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The Audio Legacy of Finnish Radio: An Exploration of Key Factors in the Preservation of Radio Sound Collections

Abstract

In this article, I chart the development of Finland's national broadcaster *Yleisradio Oy* in its media historical context, with a focus on key factors and events that have affected the long-term preservation and archiving of radio and related sound recordings in Finland. In order to understand the historical development of sound archiving I propose to apply a framework comprising three main parts. I also propose that the archival history of recorded sound collections is best understood through a chronological approach that reveals sequential, often overlapping periods in the company's historic timeline. Such periods of overlap are found with the use of lacquer discs in radio production long after the introduction of magnetic reel tapes in 1939, but also in the 1990s with the simultaneous use of analogue and digital technology. I conclude with an analysis of factors enabling and preventing long-term preservation of the national broadcaster's audio heritage, with attention to the many 'little things' that have allowed the historical sounds of past radio to be available in the archive today.

Keywords

audio archives, broadcasting, Finland, radio history, audio digitisation

Introduction

Those wishing to study the first decade of Finnish radio broadcasts have to rely on written documents as there are no existing sound recordings surviving from prior to 1935. There are, however, other kinds of sources which can tell us about the early period of radio, such as newspapers, radio listings, minutes, manuscripts, annual reports, notes and so on. When recording technology was introduced by Finland's radio broadcaster in the mid-1930s, it was used only for certain purposes and not comprehensively, and later, the reusability of magnetic reel tape enabled the deletion of broadcast programmes by demagnetizing them and re-recording new programme content on the same tape reels. As a result of

such developments, combined with a lack of resources, there are some hundreds of recordings from the pre-Second World War-era whereas for the 1950s and 1960s, tens of thousands of items survive today. All in all, for the years covering 1935 to 1970 there are some 37,000 Finnish radio programmes and broadcasts available as recordings in the archive.¹

How is this even possible? Or to put the question another way, how come there is so little left of hundreds of thousands of radio broadcast hours of the past decades? In this article, I aim to describe the development of Finland's national broadcaster Yleisradio Oy in a media history context to focus on the various factors and events affecting the long-term preservation and archiving of radio and related sound recordings in Finland.

The national broadcasting company of Finland, Yleisradio Oy, more recently Yle for short, has been addressed in a vast number of Finnish scholarly publications during the past 50 years.² In the existing scholarly literature, the birth and historical phases of the past century of broadcasting in Finland have been studied and documented in detail.³ In addition to all the research and publishing work by the universities and scholars, Yleisradio itself has produced a considerably large output of publications, annual reports, studies, discussion papers, plus inhouse reporting and documentation.⁴ Among all the published studies and history literature, however, themes related to archiving and the long-term preservation of audio heritage have been seldom considered. When archiving has been treated, it has mainly been approached from the perspective of stages of technological development that have enabled the company to enhance broadcasting operations with new inventions.⁵ The most extensive analysis of the archive and its significance has been published by former director of the Yle Radio Record Library and manager of the Audio Archives Pekka Gronow in his 2010 book *Kahdeksas taide: suomalaisen radioilmaisun historia 1923-1970* (*The Eighth Art Form: The History of Finnish Broadcast Expression 1923-1970*). In the 2007 book *Radio sodissamme* (*Radio in Finnish Wars*), former Yle Radio Archives manager Lasse Vihonen describes Yleisradio's activities and position and radio propaganda in the two wars between Finland and the Soviet Union during the Second World War years.

While the following article will also treat key technological developments, as I will show, it remains crucial to take into account a range of other factors and events that have historically played an influential role in archival policy and practice. In order to pinpoint these elements, the article engages with a range of source material, covering annual reports and board meeting notes through to the sound recordings, and archival tools such as index cards and catalogues. In what follows, the

choice for a chronological approach to the history of archiving reveals sequential, often overlapping periods in practices at the Finnish broadcaster. In terms of technological periods, we find, for example, that lacquer discs were used in production long after the magnetic reel tapes had been introduced in 1939; and later, towards the end of the twentieth century analogue and digital technology were also used simultaneously. In the other sections, I will explore other key factors and events that have been crucial in determining the fate of Finland's radio audio heritage, including the role of archival policy making (at the national and EU level), but also key people – such as tape archivist Erkki Ainamo from the late 1950s – with particular expertise or views on the collection. Finally, I will conclude with a critical reflection on the factors enabling and preventing the long-term preservation of the Finnish national broadcaster's audio heritage. This approach, therefore, brings to light the many 'little things' that have created the archival conditions allowing for certain sounds from the history of radio to be available in the present.

The Many Dimensions of Archives and Archiving

Before we zoom into Finland's case, let us consider the very notion of an archive. An archive, a sound archive, and more precisely a radio archive is a collection of archival records, in this case sound carriers or digital files plus related metadata, maintained by an institution or eventually the society, and is characterised by certain qualities. Eric Ketelaar emphasises that the archive is located and reflects realities as perceived by the 'archivers,' and that archival objects are strongly affected by ongoing changes in archival technology.⁶ He also notes that typical archiving processes of categorisation, codification and labelling are in fact a result of 'tacit narratives' and as memory organisations archives are not only about remembering history but forgetting parts of it as well, which is realised by selection and disposal as activities. A similar observation is made by Jonathan Sterne: in order to become an historically significant archival object, an item needs to be rare, which requires the decay of other similar objects originating from the same era.⁷

An important function or, shall we say, justification for broadcast archiving is the reuse of the collections. As noted by Carolyn Birdsall, *remediation* and *recycling* are common practices to utilise the collections of sound archives by extending the use of historic audio in the present media world.⁸ For sound archives, another story and a massive change has been digitisation: as described by Sterne, digital production increases the ephemeral nature of audio items through lossless copying, portability

and ease of storage and disposal. For popular music, sound recordings have accelerated the pace of fashion and turnover. In a way, digital culture is produced with such an effectiveness and ease that for archiving purposes it is sometimes hard to decide what is worth keeping and to what extent. One case of remediation, popular *mash-up* works in music, is a good example of that kind of dilemma, where in copyright terms the possible object can be regarded controversial, but as a cultural phenomenon potentially interesting.⁹

Despite all the shortcomings and potential threats of the present digital world, it may be useful to bear in mind that the digitisation of collections is the paradigmatic *modus operandi* for modern sound archives, probably their only possibility to save large amounts of the deteriorating historical sound carriers they possess in their premises. In the archival theory context, I propose a framework comprising three main considerations as the basis for analysis in order to understand how the content of historical sound recordings survives for centuries. First, we need to look at the needs, decisions and actions by the sound creator or the producer of the recording which precede the audio recording act, including available technology, future expectations of possible reuse or their absence, available resources and limitations. Then, as the operational circumstances are identified, we can focus on the parameters which were present at the time the recording event took place. These could include the technical analysis of the recording, the factors affecting archival selection, the institutional situation and so on. Finally, we need to evaluate the events affecting the long-term preservation of the recording in the timeline from its creation to the present day. This is a heterogeneous set of all possible issues that could include large institutional changes, merging of archives, system migrations, format conversions like digitisation, organisational strategy and culture plus many other ‘little things’. This list is not exhaustive, but my point is to recognise the three sets of actions relating to the preparation, the birth, and the afterlife of an audio recording or an archival collection of sound carriers. So let us next look at what happened in Finland in terms of preparation, birth and after-life of historical radio recordings.

The Establishment of Radio Broadcasting in Finland

Similar to other national radio histories, the first broadcasting activities during the 1920s were carried out in Finland by enthusiastic pioneers who were fascinated with the technology itself. In addition to the activities of amateurs, the Finnish national army and White Guard militia played an

important role in producing the technical infrastructure for the young nation. A third motivation for the investment in radio broadcasting was its perceived educational value, with the aim to civilise citizens in the spirit of common good through the promotion of social projects related to agriculture, youth education, literature, and so on.¹⁰

The event of the first wireless radio wave transmission in Finland can be traced back to 1900 when Russian physicist and pioneering radio technology inventor Alexander Popov designed a wireless telegraphy connection between Suursaari island and town of Kotka in the autonomous Grand Duchy of Finland, then part of the Russian Empire. Up until Finland's secession from Russia, Russian troops in Finland used radio for military communication while Finns simultaneously conducted secret experiments with this emerging technology. Soon after the Declaration of Independence in 1917 and the violent Civil War which ended in the following year, the government recognised the importance of radio as a propaganda medium carrying the message to the masses. The Act on Ownership of Electric Apparatus for Wireless Transmission and Communication was passed in 1919 to secure the state exclusive rights for assembling and using radio technology, although individual citizens and organisations could apply for a licence for a period of ten years maximum.¹¹

At the time, there was a strong social interest in new technological innovations and, increasingly, in the potential uses of broadcasting in society. The first organised operator was the literature and youth education society *Nuoren voiman liitto* (Youth Power Union), which applied for and was granted a licence in 1921. Rather than being one stable station, it was a collective of association members who operated all over the country with low-power transmitters. After a few years, there were already 75 of these transmitters with a coverage area typically no more than 300 metres with 30 watts. In 1923, the Finnish Army established the Radio Battalion station in Helsinki, which broadcast the first concert on radio, yet was used fairly infrequently. Significantly, two new broadcasters emerged in 1923-1924: the *Tampereen radioyhdistys* association in Tampere, Finland's the second largest city, and *Radiola*, a short-lived station in Helsinki run by local radio amateurs.¹²

In 1924, the Provisional Commission on Radio Matters proposed a new method to organise national broadcasting. In a report, they suggested that the task of construction and maintenance of technical infrastructure including transmitters and networks would become a state responsibility, whereas a new separate company should be established for the purposes of programme production and operational tasks. This was the basis for new legislation that resulted in a subsequent

broadcasting monopoly in Finland.¹³ The new programme production company O.Y. Suomen Yleisradio – A.B. Finlands Rundradio (Finnish Broadcasting Company, or Yle) was established on December 15, 1925, and the corporate by-laws were confirmed with ownership split between eight shareholders including the Radio Association, Farmers Central Union, Finnish White Guard Cadre, both Finnish and Swedish speaking Cooperative Societies, the Journalist Union, and the Newspaper Publishing Union. The company launched its first transmission on September 7, 1926 in Helsinki in the premises of the Radio Battalion station and soon merged with the Radio Association. The BBC was regarded as a role model for its mission and a local application of its mandate ‘to inform, educate and entertain’ was the basis for local programme policy, while the Radiotjänst company in Sweden – launched in 1925 – was also a source of inspiration in terms of corporate governance and broadcasting activities.¹⁴

From the outset, Yleisradio offered programmes in both Finnish and Swedish, as Swedish was and still remains an official language in Finland. As there were no separate radio channels, nor separate broadcast companies like in some other European countries, the Swedish programme was placed in the schedule among the Finnish programmes. Similar to the BBC in Great Britain, the station primarily generated its revenue from licence fees gathered from the public. The ownership of a radio receiver was subject to a strict enforcement of licensing. For some period of time the names of the offenders of licence regulations were announced during Yleisradio broadcasts,¹⁵ while the Postal and Telegraph Agency in the Helsinki area employed four agents to detect illegal radio listening in the 1930s.¹⁶

The final step on the path to Yleisradio’s monopoly status was prompted by social and political turmoil in Europe during the 1930s.¹⁷ As a result, political debate on broadcasting of pro-prohibition talks and their withdrawal from the radio caused demands in the parliament to increase state control on programme policy.¹⁸ As the beginning of the 1930s witnessed the rise of nationalism and social unrest in Finland, with right-wing political violence, political leaders were concerned about the potential threat to the public system of radio broadcasting. As a result, the 1934 Radio Act gave the new Yleisradio company exclusive rights to operate in broadcasting in Finland. The company board, an administrative council with 18 members, was occupied by representatives of parties in the Parliament and from business and cultural institutions.¹⁹

As far as the Finnish radio audience is concerned, we should note that, like in many European countries before the Second World War, the Finns were said to suffer from ‘radio fever’ which was an

Sunnuntaina 21 p:nä tammik.	
8.45 Miesten aamuvoimistelua, joht. voim. opett. Rurik Riska (ruots.).	18.00 Uusien lähetyssaarnaajien vihkimisjuhla (läh. Johanneksen kirkosta). Prof. Aleksi Lehtonen, saarna, piispa Max v. Bonsdorff, vihkimispuhe, Lähetyskuoro, kuorolaulua.
9.15 Naisten aamuvoimistelua, joht. tri Kaarina Kari (suom.).	19.59 Aikamerkki (ensimmäinen lyönti).
10.30 Suom. jumalanpalvelus (läh. Vanhasa kirkosta, saarnaa tuomiorov. Kuusisto).	20.00 Aikamerkki (toinen lyönti), säätiedotus.
11.45 Päivä uutiset.	20.10 Edwin Bäckman, laulu. Gomes: Aaria Salvator Rosa. Sibelius: En mä enää tuota kysy, Lastu lainehilla. v. Kothen: Pyhälle elän taitehelle. Maasalo: Nyt nousee kiitokseni uhrisauhu. Melartin (sov.): Kaksi karjalaista kansanlaulua.
12.00 Vilho Koponen, sello. Bergiel: Adagio op. 38. Dupont (sov. Feuillard): Sonata g-duuri (Allegro moderato, Andantino grazioso, Vivace). (Läh. Viipurista.)	20.35 "Nykypäivien johtavia valtiomiehiä", VIII. Maist. K. N. Rauhala, esitelmä: Mahatma Gandhi.
12.25 Fil. tri Juho Jännes keskustelelee rva Anna-Liisa Astolan kanssa aiheesta: "Kuinka korkoa voitaisiin alentaa".	21.00 Radio-orkesteri, joht. Erkki Linko: Suosittuja sävellyksiä.
12.45 Jäätiedotus.	21.45 STT:n uutisia (suom.).
12.55 Säätiedotus.	22.00 STT:n uutisia (ruots.).
12.59 Aikamerkki (ensimmäinen lyönti).	
13.00 Aikamerkki (toinen lyönti).	
13.00 Ruots. jumalanpalvelus (läh. Vanhasa kirkosta, saarnaa prof. K. B. Westman Upsalasta).	
14.30 Helsingin Kaupunginorkesterin kansankonsertti. (Läh. Konservatorion salista.)	
17.00 Äänilevyjä. Marek Weber-orkesteri: Chopin-säveleitä; Komzák: Wien öisin; Pata: Sydämeni; Schubert-säveleitä.	
17.35 Maist. N. P. Virtanen, esitelmä: Teuvo Pakkala, III: Teuvo Pakkalan Vaaran-kuvaukset.	

Figure 1. Typical Sunday radio programme described in listings magazine *Radiosanoma* in 1934. The schedule begins with an exercise programme (*aamuvoimistelua*) for gentlemen in Swedish and for ladies in Finnish. Followed by a Sunday service (*jumalanpalvelus*) and the news (*päivä uutiset*), the rest of the day's programme consists of classical music both performed live (*konsertti*) and from records (*äänilevyjä*), weather and sea forecasts, talks and discussion, a broadcast from missionaries' initiation festivities and ends with the news from the Finland's News Agency STT by 10 pm. A time signal (*aikamerkki*) is given at 1 pm and 8 pm local time.

expression to describe radio's increasing popularity among citizens. From the 10,000 licences of 1926, the amount of registered receivers increased up to 350,000 in 1940 and continued to grow also after the war while in 1950 it topped 700,000²⁰ and by 1955 1 million.²¹ The first public socio-economic survey among the listeners was conducted in 1936 and it revealed the following demographic structure of the audience in terms of profession and language group.²²

Occupation	% of audience Finnish-speaking	% of audience Swedish-speaking
Civil servant	17	18,4
Industry and commerce	20,3	26,3
Cultural affairs	4,8	9,3
Agriculture	18,5	11,9
Worker	32,4	22,3
Company staff	1,6	1,5
N/A	5,4	10

Table 1. Occupational distribution of Finnish radio listeners in 1936 within language groups of Finnish and Swedish. Source: Eino Lyytinen et al., Yleisradion historia [The History of Finnish Broadcasting Company] 1926-1996. 3 vols. (Helsinki: Yleisradio, 1996).

At an operational level, a significant technical development was the improvement in signal distribution. In 1928, a high-capacity AM transmitter was built in the town of Lahti just in the geographical centre of southern Finland offering 25 kW power which was raised to 40 kW in the following year. In 1935, this transmitter was updated to deliver 150 kW with equipment manufactured by Marconi's Wireless Telegraph Co Ltd. This investment expanded the coverage area of Finnish radio, which now reached as far as Jyväskylä, a town around 270 km north of Helsinki. The Lahti transmitter also improved the possibilities to broadcast parallel programs on certain weekdays in different languages, for instance with Finnish programmes from Lahti and Swedish programmes from the Helsinki transmitter. Following this development and Finland joining the International Broadcasting Union (IBU), the question of international radio wavelength frequencies was brought into the negotiations taking place at IBU meetings. As a result of the dynamic global broadcasting environment, Lahti's frequency had to be changed several times during the 1930s to avoid the interference from other transmitters operating on similar frequencies.²³

In this context, another significant development in the 1930s was the broadcast company's move into new premises. The new radio house in the heart of capital Helsinki offered facilities to host

larger numbers of journalistic and technical staff, and its stylish architecture gave additional social prestige to the broadcaster. The most significant change, as far as archiving is concerned, was the establishment of new, purpose-built recording studios and sound recording facilities.

The Introduction of Disc and Magnetic Recording (1930s-1940s)

The studios of the new radio house were equipped with sound recording devices purchased from Telefunken in Germany. At first, a single record-cutting lathe device was deployed, followed by several more multiple disc-cutting machines. The first programme recording, and the oldest archival sound recording still in existence at the Yle Archives, is President Pehr Evind Svinhufvud's speech on New Year's Day 1935, which was pre-recorded via telephone line from the president's home.²⁴ While this recording represents a historical milestone event in the history of recorded sound in Finland, the new recording technology was not entirely reliable. At the point in the speech when President Svinhufvud encouraged citizens to shake hands as brothers, the needle of the playback machine got stuck on the lacquer disc groove repeating the same word all over: '*Lyökäämme veljenkättä, veljenkättä, veljenkättä...*' ['Let us greet our brother with a handshake, shake, shake...'].²⁵

According to a 1935 annual report, the first experiences of sound recording were so promising that the company ordered three more record lathes within a year and produced some 715 lacquer discs in 1935.²⁶ Recording technology was regarded as an enhancement for programme versatility and useful for microphone testing for the music performances. Also, radio drama producers started to utilise records containing sound effects in production, to supplement the previous practice of creating these live during transmission. In fact, it can be argued that it was not until the arrival of recording technology that radio developed the 'sounds' it is now best known for, as recordings enabled radio expression to flourish with such radio-like forms as reportage, montage, feature and especially the radio's fundamental art form, the radio play.²⁷

In 1937, the first mobile production unit was obtained, equipped with a generator and lacquer cutting device, enabling radio to move out of the studio. The ability to produce reportage, as a new, more documentative and lively form of radio programme, all over the country brought radio closer to the audience, as Finland was still very much an agricultural society at the time, with the majority of inhabitants living outside of urban centres.²⁸ Well into the 1940s, lacquer discs and disc cutting



Figure 2. Recording facilities at the new broadcasting house included Telefunken lacquer record lathes, Estimated date 1935-1938. Photo: Yle Photo Archives.

machines were used in production simultaneously with tape recorders and magnetic reel tape, due to the material shortages caused by the Second World War and its aftermath. Yle discontinued its lacquer disc production in the middle of the 1950s, mainly due to new requirements for sound quality in broadcasting which were fulfilled by magnetic recording.²⁹

Despite the serious international political atmosphere at the end of the 1930s, Finland continued to make preparations to host the Summer Olympic Games to take place in Helsinki in 1940. Given the task to facilitate the international broadcasts during the games, Yleisradio purchased new recording technology, including AEG tape recorders from Germany. When war broke out in September 1939, the event was cancelled, but reorganised later in 1952. Despite the cancellation of the Olympic games, Yleisradio started to deploy the AEG magnetic tape-recording devices to great effect. The quality of audio signal, ease in editing, lightweight mobility and other features helped to



Figure 3. Yleisradio's in-house engineering manufactured power supplies, amplifiers and transformers which are combined with Telefunken microphone and AEG tape recorder to constitute a recording unit for the 1940 Olympic broadcast, Date: pre-1940. Photo: Yle Photo Archives.

revolutionise radio production.³⁰ Tape recording technology, for example, enabled copying of segments or whole programmes from one tape reel to another without significant loss of audio quality. From an archival point of view, however, the re-usability of magnetic tape in combination with material or economical shortage can be regarded as a drawback as the recordings on tapes were not necessarily to be preserved for later use.

During the years of war (1939-1940 and 1941-1944) between Finland and Soviet Union, Yleisradio performed an essential role both in informing citizens during national crises and influencing public opinion. During this period, the company was taken over by the army and many journalists continued their work as soldiers in service. While very few historical collections from the war period remain, there is a diversity of materials available from this period spanning reportage from the front, Soviet and Finnish propaganda battles on the same radio frequency, and a recording of Adolf Hitler's speaking informally during his visit to Finland in June 1942.³¹

Yleisradio Ab. — Lomake Nauhasto — A 5 — 8000 — 2.58.

The Magnetic Tape Era and Yle Tape Depository (1950s)

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of radio was to be challenged by television only later in the 1970s. Technically, a major improvement for radio was the introduction of signal transmission on FM frequencies, thereby increasing audio quality and the possible number of simultaneous programs, later enabling stereophonic broadcasts from 1967 onwards.³³

As magnetic reel-to-reel tape had become a standard in programme production, the Yleisradio company had to invest in the logistics and storage for these growing tape collections.³⁴ In 1955 the company board hired its first employees to take care of reel tape logistics, handling and cataloguing following the launch of the Tape Depository.³⁵ Erkki Ainamo, a prominent military war veteran and a prolific song lyricist, was chosen to manage this unit, and by 1958 the team had increased to five staff members.³⁶ An important workflow in the Tape Depository was the cataloguing of in-coming and planned broadcast reel tapes on cards, which still exist today. As the tapes were reused at the time, the catalogue entries reveal whether a given recording was erased through demagnetisation on a certain date or that it had been saved for later use. This documentation has helped the future generations of archivists to search for, or give up looking for, missing recordings.³⁷

Sound Effects and Electronic Music Workshop Experiments

As we noted above, recording technology brought along new possibilities for radio drama productions as the sound effects could be prepared beforehand and were not needed to be produced live in the broadcast. Such a composition of imaginary sound effects emerged, proving to be especially effective, for example, in drama productions based on science fiction narratives. In 1957, the company board decided to launch a new Special Services Department to produce and preserve sound effects for radio theatre production. Sound effects technician Reino Korpio was hired to run the department operations. Korpio created a comprehensive list of all the sounds needed and a working plan for recording operations. Sounds from all over the country were recorded and collected with a high level of precision. For example, a certain car model would be recorded from inside the vehicle, outside, approaching, moving away and so on. The recordings were archived on reel-to-reel tapes and were catalogued plus classified by using a special Dewey-like classification system created by Korpio.³⁸

When the sound effect collection of 20,000 reel-to-reel tapes plus one remaining staff member were added to the organisation of Yle Archives, a total of 80,000 recordings and foley sounds were

digitised in the 2000s. As sound effects are not considered works in copyright legislation like music or film, Yle Archives has been able to publish examples of the sound effect collection globally, free of charge or royalties. This publication was first implemented through the European-funded Dismarc project during the 2010s, later to be included in the Europeana web portal (www.europeana.eu). After that a selection of 1,000 recordings from the same collection were uploaded to the Freesound service through Creative Commons licensing.³⁹ At the same time as the launch of the sound effects project, the tape exchanging activities among the EBU partners provided Yleisradio's programme makers access to modern electronic music experiments produced within other broadcasters in Europe. The new sounds of *Musique concrète* raised interest among the new generations and already in 1958 Martti Vuorenjuuri created a first 'acoustic composition' for radio, '*Uljas uusi maailma*,' which was based on the dystopian novel *Brave New World* by Aldous Huxley.⁴⁰

During the 1960s experiments with electronic editing and shaping of sound continued in various recording studio spaces in Yle premises, but not in an organised way, rather with the same pioneering spirit as the first radios were operated with fifty years earlier. New electronic sound experimentation mixed radio drama production, sound effects, music and composition to a new form of programme type, *radiophonic* work.⁴¹ It was only in 1973 that Yleisradio launched an official department '*Ylen kokeilustudio*' (experimental recording studio) to support this activity in a formal way. The studio was equipped with revolutionary electronic sound generating devices constructed by designer and futurologist Erkki Kurenniemi, such as the DIMI 6,000 computer.⁴² Decades later the archive staff noticed that for the long-term preservation and reproduction of electronic compositions, the challenge is that in many cases what is left are the original tapes containing the source audio material which was manipulated during the live broadcast, not the end product, unless the reference recording was also archived. In some cases, a paper document containing performance instructions in rather obscure self-developed notation was the related metadata.⁴³

Yle Radio Archive, Audio Restoration and the Growth of Tape Collections (1960s onwards)

In addition to sound carrier daily logistics in broadcast production, the need for long-time preservation was recognised in Yleisradio in 1961 and Yle Radio Archive was established. Board minutes document the decision to establish the Sound Archive and to merge in the Tape Depository as part of its functions, and to hire Tape Depository archivist Erkki Ainamo as the executive.

Working in cooperation with the archivist, the archive staff consisted of an assistant to conduct cataloguing plus technical staff to take care of manufacturing the archival tape copies which constituted the tape collections.⁴⁴ While no documentation on archival decision making in practice has survived, we can still evaluate the impacts of the selection process by examining the catalogue of archived programmes. On a very general level we can notice that certain types of programmes were valued above others: radio drama, classical music, voices of notable cultural and political figures and major sports events have quite often survived whereas daily news, current affairs production and a lot of revue-type lighter entertainment had to go. Pekka Gronow concludes that the surviving archival collection in many cases may be in fact the result of arbitrary developments in unsuccessful disposal.⁴⁵



Figure 5. The manager of the Yle Radio Tape Depository, Mr. Erkki Ainamo in 1958. Photo: Yle Photo Archives.

The archivists' main task was to listen to radio productions, evaluate the content and make archival decisions. As the number of tapes waiting to be either archived or demagnetised had already considerably grown in number, archivists had to re-evaluate any demagnetisation decision already made by production units and ensure that nothing valuable would be destroyed. During the years to come, this task became quite laborious as Yle increased its radio production output significantly. At some point, the responsibility of archival decisions was transferred to producers and channel management, leaving the Yle Archives to concentrate on core duties including cataloguing, archival copying (from lacquer discs to archival reel tapes), and storage management.⁴⁶



Figure 6. Audio restoration tools of the Yle audio archive's restoration studio included a microscope which enabled observation of the grooves of shellac records. Nowadays, a lot of signal manipulation can be done in the digital domain, for example a coughing member of the audience can be removed from a concert recording afterwards if necessary. Photo: author.

In addition to sound carriers, some programmes were primarily archived as printed transcripts. Talk radio programming for instance is well represented in script form, which was the result of a routine procedure of inspecting scripts prior to transmission. This print collection offers a collection of diverse lectures from the years of 1934-1962, including authors, politicians and other well-known figures. In this case, the practice of inspecting scripts forced the presenters to produce at least one hard copy version of the programmes, which are now held in the Yle Archives and are yet to be digitised.



Figure 7. Radio Archive's card catalogue predated online access to the audio collections. A closer look at the box titles reveals that for example Eurovision exchange, the Olympic Games, Continuation War and Urho Kaleva Kekkonen, the president of Finland 1956-1982, were considered as subject headings worth a direct access. The lacquer disc (pikalevyt) catalogue provides access by author or title, otherwise this part of the collection is arranged by archival ID numbers. Photo: author.

The Yle Archives' responsibilities had a strong technical component, with substantial parts of the archival collection being created by copying programmes from broadcast carriers to archive reels. Besides that, the archival staff also monitored the status of old lacquer discs and copied the contents to tape as well. This was a laborious task that started during the 1960s and continued for decades. The technology used at the time offered analogue tools for restoring the audio signal, for example with various types of band-pass filters. In the 1990s, the Yle Archives' restoration procedures went digital, as computer workstations became more common in audio work, with the final round of lacquer discs digital transfer taking place in 2010. Today, the standard procedure in archival audio restoration is to save both the raw transfer file and restored version side by side, in order to preserve the choices made in restoration, and in case of more advanced restoration capabilities in the future.

Formal Archiving Policy and Reference Recordings (1970s onwards)

As there was no legal regulation in Finland on broadcast archiving before 2007, the decisions conducting archival selection were based on the needs and principles of broadcast production. The earliest known internally produced archiving policy, 'Radio-ohjelmien arkistointikriteerit' (Criteria for Radio Archiving), was published on January 18, 1979. According to this document, the key selection criteria aim was to have archival recordings that would help to produce new programmes and should produce reality-based and balanced presentation on the quality, subject themes for both journalistic and technological contexts. The three criteria included for archival selection in the policy are:

1. For the purposes of future use (e.g. re-runs in radio, insert material for new programmes, research community needs);
2. Based on programme subjects (e.g. programmes dealing with history, Finland, culture, folklore, speech and language, current persons and events, interviews with the public), and;
3. Archival point of view (e.g. copyright reasons, as a sound on carrier or text in manuscript, technical reasons, due to duplicates in the archive, or in the public interest).⁴⁷

Yle Archives renewed this Archiving Policy document during the 2000s and updated it again later to take into account new developments in the digital environment, with co-productions, and new legislation.

Broadcast researchers may be interested to study not only individual programmes but also the daily broadcast context in which they are positioned. Therefore, starting from 1974, the Yle Radio Archive followed an EBU recommendation and started to capture a single twenty-four-hour period of programme broadcast one time per year. These ‘reference recordings’ covering one radio channel over a whole day have continued until well after 2010. However, as the KAVI Institute started to comprehensively collect and store all national radio broadcasts starting from 2009, there is now less of a need for an in-house strategy to record a whole day sample each year.

Yle’s Digitisation Project and Digital Archiving

Towards the end of the twentieth century, radio production became digital, first by using digital recording technology and sound carriers, such as DAT cassettes and CD-R discs, but within a decade, pushed further into the realm of completely non-physical files on hard disks with associated metadata in databases. However, many of the new digital carrier formats proved to be unstable from a professional archival point of view. For example, DAT cassette technology is very vulnerable when it comes to such factors as air humidity. For playback, some of the cassettes may work completely fine during the central heating season in Finland from autumn to spring, but in summertime when relative humidity inside the buildings increases radically, they might become unplayable. CR-R discs, once promoted as an almost everlasting medium, turned out to be unreliable, with some discs becoming unreadable within ten years of their creation.

At the Yle, a strong need for an integrated and comprehensive solution to arrange audio archiving and related workflows emerged, due to factors including the decaying process of analogue sound carriers in the archive with maximum fifty year life expectancy; the unreliability of new digital carriers; the deployment of digital file based radio production systems; the production of archival metadata (catalogues) in electronic form and into the online databases; the availability of large-scale storage systems and Media Asset Management (MAM) systems; and the accelerating media production environment, which required easier, remote access to digital archives.⁴⁸ For the Yle Archives, this was the right moment to start a full-scale digitisation of historical reel-to-reel tapes and other carriers deemed at risk.⁴⁹

The Yle Archives face multiple ongoing concerns when it comes to the transfer and digitisation of audio collections, including the availability of obsolete playback technology (e.g. reel-to-reel tape

recorders, turntables); a demand for specialist audio engineers and transfer technicians, the servicing of hardware, and the availability of spare parts to keep the ingest machine running. The sheer size of these challenges means that radio archives are forced to choose between external service providers or pursuing in-house solutions, which can be effective if there is already a concentration of national resources already within the national broadcasting company. An external partner may also take the form of a government-funded authority, such as a national audio-visual archive or a national library with legal assignment.

In 2007, Yle Archives produced its internal plan, the Digitisation Strategy (*Yleisradion digitointistrategia*), which presented calculations on the resources required to digitise the historical Radio Archive collection in coming years. An inventory of the holdings revealed that the remaining analogue collections comprised 3,000 lacquer discs from 1935-1955 containing speech, along with another 2,000 discs, from 1900-1960, mostly of music. The Tape Depository collection contained some 200,000 reel tapes from 1950-2000, along with other more modern carrier types. Other notable collections include 80,000 sound effects from 1960-2000 held on 20,000 reel tapes, and (commercial) music recordings from 1913-1994 in the Music Library.⁵⁰ Notably, the collections also include diverse recordings produced by institutions other than Yle. It should be noted that the lacquer disc collection had already been transferred to archive collection reel tapes in the period between 1961-1980, and by 2006, all 33,000 recordings on archive tapes, including lacquer disc recordings on those reels, were transferred into audio files in the digital storage system.⁵¹

Yle's Archival Sound Collections in the Twenty-First Century

In 2007 new legislation was passed aiming to organise the preservation of national broadcasting heritage in Finland. The assigned public authority since then is the former Finnish Film Institute, now *Kansallinen Audiovisuaalinen Instituutti* (KAVI or The National Audiovisual Institute), which takes care of the archiving of all domestic radio and television production, in addition to film archiving and other activities. By law, the production companies are not allowed to dispose carriers of work-type programme recordings without KAVI's permission. Since Yle has already arranged the archiving of its programmes in what is regarded as a permanent manner, the national broadcaster's archives have been assigned as the branch office of KAVI that concentrate on archiving Yle productions.⁵²

While the radio and television programmes are mostly archived at Yle Archives, and partly accessible via Yle's website, print documentation related to the history of Finnish broadcasting is distributed across multiple locations. Print documentation is partly held in the Yle premises and partly in the partner organisation *ELinkeinoelämän KeskusArkisto* (ELKA or Central Archives for Finnish Business Records) in Eastern Finland. The National Archives of Finland, *Kansallisarkisto*, also holds historic broadcasting-related documents in its collections if they are part of governmental archiving. For early radio programme magazines, journals and advertising, there are holdings at the *Kansalliskirjasto* (National Library of Finland), which preserves and digitises these resources.

An essential part of broadcasting heritage is also the technological devices involved in production and reception, such as microphones, recorders, turntables, receivers, amplifiers and so on. In Finland, there are several museums collecting and arranging exhibitions in this area. For instance, the Lahti high power AM transmitter building now hosts the radio and television museum 'Mastola,' which is jointly owned by Yle and Lahti city municipality. While some of the Yle mobile recording vans have been preserved in Finnish car museums, those items not considered part of this legacy have been put up for public auctions popular among the enthusiastic audio hobbyists.

A final important component of the Finnish national audio legacy can be identified. The Swedish-language Yle has cooperated with the *Svenska litteratursällskapet* (Swedish Literature Society of Finland), which has deposited Yle material into its archives. The Swedish-language Ålands Radio network used to be part of Yleisradio, and became independent in 1996, with historical holdings in the *Ålands landskapsarkiv* provincial archives. Given the interests of the Sámi people in the northern part of Finland to preserve their cultural heritage, it may be possible to find Yle-related material in the Sámi Archives collections. Finally, some of the Finnish radio heritage is located abroad, for example in the Swedish National Library's audio-visual collections or the international radio documentation centre DokuFunk in Austria.

Conclusion: Factors Enabling and Preventing Preservation of National Radio Heritage

Aside from broadcast content itself, radio broadcasting should be understood as facilitated by *technological* processes, with a set of devices processing signals. In turn, technology also strongly influences the available possibilities for archiving and its long-term preservation. As noted previously in this article, the first decade of Finnish radio is not accessible as sound recordings, due to the

unavailability of recording technology at the time. Later on, magnetic recording and digital technology brought many improvements to both production and archival practices, as technical quality was superior compared to previous tools and new lightweight recorders could be independently operated by reporters and other programme producers. Magnetic tape and digital recording also brought new challenges into archiving as the ability to easily (re)record raised new questions: should a particular object be stored or should it be deleted forever in order to release storage capacity for upcoming productions? From the perspective of the present, it is sometimes too easy to pass judgement on past decisions made in a time of resource scarcity, yet past documentation workflows such as the Tape Depository catalogue cards can now also help to retrace earlier decisions.

Technology does not produce audio archives by itself, it needs high-level engineering, programming, and sufficiently skilled staff. Based on experiences from around 2000, younger members of the work force became more technologically savvy, yet specialised knowledge and hands-on skills for vintage analogue audio technology and its digital transfer became scarce. In response to this situation, some organisations, such as IASA (International Association of Sound and Audiovisual Archives), have taken an active role in transferring tacit knowledge and providing training and workshops.

Another important challenge for access to radio archival heritage lies in copyright restrictions, as broadcasters do not own all the rights to publish all the content of their archives, unless they make specific agreements with copyright owners to do so. In 2007, Yle launched its streaming service 'Yle Areena,' following an archival online service 'Elävä Arkisto' (Living Archive) as a result of comprehensive negotiations with associations representing journalists, actors, authors, musicians, composers, along with all other copyright holders of the content in its archives. As this concerns the publishing of the programmes only, we may note that from the archival perspective it would be useful to enter the situation where legal interpretations or contractual obligations do not lead to the prevention of long-term preservation or archiving. At present, a highly debated EU directive addresses this problem by allowing heritage institutions the right to digitise content and collect orphan works under certain conditions.⁵³ In 2007, a law passed in the Finnish Parliament that made media production companies obliged not to dispose of radio and television programmes, with the material now having a legally protected status. Questions of interpretation may still arise as to what a 'work-type' programme really is in practice. However, in the digital environment it may be more efficient, or even economical, to deposit an object right away rather than use human labour to

evaluate whether it should be included in an archival depository. For the time being, the quality of metadata remains a critical support for decision making and validating the content.

For national broadcasters, factors such as EU directives, national regulations, and EBU cooperation, remain crucial in influencing archival priorities. A typical national broadcasting company may be in fact a quite large-scale organisation with a lot of various duties, conflicting interests, staff from various backgrounds, probably speaking many languages and located in branches all over the country. How is it possible to ensure long-term preservation in a hectic media organisation where decision-making is (or at least should be) decentralised? Yle's history supports the viewpoint that an explicit, detailed and well-reasoned archiving policy document is an essential tool in decision making, as well as serving as a checklist for everyday archival work. For example, when benchmarked against company strategy, it can produce useful information about the position and requirements for archives as part of their umbrella organisation. As the broadcasting and media landscape is changing all the time, archiving policy needs constant updating as well.

Notes

1. Pekka Gronow, *Kahdeksas taide: suomalaisen radioilmaisun historia 1923-1970* [*The Eighth Art Form: The History of Finnish Broadcast Expression 1923-1970*] (Helsinki: Avain, 2010), 316.
2. A recent bibliographic study shows that for the period 1995-2020 alone, Yle and national broadcasting has been the subject of some 230 monographs, 640 thesis works and approximately 300 academic articles in various publications. Janne Ranta and Salla Halonen, *Yle Bibliography 1995-2020* (Helsinki: Yleisradio, 2021).
3. See: Pirkko Tulppo, et al., ed., *Radioamatööreistä tajuntateollisuuteen: puoli vuosisataa suomalaista yleisradiotoimintaa* [*From Radio Amateurs to the Consciousness Industry: A Half Century of Finnish Broadcasting*] (Helsinki: WSOY, 1976); Jarmo Viljakainen, *Radiomonopolista kanavatulvaan: poimintoja Suomen radio- ja televisiotoinnin vaiheista* [*From Radio Monopoly to Channel Flow: Some Phases of Finnish Radio and Television History*] (Helsinki: Edita, 2004).
4. The company itself has published three separate official histories to celebrate the anniversaries of 25, 50 and 70 years of operation. These self-published company histories are respectively: Vilho Suomi, *Suomen Yleisradio 1926-1951* (Helsinki: Yleisradio, 1951); Atte Larma, ed., *YLE 50: ääniä ja kuvia/ljud och bild* [*YLE 50: Sound and Vision*] (Helsinki: Yleisradio, 1976); Eino Lyytinen et al., *Yleisradion historia* [*The History of Finnish Broadcasting Company*] 1926-1996. 3 vols. (Helsinki: Yleisradio, 1996). The three-volume history

from 1996 was also published as a one volume summary in English and Swedish. For the English version, see: Rauno Endén ed., *Yleisradio 1926-1996: A History of Broadcasting in Finland* (Helsinki: Finnish Historical Society, 1996). A future edition is currently in progress and due to be published to mark the 100-year anniversary in 2026.

5. For a history of Finnish broadcasting technology, see: Eino Lyytinen et al., *Yleisradion historia, 1926-1996. Vol. 3 Tekniikka, kaiken perusta* [*The History of the Finnish Broadcasting Company, 1926-1996. Vol 3: Technology, The Foundation*] (Helsinki: Yleisradio, 1996).
6. Eric Ketelaar, "Tacit Narratives: The Meanings of Archives," *Archival Science* 1, no. 131-141 (2001): 132-135.
7. Jonathan Sterne, "The Preservation Paradox in Digital Audio," in *Sound Souvenirs: Audio Technologies, Memory and Cultural Practices* ed. Karin Bijsterveld and José van Dijck (Amsterdam: Amsterdam University Press, 2009), 55-65, specifically 60.
8. Carolyn Birdsall, "Sound and Media Studies: Archiving and the Construction of Sonic Heritage," in *Sound as Popular Culture: A Research Companion*, ed. Jens Gerrit Papenburg and Holger Schulze (Cambridge, MA: MIT Press, 2016), 133-148, specifically 134-137.
9. Sterne, "The Preservation Paradox," 56-61.
10. Tulppo, *Radioamatööreistä*, 20-30.
11. Viljakainen, *Radiomonopolista*, 26-28.
12. Viljakainen, *Radiomonopolista*, 28-30.
13. Viljakainen, *Radiomonopolista*, 32-35.
14. Viljakainen, *Radiomonopolista*, 38-39.
15. Suomi, *Suomen Yleisradio*, 74.
16. Suomi, *Suomen Yleisradio*, 74.
17. Once created, the radio monopoly situation in Finland lasted 50 years. Yleisradio was the sole legal radio broadcaster in Finland up until 1985 when the first private radio stations were granted licenses to broadcast locally.
18. During the period 1919-1932, it was forbidden to manufacture and sell alcohol in Finland.
19. Viljakainen, *Radiomonopolista*, 56-57.
20. Suomi, *Suomen Yleisradio*, 302.
21. Yle Annual report 1955, 14.
22. Lyytinen et al., (1996), 119.
23. Suomi, *Suomen Yleisradio*.

24. “Ylen vanhin ohjelma: uudenvuodenpuhe vuodelta 1935” [“Yle’s Oldest Radio Programme: President’s Speech on New Year’s Day 1935”], aired January 1, 1935, radio broadcast on audio reel tape ARK- 165-7 copied from a lacquer disc, Yle Radio Archive, <https://yle.fi/aihe/artikkeli/2006/09/08/ysten-vanhin-ohjelma-uudenvuodenpuhe-vuodelta-1935>.
25. Paavo Velander, *Kidekoneesta väritelevisioon* [From Crystal Sets to Colour Television] (Helsinki: Kirjayhtymä, 1986), 93.
26. *Yleisradion vuosikirja 1935* [Yle Annual Report 1935] (Helsinki: Yleisradio, 1935).
27. Gronow, *Kahdeksas taide*.
28. Gronow, *Kahdeksas taide*, 32-35.
29. Gronow, *Kahdeksas taide*, 32-35.
30. Gronow, *Kahdeksas taide*, 82.
31. Lasse Vihonen, *Radio sodissamme 1939-1945* [Radio in the Finnish Wars, 1939 -1945] (Porvoo: Suomalaisen Kirjallisuuden Seura, 2010); Lasse Vihonen and Pekka Salosaari, “Jahvetti’s Letterbox and Finnish War Propaganda on the Radio,” *TMG Journal for Media History* 22, no. 2 (2019). DOI: <http://doi.org/10.18146/tmg.596>.
32. Regular television broadcasting in Finland started in 1955, and the national broadcaster Yleisradio started in 1958 as ‘Suomen televisio’ (Finland’s Television). By the end of 1960s television’s popularity approached the equivalent level of radio and then during the 1970s took over as primary mass medium in Finland.
33. Gronow, *Kahdeksas taide*, 100.
34. Gronow, *Kahdeksas taide*, 32-35.
35. As an underlying factor affecting the launching of Tape Depository, it is worth nothing Finland’s withdrawal from rationing of foreign trade which allowed the broadcasting company to buy more audio tape to be used in programme production.
36. *Yleisradion puhelinluettelo* [Yleisradio Phone Directory] (Helsinki: Yleisradio, 1958).
37. Yleisradio Board minutes, October 11, 1959, Yle Archives.
38. When Finland adopted the Euro currency in 2002, there was even a discussion whether new versions of cashiers, bank desks and customer services dealing with cash money should be recorded by the Yle Archives as the new Euro coin had a different ringing sound compared to the previous Finnish markka. See: Gronow, *Kahdeksas taide*, 186.
39. For example, an atmospheric outdoor soundscape of freezing in sub-zero temperature with snapping of trees can be heard and downloaded at <https://freesound.org/people/YleArkisto/sounds/243352/>.

40. However, due to copyright issues the work was not broadcast until 1966. See: Jukka Lindfors, "Elektronimusiikki alkoi surista Ylessä jo 1950-luvulla," May 29, 2015, Yle.fi, <https://yle.fi/aihe/artikkeli/2015/05/29/elektronimusiikki-alkoi-surista-ylessa-jo-1950-luvulla>.
41. Petri Kuljuntausta, *On/off: eetteriäänistä sähkömusiikkiin* [*On/Off: From Ether Voices to Electronic Music*] (Helsinki: Like/Nykytaiteen museo Kiasma, 2002).
42. See: Sari Casal and Veli Kauppinen, "Yleisradion kokeilustudiossa syntyi nykymusiikkia koneilla," December 14, 2016, Yle.fi, <https://yle.fi/aihe/artikkeli/2016/12/14/yleisradion-kokeilustudiossa-syntyi-nykymusiikkia-koneilla>.
43. Some of the electronic compositions created in experimental studio are available online at: <https://yle.fi/aihe/artikkeli/2015/05/29/elektronimusiikki-alkoi-surista-ylessa-jo-1950-luvulla>.
44. Yleisradio Board minutes, October 11, 1961, Yle Archives.
45. Gronow, *Kahdeksas taide*, 383.
46. The archival transfer project had begun in the 1960s.
47. See the memo: "Radio-ohjelmien arkistointikriteerit" ["Archival Criteria for Radio Production"], Oy Yleisradio Ab, Radio Division Executive Board, January 18, 1979, Yle Archives.
48. Jouni Frilander, et al., "The YLE Digital Sound Archive," *Digicult.info: A Newsletter on Digital Culture* 4 (2003), https://www.digicult.info/downloads/digicult_newsletter_issue4_highres.pdf.
49. Frilander, "The YLE."
50. The pre-1935 dates of music collections are drawn from the original dates of the recordings, not referring to the age of lacquer copy.
51. See the memo: "Yleisradion digitointistrategia" ["Yle Archives Digitisation Strategy"], May 15, 2007, Yle Archives.
52. See: "Laki kulttuuriaineistojen tallettamisesta ja säilyttämisestä" ["Act on depositing and preserving cultural materials"], December 28, 2007, Finlex Data Bank, <https://finlex.fi/fi/laki/ajantasa/2007/20071433>.
53. "Directive of the European Parliament and of the Council on Certain Permitted Uses of Orphan Works," September 20, 2012, European Union, <https://data.consilium.europa.eu/doc/document/PE-36-2012-INIT/en/pdf>.

Biography

Pekka Salosaari, MSSc, has been working for the Finnish Broadcasting Company Yle Archives for more than twenty years and is currently Audio Collections Manager. Pekka studied ethnomusicology, information science and mass communication at the University of Tampere, graduating in 1998. His thesis work 'MUSIR- A Retrieval Model for Music' presented n-gram representation for music retrieval and was accepted by the Department of Information Studies. In his presentations at international conferences he has given talks on audio digitisation, obsolete audio formats, archiving and Finnish radio history.

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