where it collects and stores materials. Another very specific problem for radio production - submission of more than one application for a given material and their execution is also solved.

Danish Broadcast Corporation DR (Danish Radio) - LARM Audio Research Archive project (http://www.larm-archive.org). The archive offers limited access for researchers and specialists from the field of education. The digital archive contains more than one million hours of audio materials.

BBC. Some of the archives were uploaded online in 2008. The BBC works in close partnership with the British Film Institute (BFI) and the National Archives. BBC Genome is one of the most ambitious projects for digital archiving of materials and is associated with old copies of Radio Times magazine between 1923 and 2009.

**The Swedish Radio** has a station that transmits archive content, accessible online as well.

RAI (RAI Radiotelevisione Italiana). Today, RAI's archive offers: 24 hours a day, 7 days a week full access to the archive and apps for users; reading and executing the last-year content query is less than 20 seconds; reading and executing the application content from previous years (except for the last year) is running in less than 3 minutes.

Norwegian Radio (Norsk rikskringkasting NRK). The archive is not open, but the idea is for it to happen - the main problem is, as with most similar archives, copyright. However, the collection is open for use for scientific purposes and research.

Finnish Radio (Yleisradio Yle). After nearly 15 years of work Finnish Radio has a fully digitized fund, accessible through an internal network of all editors.

3 Functionality and Realization of the Multimedia Web Portal of the Bulgarian National Radio Archive

In Figure 1 the architecture of BNR archives and their use in the BNR production systems is given (Krandeva, Cultural Heritage Archives on Bulgarian National Radio Platforms, 2012).
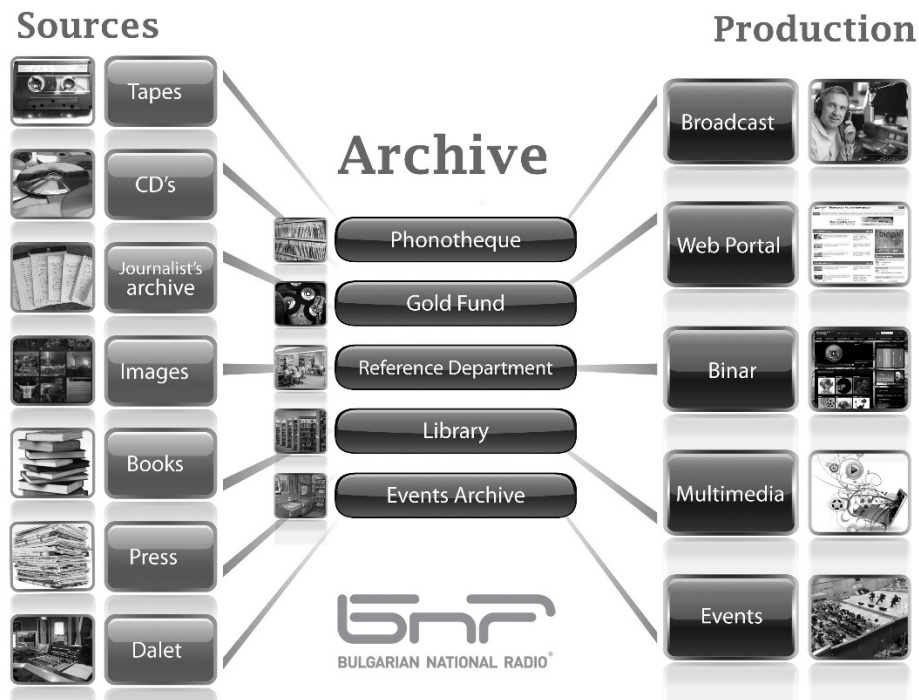
Fig. 1. The architecture of BNR archives and their use in the BNR production systems

BNR`s ambition is to continue to open up its archives to the public in as many different ways as possible. New technologies are enabling new forms of interactivity that is, in turn, generating a social and community value. The developed Multimedia Web Portal of the Bulgarian National Radio Archive answer this question. The Web Portal meet the European standards and technologies for creating and searching for multimedia objects in Digital archives and methods to unify metadata with the European Union Radio

and TV Standards (n.a., Technical Report 003, Radio Archives: Conception & Practice, July 2009, 2009) (n.a., EBU – TECH 3336 EBU Reference Data & Classification Schemes Source: ECM Status: Specifica-tion v.1.1 Geneva, September 2011, 2011). It unifications the access and use between different archives in the Bulgarian National Radio - audio, Web Portal, information, etc. All of this archives are on differnt media, in different formats, and with different access.

Our Web Portal is based on EBUCore - a metadata framework that is used to describe almost any media content. It is based on the most widely used common metadata system, Dublin Core. EBUCore is the result of well-defined requirements and understanding of the consumer needs of radio operators. It is developed within the EBU's Media Information Management (MIM) strategic program, which includes experts from around the world. The EBUCore is primarily designed for users of varying needs, with the aim of using a relatively small and flexible list of elements to describe audio and video resources for a wide range of applications - archives, exchanges, production (n.a., EBU core metadata set for Radio archives. December 2001, 2001). It uses methodology developed in (Krandeva, Digital Off-Air Radio Events Archive of the Bulgarian National Radio, 2013).

The Multimedia Web Portal of the Bulgarian National Radio preserves material for the following reasons:

- To preserve BNR broadcasts and raw material as a corporate function;
- To preserve permanently highlights from the Bulgarian history;
- To provide researchers and public with information and facts that are not available in any other form.

Types of archive materials: sound files, texts and images (photos, video files, and graphics). Types of services: input, coding, editing, digitalization of archival funds; searching for documents by different parameters; creating information documents. Main headings: Dates from the calendar, Times and people, Culture, Music, Radio-theater, and Sport.

Example page of the Multimedia Web Portal of the Bulgarian National Radio Archive is giving in Figure 2.

Fig. 2. Example page of the Multimedia Web Portal of the Bulgarian National Radio Archive

4   Conclusions and Future Work

The experiments have shown that the Web Portal meets the requirements and greatly can facilitates the work of the editors and public. The full integration of the system with the existing BNR archives is our future step. At a later stage, digital rights management technology could be implemented to limit the distribution of the available audio files.

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