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Further information on ERPANET and access to its other products is available at <http://www.erpanet.org>.

A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>).

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## **Executive Summary**

The Austrian Broadcasting Corporation ORF is composed of a number of national and local radio and television channels. All over the ORF existing archives are being digitised and better integrated into the active workflow. One of the radio stations, Oe1, is in the vanguard of this undertaking implementing a system called KoKo (which stands for "Communication and Coordination") that will soon be exported to all other ORF radio stations. Oe1 offers a premier cultural schedule with internationally recognised own productions. These productions are of particular value to the Oe1 as well as the whole ORF. Their long-term preservation is of immediate business value that also contributes to cultural heritage. By describing organisation-wide developments as well as the systems already installed at the Oe1, this case study draws up a picture of the integrated ORF Radio Archive of the future and its embedding in the ORF wide information space.

KoKo embraces the whole workflow at ORF radio stations, including the planning of programmes, coordination, broadcasting, as well as archiving. The implementation of the new system is well underway and will continue into 2005 without causing any interruption to the radio broadcasting programme. Staff can accession their audio files into the KoKo's archival component and also select the audio quality level. Comprehensive metadata can be applied to each audio file, and it will even be possible to attach documents such as textual drafts or press coverage to an archival item.

An ORF-wide workgroup nicknamed ARCon (Archives online) ensures communication between all departments and preservation initiatives in the ORF, including most notably the television archive and the radio archive. Its ultimate goal is to interconnect the various archives at a meta-level to establish a unified knowledge base that can be accessed by all ORF staff. Ensuring interoperability and establishing consistency while maintaining flexibility are the virtues of this undertaking. One of its marked characteristics is its grassroots origin, which despite its scale remains untied from bureaucratic top-level control and is still not embedded in formal strategies, as well as the radio archive still lacks formal digital preservation policies. Without them and without high-level commitment to provide the necessary financial and staff resources when needed, the audio holdings are in a rather fragile state from a long-term perspective. This is underlined by current digitisation efforts that lack much needed resources, which will inevitably lead to a loss of valuable material that is locked on deteriorating analogue media.

However, the KoKo system is already an integral part of work at Oe1 and promises to be a great success for the whole ORF. Once the implementation project is finalised, and systems embedded in preservation procedures and policy statements endorsed by the ORF top, the ORF radio archive will be well prepared for future preservation challenges.

## **Chapter 1: The ERPANET Project**

The European Commission and Swiss Confederation funded ERPANET Project<sup>1</sup> (Electronic Resource Preservation and Access Network) works to enhance the preservation of cultural and scientific digital objects through raising awareness, providing access to experience, sharing policies and strategies, and improving practices. To achieve these goals ERPANET is building an active community of members and actors, bringing together memory organisations (museums, libraries and archives), ICT and software industry, research institutions, government organisations, entertainment and creative industries, and commercial sectors. ERPANET constructs authoritative information resources on state-of-the-art developments in digital preservation, promotes training, and provides advice and tools.

ERPANET consists of four partners and is directed by a management committee, namely Seamus Ross (HATII, University of Glasgow; principal director), Niklaus Bütikofer (Schweizerisches Bundesarchiv), Hans Hofman (Nationaal Archief/National Archives of the Netherlands), and Maria Guercio (ISTBAL, University of Urbino). At each of these nodes a content editor supports their work, and Peter McKinney serves as a co-coordinator to the project. An Advisory Committee with experts from various organisations, institutions, and companies from all over Europe give advice and support to ERPANET.

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<sup>1</sup> ERPANET is a European Commission funded project (IST-2001-32706). See [Hwww.erpanet.org](http://www.erpanet.org) for more details and available products.

## **Chapter 2: Scope of the Case Studies**

While theoretical discussions on best practice call for urgent action to ensure the survival of digital information, it is organisations and institutions that are leading the drive to establish effective digital preservation strategies. In order to understand the processes these organisations are undertaking, ERPANET is conducting a series of case studies in the area of digital preservation. In total, sixty case studies, each of varying size, will investigate awareness, strategies, and technologies used in an array of organisations. The resulting corpus should make a substantial contribution to our knowledge of practice in digital preservation, and form the foundation for theory building and the development of methodological tools. The value of these case studies will come not only from the breadth of companies and institutions included, but also through the depth at which they will explore the issues.

ERPANET is deliberately and systematically approaching disparate companies and institutions from industry and business to facilitate discussion in areas that have traditionally been unconnected. With these case studies ERPANET will broaden the scope and understanding of digital preservation through research and discussion. The case studies will be published to improve the approaches and solutions being developed and to reduce the redundancy of effort. The interviews are identifying current practice not only in-depth within specific sectors, but also cross-sectorally: what can the publishing sector learn from the aeronautical sector? Eventually we aim to use this comparative data to produce intra-sectoral overviews.

This cross-sectoral fertilisation is a main focus of ERPANET as laid out in its Digital Preservation Charter.<sup>2</sup> It is of primary importance that disparate groups are given a mechanism through which to come together as best practices for digital preservation are established in each sector.

### *Aims*

The principal aims of the study are to:

- build a picture of methods and match against context to produce best practices;
- accumulate and make accessible information about practices;
- identify issues for further research;
- enable cross-sectoral practice comparisons;
- enable the development of assessment tools;
- create material for training seminars and workshops; and,
- develop contacts.

Potential sectors have been selected to represent a wide scope of information production and digital preservation activity. Each sector may present a unique perspective on digital preservation. Organisational and sectoral requirements, awareness of digital preservation, resources available, and the nature of the digital

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<sup>2</sup> The Charter is ERPANET's statement on the principles of digital preservation. It has been drafted in order to achieve a concerted and co-ordinated effort in the area of digital preservation by all organisations and individuals that have an interest and share these concerns. [Hhttp://www.erpanet.org/charter.php](http://www.erpanet.org/charter.php).

object created place unique and specific demands on organisations. Each of the case studies is being balanced to ensure a range of institutional types, sizes, and locations.

The main areas of investigation included:

- perception and awareness of risk associated with information loss;
- understanding how digital preservation affects the organisation;
- identifying what actions have been taken to prevent data loss;
- the process of monitoring actions; and,
- mechanisms for determining future requirements.

Within each section, the questions were designed to bring organisational perceptions and practices into focus. Questions were aimed at understanding impressions held on digital preservation and the impact that it has had on the respective organisation, exploring the awareness in the sector of the issues and the importance that it was accorded, and how it affected organisational thinking. The participants were asked to describe, what in their views, were the main problems associated with digital preservation and what value information actually had in the sector. Through this the reasons for preserving information as well as the risks associated with not preserving it became clear.

The core of the questionnaire focused on the actions taken at corporate level and sectoral levels in order to uncover policies, strategies, and standards currently employed to tackle digital preservation concerns, including selection, preservation techniques, storage, access, and costs. Questions allowed participants to explore the future commitment from their organisation and sector to digital preservation activities, and where possible to relate their existing or planned activities to those being conducted in other organisations with which they might be familiar.

Three people within each organisation are targeted for each study. In reality this proved to be problematic. Even when organisations are identified and interviews timetabled, targets often withdrew just before we began the interview process. Some withdrew after seeing the data collection instrument, due in part to the time/effort involved, and others (we suspect) dropped out because they realised that the expertise was not available within their organisation to answer the questions. The perception of risks that might arise through contributing to these studies worried some organisations, particularly those from sectors where competitive advantage is imperative, or liability and litigation issues especially worrying. Non-disclosure agreements that stipulated that we would neither name an organisation nor disclose any information that would enable readers to identify them were used to reduce risks associated with contributing to this study. In some cases the risk was still deemed too great and organisations withdrew.

### **Chapter 3: Method of Working**

Initial desk-based sectoral analysis provides ERPANET researchers with essential background knowledge. They then conduct the primary research by interview. In developing the interview instrument, the project directors and editors reviewed other projects that had used interviews to accumulate evidence on issues related to digital preservation. Among these the methodologies used in the Pittsburgh Project and InterPARES I for target selection and data collection were given special attention. The Pittsburgh approach was considered too narrow a focus and provided insufficient breadth to enable full sectoral comparisons. On the other hand, the InterPARES I data collection methodology proved much too detailed and lengthy, which we felt might become an obstacle at the point of interpretation of the data. Moreover, it focused closely on recordkeeping systems within organisations.

The ERPANET interview instrument takes account of the strengths and weaknesses from both, developing a more focused questionnaire designed to be targeted at a range of strategic points in the organisations under examination. The instrument<sup>3</sup> was created to explore three main areas of enquiry within an organisation: awareness of digital preservation and the issues surrounding it; digital preservation strategies (both in planning and in practice); and future requirements within the organisation for this field. Within these three themes, distinct layers of questions elicit a detailed discovery of the state of the entire digital preservation process within participants' institutions. Drawing on the experience that the partners of ERPANET have in this method of research, another important detail has been introduced. Within organisations, three categories of employee were identified for interview: an Information Systems or Technology Manager, Business Manager, and Archivist / Records Manager. In practice, this usually involved two members of staff with knowledge of the organisation's digital preservation activities, and a high level manager who provided an overview of business and organisational issues. This methodology has allowed us to discover the extent of knowledge and practice in organisations, to understand the roles of responsibility and problem ownership, and to appreciate where the drive towards digital preservation is initiated within organisations.

The task of selecting the sectors for the case studies and of identifying the respective companies to be studied is incumbent upon the management board. They compiled a first list of sectors at the very beginning of the project. But sector and company selection is an ongoing process, and the list is regularly updated and complemented. The Directors are assisted in this task by an advisory committee.<sup>4</sup>

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<sup>3</sup> See [Hhttp://www.erpanet.org/studies/index.php](http://www.erpanet.org/studies/index.php). We have posted the questionnaire to encourage comment and in the hope that other groups conducting similar research can use the ideas contained within it to foster comparability between different studies.

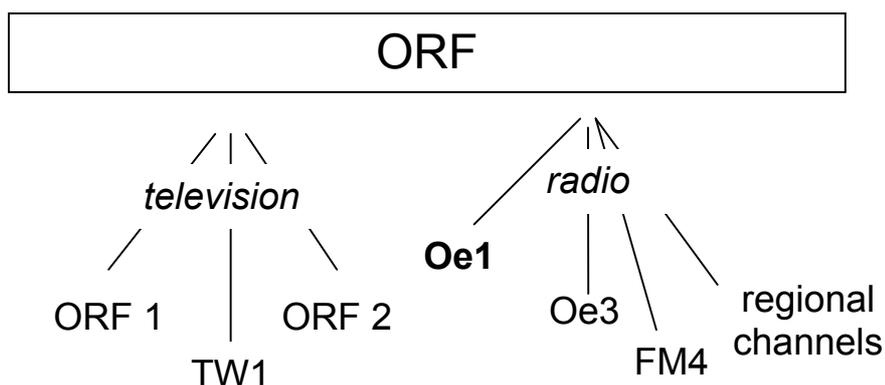
<sup>4</sup> See [Hwww.erpanet.org](http://www.erpanet.org) for the composition of this committee.

## **Chapter 4: the ORF Radio Archive**

The Austrian Broadcasting Corporation (ORF, Österreichischer Rundfunk) provides national television and radio programmes as well as nine provincial radio channels. Under the ORF umbrella the various channels act in a rather decentralised fashion, whereby each follows the Federal Act on the Austrian Broadcasting Corporation (ORF Act)<sup>5</sup> and all are governed by the ORF board headed by a director general.

Broadcasting in Austria can be traced back to 1924. The ORF was founded in 1957 following Austrian independence after the Second World War with the Austrian Republic and the nine Austrian provinces as its partners. In 1967 a comprehensive reform made the ORF an autonomous business undertaking that is politically and economically independent. The state monopoly on broadcasting was abandoned in 2001, and since then numerous private radio stations have populated the Austrian market.<sup>6</sup>

The ORF maintains more than 120 separate archival structures, from the card index box to audio-visual archives. These archives are of enormous importance to work at the ORF as they are a source for the ORF's programmes and enable independent journalism in the first place. As Robert Hochner, a well-known ORF journalist, once put it, "the archive is the journalist's retaliation on the politician."



This case study presents the ORF radio archive and how it fits in the big picture of preservation activities across the whole ORF. In a first instance, relevant systems have been installed at the radio station Oe1 that offers a high quality programme with information and documentation, and art and culture. It has a cultural mandate, and indeed it is considered one of the prime European cultural radio stations.

The Oe1 radio station is leading the development towards a digital archive for all ORF Radio, and is designing ORF wide archival systems in close cooperation with ORF Television. This case study report therefore often jumps between a description of the systems installed at Oe1, the expansion of these systems to all ORF radio stations, and the ORF wide perspective including television. Both radio and television share the

<sup>5</sup> Federal Act on the Austrian Broadcasting Corporation (ORF Act). Federal Law Gazette No. 379/1984 as amended by Federal Law Gazette I No. 83/2001. (Non-official consolidated version). Effective as from 1 January 2002.

Hhttp://www.staff.brad.ac.uk/aharcour/1974AustriaBroadcastingAct.pdfH.

<sup>6</sup> Bundeskanzleramt Österreich: Rundfunk- und Medienrecht im Überblick (in German).

Hhttp://www.austria.gv.at/DesktopDefault.aspx?TabID=4075&Alias=bkaH.

common goal to establish an ORF overarching system despite their inherently different requirements.

## **Chapter 5: Details and circumstances of the interviews**

Interviews were conducted in Mai and June 2004 via phone as well as personally at the RadioKulturhaus, the main office of ORF radio in Vienna, Austria. Interview partners were Ursula Busl, head of the ORF radio archives department; Haimo Godler, responsible for the implementation of the digital radio archive; and Christian Sodl, sound engineer and head of information technology for ORF radio. Interviewees generously offered their time for interviews and follow-up questions and also provided background documentation of the current systems.

## **Chapter 6: Analysis**

This section presents an analysis of the data collected during the case study. It is organised to mirror the sequence of topics in the questionnaire.

- Perception and Awareness of Digital Preservation
- Preservation Activity
- Compliance Monitoring
- Digital Preservation Costs
- Future Outlook

### **Perception and Awareness of Digital Preservation**

ORF staff work with archived material on a daily basis and they are well aware of its immense value to them. The archives are one of the main resources for conducting their primary business. At the same time staff are not concerned with the maintenance of the archives and how audio material in both traditional and digital form is preserved. This is left to the archives, information technology, and middle management staff. Only employees of these parts of the organisation have been involved in this case study. Interviewees and their colleagues are administering the ORF's archival holdings and keeping them up-to-date by incorporating cutting-edge features of modern technology. Their work is mainly geared at supporting the active usage of the archives by ORF staff. The ORF Radio is not involved in international cooperations or research with regard to long-term preservation of digital material.

#### *The main problems*

A salient challenge for the ORF lies in its sheer size. The ORF as a whole comprehends various sections, and ORF Radio is itself subdivided with regional studios and separate stations to address a range of different target groups. It is the goal to make the ORF's information base available to all parts of the organisation through a wholly integrated system. This is a significant challenge considering the various archives to be integrated and the huge amounts of data to be shared. With such a dispersed organisation it is difficult to avoid redundancy, ensure consistency, and ultimately to attain maximum efficiency across the organisation.

#### *Asset value and risk exposure*

Since the archives are part of the ORF's primary business their value is obvious. As for the Oe1 specifically, it attaches great importance to a diverse programme and archival items therefore remain valuable – for the Oe1 there is nothing such as a smash hit that is temporarily famous and then never listened to again. Moreover, the productions of the Oe1 culture radio often are unique items, and great effort has been put in creating them. These items are valuable cultural heritage, and they are only available through the ORF radio archive for future reuse and analysis. The archive also facilitates alternative streams of income such as CD production or the Oe1 Club<sup>7</sup>. A similar line of reasoning applies to the productions of all ORF radio stations. However, the main objective in maintaining and improving archival systems is active work support.

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<sup>7</sup> The Oe1 Club is a subscription service that includes the possibility to download archived programmes. See [Hhttp://oe1.orf.at/club/vorteile/H](http://oe1.orf.at/club/vorteile/H).

### *Regulatory Environment*

There is legislation that recommends the retention of broadcasted material for a short time period. As outlined above, however, the value of the broadcasted material calls for long-term preservation. This recommendation is therefore largely irrelevant to the radio archive; in fact, none of the interviewees, not even archive staff, was sure about the exact length of the prescribed retention period, which is about half a year.

Copyright regulations must be respected for all broadcasting. Each usage of a specific piece of music or sound must be reported to the AKM, the largest Austrian copyright society.<sup>8</sup> Reporting is automated as part of the workflow at all radio stations, and they pay a flat rate to the AKM. The AKM administers the payment of royalties to the artists and the records industry.

### **Preservation Activity**

#### *Policies and Strategies*

As mentioned in the introduction, the organisation is decentralised and rather loosely structured. Teamwork and implementation plans are organised by staff themselves rather than being imposed from the top. There are currently no preservation policies or strategies. These informal arrangements prove to be very efficient in this current phase of system deployment involving major changes to internal work processes, as it is driven by the enormous benefits the new systems promise to have. This is the dominant working style within ORF radio but also across the whole organisation, supported by a high level of communication.

The goal is to integrate the large number of archives to provide a single user interface for the whole ORF. To achieve this, wholly new systems will be necessary. While the ultimate goal is a common access portal, there will be a number of separate systems at its base. These separate archives reflect the decentralised and modular structure of the ORF and, being smaller and less complex, they are easier to administer. Perhaps most importantly, the television archives contain huge volumes of data – about twenty times the size of audio data. Since however the audio data is very voluminous as well, and separated data storage is hence indispensable to achieve the necessary system performance and quality of service. Also the regional offices spread over Austria will continue to have archives of their own for the same reasons.

The ARIS audio database<sup>9</sup> used to be the Oe1's main archival system. It contained programme descriptions and catalogue references for the analogue audio carriers held in storage, and it alone held about 900,000 descriptive records. ARIS is currently being replaced with a new system called KoKo, which stands for "Coordination and Communication". KoKo is more comprehensive than ARIS and embraces the whole audio document lifecycle at a radio station, including the planning of programmes, coordination with stage directions, broadcasting, and archiving. Also, unlike the old

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<sup>8</sup> AKM - Staatlich genehmigte Gesellschaft der Autoren, Komponisten und Musikverleger, reg. Genossenschaft mbH., Republik Österreich (Austrian copyright society); see [Hhttp://www.akm.co.at/H](http://www.akm.co.at/H). This corresponds to the German GEMA - Gesellschaft für musikalische Aufführungs – und mechanische Vervielfältigungsrechte; [Hhttp://www.gema.de/H](http://www.gema.de/H).

<sup>9</sup> Herbert Hayduck: Content Management im ORF – ein Statusbericht. November 2001. Available at [Hhttp://www.irt.de/IRT/veranstaltungen/cms-pdfs/cms-Hayduck.pdf](http://www.irt.de/IRT/veranstaltungen/cms-pdfs/cms-Hayduck.pdf) (in German). Presentation given at the symposium: Neues Content Management – Ist das Fernsehen für die Zukunft gerüstet (New Content Management – Is television prepared for the future). Leipzig, Germany; 26-27 November 2001. [Hhttp://www.irt.de/IRT/veranstaltungen/votr\\_cm.htm](http://www.irt.de/IRT/veranstaltungen/votr_cm.htm).

ARIS system KoKo retains the broadcasted audio recording together with metadata in its digital archive. The installation of this new system is conducted in a staged process where over a period of several month ARIS and KoKo are run in parallel. This is done in a way that is unrecognisable to the user, in order not to interfere with daily business. When this case study was conducted, the Oe1 was in the middle of this system migration process. At this time, all work was already being done via KoKo, yet the archived data from ARIS and other databases still needed to be transferred. This transfer process is planned to be completed by 2005.

The ORF-wide ARCon (Archives online) workgroup brings together stakeholders from the various separate ORF databases and archiving initiatives, including foremost KoKo and the television archive. Besides exchange of experiences and factual collaboration in common tools and hardware, the main goal of ARCon is to ensure interoperability on a meta-level between the diverse systems. This work will prominently display in the mARCon (multimedia Archives online) gateway, which provides a single gateway to search all information resources in the ORF.

One of the ongoing initiatives at the Oe1 feeding into their other aspirations is the digitisation of the existing analogue archives. About 800,000 hours of audio recordings on a myriad of different carriers await to be saved from deterioration and digitised. This initiative has a lower priority than all other ongoing activities, and digitisation is conducted only as resources allow. Carriers that are in danger of becoming irretrievably corrupt are prioritised, yet there is the imminent risk of some of the audio holdings being lost.

### *Selection*

Selection is done by staff themselves. Being the creators of the audio materials, staff are best suited to select and describe them for the archive. At the same time they are possible future users of their own archived material, which entails a sense of responsibility and carefulness and leads to the quality of the archival items. However, with numerous staff selecting and describing archival items, consistency is hard to achieve. Interviewees plan to address this as part of routine seminars within the ORF. Furthermore, since all staff constantly view other archival descriptions by their colleagues as part of their daily work, interviewees hope that a certain level of consistency will emerge after some time. The archives department will constantly review the quality of archival items and address flaws when necessary.

The selection criteria are comprehensive. Primarily all own productions are archived in their final version. This includes concert recordings as well as interviews, yet excludes announcements between programmes or comparable ephemeral broadcasts. Non-home grown material, such as commercial CDs, is retained as well, though with somewhat minor priority. In fact it regularly happens that music companies contact the ORF to ask for records they themselves produced yet lost. Generally, staff tend to archive too much rather than being incomplete.

Staff can also select the quality of the audio material to be archived. The highest quality level is 24 Bit, 48 kHz Broadcast Wave Format (BWF)<sup>10</sup>. However, staff may choose to archive in a smaller resolution according to criteria including the uniqueness of the material, production costs, commercial usability, and of course the nature of the material (e.g. human speech does not need high resolution). If the highest quality is

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<sup>10</sup> European Broadcasting Union: Specification of the Broadcast Wave Format – A format for audio data files in broadcasting. EBU Technical document 3285, July 1997, available at [Hhttp://www.ebu.ch/trev\\_t3285.pdf](http://www.ebu.ch/trev_t3285.pdf).

selected, a compressed file in MP2 format is automatically generated to facilitate quick access.

Alongside the actual audio data, descriptions and metadata of all kind are saved. The archives department encourages saving as many descriptive records as possible. The Oe1 has a fixed metadata set comprehending more than fifty elements including a unique identifier, title and subtitle, genre, and composer. In addition to this metadata it will be possible to attach any sort of documents to the audio item. This includes stage directions, early drafts, text documentation, scans of booklets, press reports, and whatever else is available. When this feature is implemented, only a small number of formats will be allowed for attachments. This format still needs to be specified, but it can be expected to be PDF, since interviewees assume that PDF has a low probability for containing viruses.

### *Preservation*

KoKo is the central system of the radio archive that caters for all lifecycle stages of a programme from planning to archiving. Programme production continues to be done with the DigAS<sup>11</sup> system, which has been in use since 1998. Once audio material is accessioned into the archive it cannot be changed or erased and the archival systems are strictly separated from active systems on a low level. As mentioned in the previous section, the ORF archive allows only a small selected set of data formats including the Broadcast Wave Format for audio material. However, this migration to standards was not explicitly designed from a preservation perspective. Interviewees are aware that in the future recurrent migration will be necessary before a data format contained in the archive becomes obsolete or the database software used for the metadata is phased out. They are, however, not overly concerned by this outlook as they are confident that such a migration can be done entirely automatically.

The radio archive currently holds about four terabyte of data. These data are stored in an online Storage Area Network (SAN)<sup>12</sup> with an overall capacity of twenty-four terabyte that can be extended in the future. At the growth rate of about two terabyte per year and the current rate of digitisation this capacity will suffice for the next five years. The SAN is planned to be mirrored at the ORF television archive that is geographically separated in another part of the city. Additionally incremental backup is being done on magnetic tapes. Tape backups are also sent to the Mediathek<sup>13</sup> at yet another location that stockpiles the tapes. One advantageous feature of the radio archive is that the annual influx of data will not increase in the future. Audio files will hardly become more capacious, and broadcasting hours cannot increase for a radio station. This is a good outlook given the ongoing rise in storage media capacity and their plummeting price.

Interviewees chose to design and implement the storage system of their archival repository themselves after they faced serious problems in an earlier implementation. Their first attempt built on a robotic tape library with a storage management system,<sup>14</sup> which obscured the actual location of the data. Due to a malfunction the system itself was not able to retrieve the data anymore. Fortunately this malfunction occurred still at

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<sup>11</sup> DigAS - Digitaler Aktualitätenspeicher (digital storage of topicalities), by the company David. Hhttp://www.digasystem.com/H.

<sup>12</sup> See Hhttp://en.wikipedia.org/wiki/Storage\_Area\_NetworkH.

<sup>13</sup> The Austrian Mediathek is an external institute of the Museum of Technology in Vienna with a large audiovisual archive that holds one million sound and video recordings on Austrian culture and contemporary history. Hhttp://www.mediathek.ac.at/H.

<sup>14</sup> The storage management system used then was "Storage Migrator" by Veritas (Hhttp://www.veritas.com/H).

an early stage of system deployment, so no valuable data has been lost. However, it was a strong incentive for responsible KoKo staff to entirely change plans. They now hold all data online in a folder structure that allows low-level manual retrieval if necessary, whereby the size of the data folders on hard disk is limited by the corresponding size of a backup tape. Therefore, with the unique identifier of the programme at hand, which is a standardised acronym for the programme concatenated with the date of broadcast, it is possible to immediately retrieve the relevant backup tape.

### **Access**

As described previously the mARCon gateway will allow searching all ORF data across the boundaries of separate archives in a Google-like search interface that is designed to be simple. Staff frequently search the archives and listen into the holdings, and the daily programme often contains archival items.

Due to Copyright regulations the usage of the radio archive is restricted. External partners may only access the metadata. The Oe1 Club is a special arrangement that allows club members to download a specific number of archival items per year. Therefore, sound digital rights management is very important, and it is implemented in a sophisticated way.

### **Compliance Monitoring**

In the absence of formal digital preservation policies and strategies there are no measures for audit and control. This is also in line with the relaxed organisational structure. Only Mr. Godler, the project leader for the implementation of the ORF radio archive, is obliged to report back to the ORF steering committee on the advance of the project.

### **Digital Preservation Costs**

While the whole of ORF is eager to establish the new archival systems and the overarching mARCon, finances are limited. Only absolutely indispensable investments are granted by the ORF steering committee, and cost control is strict. As an example, digitisation has to be conducted internally as the cheapest offers by external suppliers asked 1.50 EUR per minute, which is too expensive. Investments into hardware are granted more easily, yet the main problem lies in the lack of staff resources. Also, finances for the mARCon gateway remain to be secured. The workgroup recently launched a call for tender, the results of which will be passed on to the ORF finance officer in late 2004.

### **Future Outlook**

The ongoing implementation of the ORF radio archive is advancing as planned and will continue well into 2005. After initial implementation at Oe1, the systems are expanded to the other ORF radio stations. The communication of the existing and the future systems to all staff still is an open challenge. The adoption is expected to be smooth, though, as staff have been involved in system design. However, training will be necessary to instruct them of the new system's functionalities.

While the digitisation of ORF radio's own productions is not guaranteed to be accomplished in time before the material deteriorates beyond retrievability, commercial products are excluded from digitisation from the outset. This is a matter of concern to the ORF radio archive department. 90,000 commercial CDs are part of the archives,

yet they are not stored in a climate controlled environment and some of them are already quite old. Bearing the restricted resources for digitising own productions in mind, the outlook to save these holdings is bleak.

In the future the detour via analogue media may be avoided. Instead of shipping huge amounts of CDs from the music labels to the various broadcasting channels, music may be transferred entirely digitally in the future. In Germany this development has been kick-started by the German division of the Federation of the Phonographic Industry (IFPI),<sup>15</sup> who aims to focus the deliveries of music labels in their archives and distribute them among German stakeholders. IFPI Austria<sup>16</sup> may be amenable to joining this initiative in the future. The archival department is concerned that this development may in the end lead to a solution where music data will not be retained on ORF premises any longer and will lead to a pay-per-minute service. On the contrary, the IT department believes that such a solution is almost impossible, as the enormous amounts of data involved can hardly be continuously streamed across the Internet. Permanent streaming is even less realistic for popular radio stations that broadcast the same song numerous times a day. So if at all, this scenario is only possible in the far future.

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<sup>15</sup> IFPI Germany – International Federation of the Phonographic Industry (Bundesverband der Phonographischen Wirtschaft); see [Hhttp://www.ifpi.de/H](http://www.ifpi.de/H).

<sup>16</sup> IFPI Austria – International Federation of the Phonographic Industry (Verband der Österreichischen Musikwirtschaft); see [Hhttp://www.ifpi.at/H](http://www.ifpi.at/H).

## **Chapter 7: Conclusions**

ORF Radio has already reached some outstanding achievements in its implementation of the KoKo system that greatly supports the primary business tasks. The KoKo archival component is smoothly integrated into the workflow. At the same time the ORF radio archive fulfils many requirements of archival systems, such as the strict immutability of archival material. Many aspects of the radio archive have been developed out of practical necessity with a pragmatic approach that involved staff from all over the organisation. Involvement of radio staff and indeed of the whole ORF through the ARCon workgroup is considered especially important due to the central role of the archives in the organisation. Staff constantly use the archival systems and thereby they also informally review the contents of the archives. Tight communication between all parts of the organisation therefore not only ensures acceptance of the new systems and adequate design, but also the quality and viability of the archives over time.

Interviewees are confident of the successful management of their archival items over time. While there is no formal digital preservation policy, interviewees will undertake migration activities when necessary. Moreover they already collected extensive experience with the ongoing migration of the various databases at the Oe1 and all over the ORF, so they feel prepared for any similar future challenges. The homogeneous nature of their archive gives ground to such hopes. Especially the Broadcast Wave Format is an internationally acknowledged, open format that promises to be stable over a long period of time. The format for descriptive material has not yet been defined. With reference to international developments in the preservation community, TIFF is a recognised archival format for images, and an XML based format would probably be the optimal solution for textual items. However, the actual requirements for the archival formats remain to be defined before an informed decision can be taken. Most importantly, it is still open whether the format(s) for descriptive items will be chosen specifically for the radio archive or consistently across the whole ORF. A homogeneous format base across the whole organisation may certainly be conducive to preservation for the possible synergies this allows with regard to technology watch and future migration cycles.<sup>17</sup> With the folders in online storage being the same size as backup tape capacity it is, of course, also important to develop a procedure for migrating this storage structure when tape capacity increases in the future. By and large it is important that preservation issues are considered already at the design stage of systems and procedures since later adaptations may be hugely costly or even cause some valuable material to be lost.

Interestingly the architecture of the ORF archival systems is very different to the system architecture encountered in other ERPANET case studies.<sup>18</sup> For instance, the engineering simulation division analysed through an erpaStudy belongs to a large company that is similarly structured in a decentralised and modular fashion. This has a central information technology department responsible for physical data storage and other low-level technology administration. The various company divisions build on this common base, yet have entirely separated information and preservation management on a higher level. The ORF on the other hand turned this architecture upside down. Their low-level information technology and data administration is entirely separated between the various television and radio channels. On top of these separate components the integrating mARCon gateway allows access to all ORF holdings and thereby unifies and promotes available knowledge. The ORF architecture breaks the

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<sup>17</sup> At the same time a homogeneous format base may also facilitate access.

<sup>18</sup> All ERPANET case studies are available via the ERPANET website at [Hwww.erpanet.orgH](http://www.erpanet.orgH).

system down into smaller and simpler modules and the data separation enhances system performance. At the same time the ORF approach entails that each division needs a separate information technology department with all the necessary facilities, staffing and administrative provisions.

In any case the system architecture ties into the organisational structure at the ORF. All levels work towards a common vision. It appears, however, that this vision has been established bottom-up rather than from the ORF steering committee. A strategy formulated and endorsed by the ORF top is missing. This has advantages and disadvantages. On the one hand interviewees have expressed their satisfaction with the informal work environment that gives them maximal flexibility. At the same time the lack of a high-level strategy also means a lack of commitment by the ORF steering committee. Funding still needs to be established for the remaining steps of system implementation, and the ORF steering committee may decide at any time to re-allocate staff resources to other projects. From another perspective the absence of policies also entails a lack of control. The successful development and stepwise installation of the ORF archives is only due to the central role of the archives in the organisation and the dedication of all relevant staff to the project, which is probably specific to the current situation at the ORF. Moreover, the installation of KoKo and other new systems impacts not only on a technological but also on an organisational level. Without support from the ORF steering committee these organisational changes are difficult to be implemented and sustained.

From a preservation perspective organisational policies and controls are also important for contacts with any external partners.<sup>19</sup> These issues need to be specified with clear roles and responsibilities to avoid misunderstandings and – in the worst case – loss of information. The ORF displays a great level of awareness and carefulness in this respect. Ongoing developments in the specification of attributes of trusted digital repositories<sup>20</sup> and developing mechanisms for digital preservation audit and certification<sup>21</sup> may in the future provide valuable starting points for other organisations.

By and large developments in radio broadcasting and the larger news, culture, and entertainment sector are very exciting at the moment. The trend to integrating various media including radio, television, and the Internet into large multimedia service providers may bring forth wholly new services and business models. The BBC Documentary Archive<sup>22</sup> and the planned BBC Creative Archive<sup>23</sup> may be first steps in such a future, as are online services such as Apple's iTunes<sup>24</sup> or current developments in eLearning<sup>25</sup>. The future is currently wide open for organisations such as the ORF, and the ORF appears to be well prepared for whatever there may come.

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<sup>19</sup> For instance, the ORF has experience and an excellent track record in contracting with external commercial suppliers. See the earlier attempt of the Oe1 to install a robotic tape library that entirely failed and where the Oe1 had to annul the corresponding contract discussed in the *Preservation* Chapter.

<sup>20</sup> RLG/OCLC Working Group on Digital Archive Attributes: Trusted Digital Repositories: Attributes and Responsibilities. May 2002. [Hhttp://www.rlg.org/longterm/repositories.pdf](http://www.rlg.org/longterm/repositories.pdf).

<sup>21</sup> ERPANET Workshop: The Role of Audit and Certification in Digital Preservation. Antwerpen, Belgium; April 14-16, 2004. Workshop Report, available at [Hhttp://www.erpanet.org/events/2004/antwerp/H](http://www.erpanet.org/events/2004/antwerp/H).

<sup>22</sup> BBC (British Broadcasting Corporation) World Service: Documentary Archive. [Hhttp://www.bbc.co.uk/worldservice/programmes/archive/index.shtml](http://www.bbc.co.uk/worldservice/programmes/archive/index.shtml).

<sup>23</sup> BBC News: Dyke to open up BBC archive. News item, 24 August 2003. [Hhttp://news.bbc.co.uk/1/hi/entertainment/tv\\_and\\_radio/3177479.stm](http://news.bbc.co.uk/1/hi/entertainment/tv_and_radio/3177479.stm).

<sup>24</sup> Apple iTunes. [Hhttp://www.apple.com/itunes/H](http://www.apple.com/itunes/H).

<sup>25</sup> DigiCULT Thematic Issue 4: Learning Objects from Cultural and Scientific Heritage Resources. October 2003. [Hhttp://www.digicult.info/pages/Themiss.php](http://www.digicult.info/pages/Themiss.php).



**Appendix 1: References**

ORF - österreichischer Rundfunk (Austrian Broadcasting Corporation)

<http://www.orf.at/>

ORF Radio Oe1

<http://oe1.orf.at/>

AKM - Austrian Copyright Society (Staatlich genehmigte Gesellschaft der Autoren,  
Komponisten und Musikverleger, reg. Genossenschaft mbH., Republik Österreich)

<http://www.akm.co.at/>

EBU - European Broadcasting Union

<http://www.ebu.ch/>

IFPI - International Federation of the Phonographic Industry

<http://www.ifpi.org/>

IFPI Austria - Verband der Österreichischen Musikwirtschaft

<http://www.ifpi.at/>

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