CHAPTER 5

Public service without broadcasting?

Conditions for abandoning terrestrial television in Finland

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ABSTRACT

Finnish Yleisradio (Yle) has been one of the most innovative public service broadcasters in Europe. The new tax-based funding system and broad remit have allowed the company to shift its focus from broadcast television and radio to online services without jeopardising its relevance or resources. Now Yle has set preconditions for the future availability of its online television in case digital terrestrial television (DTT) would be switched off and all ultra high frequencies reallocated. This is not because Yle would want to focus only on growing video audiences online, but because the Finnish spectrum policy favouring mobile industries could endanger Yle's capability to fulfil its public service remit. We argue that Yle's conditions for abandoning television broadcasting on DTT are so tight they might never be met by the Ministry of Transport and Communications. In this chapter, we also examine what consequences public service without broadcasting could have.

KEYWORDS: public service broadcasting, spectrum policy, regulation, Finland

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Introduction

In September 2020, the Finnish public service broadcaster Yleisradio (Yle) wrote an open letter to the Ministry of Transport and Communications suggesting a new media policy decision on television distribution, which could be used as a foundation for outlining the reallocation of additional ultra high frequencies to 5G mobile use. In addition, it proposed that the Ministry should also prepare new regulatory decisions that would guarantee the availability of Yle television content over broadband for the entire population, even at the peak hours of network use and in the most remote areas. In return, Yle would be ready to support, both nationally and internationally, the Finnish government's proposal for the World Radiocommunication Conference in 2023 (WRC-23) about reallocating the entire ultra high frequency spectrum for mobile use (Yle, 2020).

A nationwide newspaper representing the Central Union of Agricultural Producers and Forest Owners, *Maaseudun Tulevaisuus,* interpreted the letter as Yle's appeal to the Ministry to pave the way for a DTT switch-off as soon as possible. This would have been bad news for quite a few people living in the countryside, as it entailed being dependent on DTT and mobile broadband only, so Yle was soon publicly criticised by some politicians for even planning such a reform (Runsten, 2020). The irony in this public debate was that Yle had only a few months earlier signed a ten-year-long agreement on terrestrial television broadcast delivery with the network company Digita, and in June 2020, Yle DTT channels were made available nationwide in high definition. As Yle pointed out in its answer and correction, as a public service media company, it had no intention to eliminate DTT any time soon, but would instead keep it for at least one more decade (Yli-Äyhö, 2020).

So, the main reason Yle proposed a regulatory reform for ensuring Yle television content distribution on broadband was not determined by a company policy to get rid of broadcasting: On the contrary, it should be interpreted as a defensive action. This incident is actually a part of an increasing competition and confrontation between the policy principles of the so-called Nordic media model – the media welfare state (Syvertsen et al., 2014) – and the official Finnish media policy dating back to the 1990s, which pushes Finland in the direction of a competition and market approach (Ala-Fossi, 2020). The contradiction between the Finnish national spectrum policy emphasising the economic value of the ultra high frequency band, and more traditional, culturally oriented Nordic media policy protecting the resources and conditions vital for the national public service broadcaster to fulfil its legal obligations, is far from exclusive (Ala-Fossi, 2020), but it may be the most visible case internationally.

In 2015, Finland openly and intentionally challenged the Nordic and European spectrum policy by being the only EU member state to vote for a quick reallocation of the entire ultra high frequency broadcast band for

mobile use at the World Radiocommunication Conference (WRC-15) of the International Telecommunications Union. Despite a landslide victory for the "stagnant" European policy, the Finnish Ministry of Transport and Communications did not adjust its ultra high frequency spectrum policy goals accordingly (Pursiainen, 2015). In 2019, as always before the general election, the Ministry published a memorandum written by Permanent Secretary Harri Pursiainen and other leading civil servants to suggest important issues for the next government programme. Among other things, the memorandum proposed a transition of all broadcast television to broadband distribution in Finland right after the end of the current licensing period in October 2027. This would result in a total DTT shutdown. And because the memorandum also suggested providing as much spectrum for 5G and 6G as possible, clearing the ultra high frequency band for mobile broadband could then begin as soon as the spectrum reallocation could be agreed on at the international level (Ala-Fossi & Bonet, 2018; MINTC, 2019).

This was the context for the Yle spectrum policy initiative in the form of an open letter to the Ministry in 2020. Other than the public debate described earlier, there has not been much discussion around this issue. However, after promoting a more dynamic and mobile-friendly spectrum policy for 15 years in a row, Permanent Secretary Harri Pursiainen decided to retire from the Ministry of Transport and Communications prematurely in 2021, only a month after applying for another five-year term. At the time of writing, there are only a few months left until WRC-23, where the use of the ultra high frequency spectrum in the International Telecommunications Union Region 1, including Europe, will be reviewed. As the only action on this issue by the Ministry has been two commissioned reports about television delivery over broadband (Omnitele, 2022; Avaava, 2022), it seems that the Yle letter has so far had the intended impact on Finnish media and communications policy.

Our study is based both on our earlier research as well as analysis of more recent policy documents, statements, and reports: No interviews have been conducted. The theoretical basis of this chapter is in political economy (Jessop, 2002/2005), in combination with historical institutionalism (Galperin, 2004), which emphasises the analysis of historical developments and (economic) power relations between institutions, including informal ones. From this perspective, the flagrant and yet delicate spectrum policy dispute between the Ministry of Transport and Communications and the national public service broadcaster Yle, under the auspices of the Ministry, described above, leads us to ask the following research question (Syvertsen et al., 2014; Ala-Fossi, 2020):

RQ1. Would public service media be able to maintain the public service content delivery that is so vital for the media welfare state if the state would be actively aiming to shut down a structure for universal media content delivery as a public good and to replace it with a different structure?

In addition, we also aim to examine whether the new policies and regulatory measures suggested by Yle could be sufficient to ensure online delivery capacity and the priority position for public service media in Finland.

In the European countries, public service media is usually a crucial part of the national ecosystem of terrestrial broadcasting, which also delivers commercial broadcast television as well as terrestrial radio in both analogue and digital formats. Thus, our second multi-part research question is as follows:

RQ2. If the public service broadcaster would withdraw from broadcasting and all the network expenses would fall on the commercial sector, what should we expect would happen next: What are the likely scenarios? How much money and how many DTT services would it take to keep the system alive and running? And finally, if public service media would no longer be broadcasting, would it still be protected by the Amsterdam protocol? Or could such a transition result in a new series of complaints to the European Commission?

Media policy and the media landscape in Finland

Finland is a relatively sparsely inhabited country with 5.5 million inhabitants, and it has been commonly considered one of the Nordic media welfare states, together with Denmark, Norway, and Sweden. It shares the same tradition of independent printed press, subsidised from public funds, as well as strong public service broadcasting protected and funded by the state. But certain national distinctions have usually been neglected when emphasising the similarity of media policy and media development in the Nordic countries (Syvertsen et al., 2014).

For example, in Finland, the Ministry of Education and Culture has nothing to do with the spectrum policy or public service broadcasting, as they are both administered by the Ministry of Transport and Communications. In the last three decades, this distinction has turned out to be very important. The mobile phone as a ubiquitous means of communication has spread from the Nordic countries throughout the world while the Nordic societies – with Finland as a frontrunner – have gradually transitioned from the welfare state model towards the competition state model. At the same time, the radio spectrum has been transformed from a national resource for national purposes into a public resource that is allocated to the highest bidder for the highest possible economic reward. In this setting, one Ministry in Finland has all the power to evaluate the social, cultural, and political content transmitted as well as the economic value of the spectrum use (Ala-Fossi, 2020).

Media ownership concentration in Finland is now higher than in the other Nordic countries, and the national broadcast infrastructure (Digita), for example, has been sold abroad to private investors. While the volume of the mass media market has been alternately declining and growing during the

last decade, it is noteworthy that the share of electronic media has grown at the same time that the share of the print media has diminished. The growth in electronic media advertising has happened primarily online, while commercial television has been struggling, as the number of operators and channels has increased at the same time as television advertising income has diminished. Even the largest commercial television broadcaster, MTV, was already near bankruptcy in 2015. The company was sold to Swedish-owned telecom operator Telia in 2019, and it has remained unprofitable under the new owner (Ala-Fossi, 2020; Ala-Fossi et al., 2023; Grönlund & Lehtisaari, 2021; Yle, 2023).

Although more than half of all Finns are already using the Internet as the main source of their news, especially the sites provided by traditional media, broadcast television remains a crucial part of their daily media diet. The overall position of the television as the second most important source of news has been steady, and among the older population, it is still the most important. On a weekly basis, nearly 80 per cent of residents follow news via the Internet, printed newspapers, television, or radio (Reunanen, 2021; Reunanen et al., 2022).

Public service television and spectrum policy

Throughout the 1990s, Yle was led by two men with backgrounds as professional journalists. Both the last general manager, Reino Paasilinna (1989–1994), as well as the first CEO, Arne Wessberg (1994–2005), started their career at Yle as television journalists. But their successor, Mikael Jungner (2005–2010), represented not only a different generation but a completely different professional paradigm, as he was a former director of information society relations at the Microsoft Corporation. The determined development of Yle's online services started during Jungner's term, but the importance of broadcasting was not challenged. In 2005, Yle and the major commercial television broadcasters in Finland agreed that there was no need for any spectrum policy changes before the completion of the digital switchover of television broadcasting in 2007. Even after the switchover in 2008, there was a consensus about the priority of television broadcasting on the ultra high frequency spectrum band (Ala-Fossi & Bonet, 2018).

However, in 2012, Yle decided to no longer oppose the reallocation of the upper ultra high frequency spectrum (700 megahertz) for mobile use, unlike the Finnish commercial television broadcasters and national media associations. One of the main reasons for this deviation was that Yle's Board of Directors decided in 2010 to not renew the contract with Jungner, but instead appointed a former European Union lobbyist for the Nokia Corporation, Lauri Kivinen, as the new CEO. There is no doubt about Kivinen's stand in this issue: He had signed an official public statement supporting the quick

release of the ultra high frequency spectrum for mobile use as the Head of Corporate Affairs at Nokia Siemens Networks already in 2008. By signing the new Yle statement in 2012, Kivinen proved that, although he had changed company and position, his views on spectrum policy as adopted in the mobile industry had remained practically unchanged (Ala-Fossi & Bonet, 2018).

They were also in line with the Finnish government and its new Communications Policy Program for Electronic Media (MINTC, 2012), which aimed, among other things, to release more ultra high frequency spectrum from broadcasting for mobile use. Within Yle, internal planning as well as public strategies reflected this shift from a focus on broadcasting to new media and online services. In addition, Yle started to seriously consider telecom networks and mobile broadband as alternatives for broadcast delivery (Yle, 2015; Ala-Fossi & Bonet, 2016). After the introduction of a new tax-based funding system in 2013, Yle was also no longer dependent on television licence fee income, which further increased the company's possibilities to gradually reduce the resources devoted to broadcasting.

When Finland challenged the European spectrum policy consensus on the future of the ultra high frequency band in 2015, Yle was the only European broadcaster to support additional ultra high frequency spectrum release for mobile use. All the other Nordic public service media companies, like Swedish Television (SVT), the Danish Broadcasting Corporation (DR), the Icelandic National Broadcasting Service (RÚV), and the Norwegian Broadcasting Corporation (NRK), supported the European Broadcasting Union and common European Union position at WRC-15 (Ala-Fossi & Bonet, 2018). In the end, Finland was left alone in Europe, and the remainder of the ultra high frequency band below 800 and 700 megahertz remained in broadcast use. It was also agreed that the use of the ultra high frequency spectrum would be reviewed at the WRC-23 (Ala-Fossi, 2016). According to a European Broadcasting Union survey, a clear majority of countries (n = 123) would still like to keep the current amount of ultra high frequency spectrum in broadcast use, while 13 countries would like to increase it. Finland was one of the five in favour of releasing more ultra high frequency spectrum for mobile use – once again, the only European country in this group (EBU, 2020).

Unlike his predecessor, Lauri Kivinen had a permanent contract as the Yle CEO, but he decided to leave Yle prematurely, after eight years, in 2018. The current CEO, Merja Ylä-Anttila does not have a technology background but considerable experience as a broadcast television news journalist and editor-in-chief. She was also CEO of MediaHub, a subsidiary of the large commercial television broadcaster MTV3. During her 36-year-long career in broadcasting, she has inevitably become familiar with the ultra high frequency spectrum policy issue and its importance for broadcast delivery. This is also the most likely reason why the Yle letter – personally signed by Ylä-Anttila and sent to the Ministry of Transport and Communications in 2020 – revealed

a new approach towards the national ultra high frequency spectrum policy. While Yle's support for the Finnish government's initiatives to release additional ultra high frequency spectrum for mobile is no longer unconditional, the Ministry is expected to first ensure that Yle will have all the means and resources needed to fulfil its remit (Yle, 2020).

Although the release of 800 and 700 megahertz bands for mobile use was eventually a relatively painless process in Finland (Ala-Fossi & Bonet, 2016), the digital upgrade of terrestrial television from DVB-T standard to the more advanced DVB-T2 has turned out to be more difficult than expected. The original goal agreed by all television companies in Finland in 2016 was to switch to DVB-T2 by the end of March 2020, but this was not met because of an unexpected dispute over Yle's procurement procedure for high definition television broadcasting on DVB-T2. Although the disagreement between Norwegian-owned telecom operator DNA and Yle was solved already in 2019, the television broadcasters have not yet been able to set any new date for the switchover, and households have not updated their home receivers as quickly as expected. Almost 50 per cent of Finnish households with television still receive their television via DTT – and one-fifth (20%) of those households that depend on terrestrial networks still lack so-called high definition receivers for DVB-T2 reception (Traficom, 2023).

Challenges for public service without broadcasting

In a densely populated and small country with an already existing alternative broadcast delivery network, switching off the DTT system and meeting the public service broadcasting remit is by no means impossible. It can be done, and it is even possible to save some money by doing so, as in Belgium (2018) and Switzerland (2019). To begin with, the primary distribution technology for broadcast television in both countries was already cable, and the share of DTT-dependent households was very low (less than 5%, about 200,000 households). After the cable networks were digitised and complemented with IPTV over broadband, the cost of maintaining the DTT network was simply considered too high by the broadcasters (Lombardo, 2018).

Finland is a very sparsely inhabited and large country – over ten times larger than Belgium and with only half of the population – with a relatively high dependency on DTT, as cable is unavailable in the countryside. In addition, Finnish households are also exceptionally dependent on mobile broadband (43%), which is widely available for a relatively low and fixed monthly fee, while high-speed fixed Internet connections are available to only 60 per cent of Finnish households. This makes Finland one of three European Union countries where fixed broadband services are available to less than 90 per cent of households (Traficom, 2022a). Finland has now scored the highest points in the Digital Economy and Society Index (DESI) four times

in a row (2019–2022), but the digital leader of the European Union has its weak point in connectivity. Interestingly enough, all this is largely due to earlier Finnish policy choices favouring mobile industries and investments in mobile broadband networks (Ala-Fossi, 2020).

This is why mobile networks would play a crucial role if television delivery in Finland would be moved over to broadband networks. And if the remaining ultra high frequency broadcast spectrum would be reallocated for 5G and 6G services, as the memorandum of the Ministry civil servants also suggested, in practice, the same spectrum would be used for television delivery but with a different technology. However, the existing mobile broadband networks in Finland have not been designed or built to carry such a big load of data, especially at the peak hours. According to Yle's CTO, Jyrki Yli-Äyhö, former manager of broadband services at Telia Finland, currently only 10 per cent of Yle's content consumption happens over broadband, while broadcast television and radio are still at about 90 per cent of consumption. A tenfold increase in television delivery over broadband would simply not be possible over the current networks (Yli-Äyhö, 2020, 2022). Omnitele (2022) has estimated that 270 million euro of new investments and an additional 30 million euro of annual maintenance costs would be needed to provide comprehensive nationwide television coverage on mobile networks in Finland. But even this would not guarantee an uninterrupted nationwide television delivery at all times, because of the nature of mobile technology.

The daily patterns of Finnish media consumption have remained rather similar despite the ongoing transition from one delivery platform to another. The peak hours for broadcast television consumption are still between 20:00 and 23:00 (Brun, 2020), and the peak hours of daily Internet traffic in Finland are exactly the same (Tianen, 2020; Vironen, 2021). This is not very surprising, as an increasing amount of television content and television consumption is moving online, but as video streaming takes the most bandwidth, there is already a continuously increasing demand for additional network capacity, especially at peak hours. Building extra capacity just for the daily peak would not be cost-effective, because most of the time, most of the capacity would sit idle while the expense of maintaining it would stay the same. This is why the total network capacity is usually slightly below full peak-time demand, and there is usually a need for some Internet traffic management at peak hours (BEREC, 2012).

The overall coverage of mobile broadband in Finland is quite satisfactory, but the actual speed of the service depends on the local conditions. Despite the mobile industry's objection about the extra expenses associated with a network upgrade, the minimum speed of universal service broadband connection for every household was finally increased from 2 to 5 megabits per second in 2021, eleven years after 1 megabit Internet access was first made a universal service in Finland. In March 2022, fast 4G covered 90 per cent of

households, and fast 5G covered 82 per cent, but at the same time, they had only an 18 and 7 per cent geographic coverage in Finland, respectively. The fastest version of 5G especially requires a very dense base station network, which means that is not cost-effective outside of main roads and the most densely inhabited areas. If 5G were to be built on commercial terms only, it is likely it would never reach the same universal population coverage as DTT (99.96%) (Traficom, 2022b; Ala-Fossi et al., 2018).

Broadcast stations must be well prepared for problems with the availability of electricity. To meet such obligations, at every DTT transmitter site in Finland there must be a diesel-powered generator in reserve so that broadcasting may continue in case of a blackout. When compared to broadcasting, all mobile communication systems have a much denser network of transmitter sites, and the sheer number of these base stations effectively prevents investments in high-capacity back-up power. It has been estimated that it would require at least 350–600 million euro to build a back-up generator for each of the more than 10,000 mobile network base stations in Finland (Kankare, 2015). Currently, at least 30 per cent of the main base stations for non-5G mobile communication systems should have back-up power for at least four hours, while the new 5G base stations are required to operate only 15 minutes after a possible power outage (Traficom, 2020). Part of the reason for this is that even though the 5G system is more energy efficient than 4G (watt/byte), its actual power consumption is much higher due to the huge amounts of data transferred over 5G (Dongxu, 2020; Harjaluoma, 2021).

In general, the power consumption of data transfer in mobile networks is also higher – by as much as a thousand times more – compared with fixed fibre networks, not to mention broadcast networks. It has been estimated that streaming two hours of 4K video – for example, one movie online over a mobile network – would consume as much electricity as a 20-kilometre drive with an electric car, and this calculation does not include the power consumption of the end terminal, data centre, or the Internet backbone (Manner, 2022; Tamminen, 2022). So, replacing all broadcast television delivery with mostly 5G mobile broadband would significantly increase the energy consumption of the telecommunication industry, simply because the amount of data transferred in a high-energy consuming system would be multiplied. Electricity is already the largest item of expenditure for telecom operators, and the increases in the price of energy were expected to cut down their earnings for 2022 (Solvik, 2022).

In this context, it is obvious that the Finnish Ministry of Transport and Communication would have a difficult time forcing the 5G mobile operators to provide any "TV-proof" subscriptions that would work at peak times and in sparsely populated areas, as Yle suggested in its letter. It would be unlikely that those same operators, which objected to upgrading 3G and 4G networks in the most remote areas in Finland for better universal service broadband,

would ever build a high capacity 5G network in the same areas. It would not be an economically rational or viable business. That would also be the case with reserving a large idle capacity just for the peak-hour demand. Moreover, any new national regulation that would give Yle content priority status in telecommunications networks and guarantee its availability over broadband at all times, including the peak hours, would be an exception from the network neutrality principle. This would most probably make all the telecom operators, as well as the private media companies, object fiercely and file complaints.

Even if all this could somehow be implemented in Finland, perhaps by using both approaches – regulatory stick and carrot together with large public investments in both fixed and mobile broadband networks – the broadband alternative to terrestrial broadcast television would at the same time be more vulnerable and less cost-efficient to use. By forcing all the eggs into the same basket of online delivery, Finland would decrease the resilience of society at a time of possible crisis and increase the environmental and economic problems caused by the growing consumption of energy. In addition, it is unclear whether the regulatory measures suggested by Yle would be sufficient to secure its position in the new environment. The problem is that the public service broadcasters, as well as their remits, were born and raised in the broadcast domain within national borders over 100 years. While the Internet-based network systems with global platforms have their own affordances, they do not match very well with the needs of the public broadcasters online (Ala-Fossi & Lax, 2016).

Worst-case scenario for the broadcast ecosystem

Only a couple of years ago, some public broadcasters like the BBC and Yle, as well as the British communications regulator Ofcom, predicted a sunset for DTT already by 2030 (Ala-Fossi & Lax, 2016). However, in August 2021, the British Government decided to extend the DTT multiplex licences of Freeview services until 2034. This was largely because the Department for Digital, Culture, Media & Sport discovered that the DTT network is still an important tool for fulfilling the public service broadcasting remit in Britain, providing universal and free availability of public service broadcasting content throughout the nation. Freeview has about 99 per cent coverage across the UK, and it is also the only television platform for almost 40 per cent of British households (DCMS, 2021). This is quite similar to the current situation in Finland, although the UK is slightly smaller in size with a population over 11 times larger (61 million).

The Nordic countries have not yet made a similar re-evaluation of the life expectancy of DTT services or the timespan of the possible next licensing term. In Finland, Digita has a DTT delivery contract with Yle until the end

of 2029 and six multiplex licences, all currently valid until October 2027. The Norwegian national DTT operator NTV has a multiplex licence until December 2030 (NTV, 2022), and in Denmark, the multiplex licences granted by the Agency of Culture and Palaces are valid until July 2030 (ACP, 2022). In Sweden, the spectrum use for the DTT network is regulated by programming licences only, so the state-owned network company Teracom does not have any multiplex licences; the current licensing term for both public (SVT) and commercial television will end by the end of December 2025, but according to the Swedish Press and Broadcasting Authority, the licences for the next term will become available in 2025. However, the licensing term (2026–2033) will be binding only for SVT, while the commercial channels will be allowed to withdraw prematurely (SPBA, 2022; P. Björkman, personal communication, April 11, 2022).

In practice, for all the public service broadcasting companies, the use of DTT is always both a political and economic decision. They will continue, as long DTT remains a cost-efficient instrument for fulfilling the public service remit and serving the audiences – and as long as they do not have any other rational tools for doing their job, which they could both justify politically and afford economically. On the other hand, the commercial television operators can be expected to continue on DTT so long as it remains profitable for them, that is, the commercial revenue from broadcasting is higher than the expenses for DTT distribution. There are national differences, but in general, the habits of media consumption in Europe are changing in that direction, which is not too favourable for DTT. For example, Finns under 45 years of age are already watching more broadband than broadcast television. The older generations are still very loyal television viewers, but the greatest potential for developing growing audiences and larger commercial revenues is in the broadband and video- on-demand services (Brun, 2022). Soaring energy prices mean higher expenses for broadcast networks, which will result in increasing prices for broadcast delivery. It is likely that at some point, the cost per broadcast viewer for certain channels becomes higher than the ad revenue per viewer, which leads to withdrawals of DTT delivery.

The departure of some smaller or niche commercial DTT channels should be understood as business as usual – and that has already happened. However, if in a geographically large country like Finland the biggest commercial channels with the largest coverage or the national public service broadcasting company would decide to leave DTT, this could have severe consequences for the entire broadcast ecosystem. Germany is only slightly larger than Finland, but its population is more than 15 times bigger (84 million). After the German reunification in 1990, satellite television became the most important means of television delivery for the entire nation, and DTT has from the beginning been only the third most important television platform after cable. In 2013, the largest commercial television broadcaster in Germany, RTL, seriously

considered stopping DTT delivery instead of introducing any new high definition services on DVB-T2. Ulrich Reimers (2013) predicted that this could be the beginning of the end for DTT in Germany. Standard definition quality picture with a smaller selection of channels would make the remaining DTT viewers flee to satellite or cable, which would in turn further decrease the economic viability of DTT delivery for other commercial broadcasters, as well as public service television broadcasters like ARD and ZDF.

According to Reimers, the final death blow for the German DTT service would be the withdrawal of the public service broadcasters. This is partly because they are paying for the most comprehensive coverage, while commercial channels may focus only on the most densely populated regions. This in turn would mean serious problems for terrestrial radio broadcasting, as in Germany, like in Finland and many other countries with large geographical areas, nationwide radio shares most of the broadcast infrastructure, like transmitter sites and towers, with television. Without any economic help from television broadcast delivery revenues, national radio would have to carry the full cost of the network alone and perhaps reduce its broadcast services or close down entirely (Reimers, 2013).

Eventually, RTL did not withdraw from the German DTT, and new high definition services have been successfully introduced on DVB-T2. But if we look closer at Belgium and Switzerland, which only a few years later ended up closing their DTT networks, it was the public service broadcasting decision (consequently by VRT and SRG SSR) to withdraw from DTT, which led to closure (Lombardo, 2018). So, we have hard evidence that Reimers got his worst-case scenario at least partly right – although neither in Belgium nor in Switzerland has the DTT closure, at least not yet, had any significant impact on terrestrial radio broadcasting.

Would non-broadcasting public service media be eligible for state aid?

The so-called Amsterdam protocol of 1997 is rather specific when it refers to public service media only as "public broadcasting" and "broadcasting organisations", which is quite understandable in the context of the time when it was written. In the late 1990s, broadcasting was a firmly established mainstream form of communication with no comparable alternatives in electronic media. As noted by Ala-Fossi and Lax (2016), the European Commission has later also emphasised a close association between the broadcasting and online services of public service media. On the other hand, a 2009 Commission Communication about state aid rules accepts all public broadcasting services eligible for state aid, but any significant new services must first pass an "ex ante test". So, what would happen if there would be a European public service media with no traditional broadcasting activities at all, just "new services"?

At the moment, we do not have any case examples because even in Belgium and Switzerland, VRT, RTBF, and SRG SSR all continue broadcasting television on cable and radio on a terrestrial network.

A recent complaint about the use of state aid in Finnish public service media reveals how literal an interpretation the European Commission can make. In 2002, the Finnish Parliament made the remit of the public service broadcaster Yleisradio broader than before by allowing additional and supplementary services in all telecommunications networks, not just in broadcast systems. However, no direct reference to text content was made then or in later revisions of the remit. In 2017, the Finnish Media Federation filed a complaint about Yleisradio's web journalism to the European Commission, claiming that Yleisradio's text content online with no direct connection to public service audio or video content violates European Union state aid regulations. As a result, the Act on Yleisradio was amended in 2022. Yleisradio now has a separately defined right to publish text online, but only in relation to audio or video, with few exceptions. It would be very interesting to know how the use of a more than 2,000-year-old technology – the Latin alphabet – for the online publishing of text was considered by the Commission as a "new service", but the correspondence between the Commission and the Finnish Ministry of Transport and Communications remains confidential.

So far, most of the studies on public service broadcasters' transition towards becoming public service *media* in the European context have focused on examining the legal justification for new services, which have been introduced in addition to broadcasting. However, they may also offer broader perspectives on what the most relevant issues are when evaluating public service. In their recent legal study, Neuvonen and Kuusela (2022) have argued that the justification of public service media provision cannot be based on the use of any particular system or technological platform, like broadcasting. This is because the Commission is committed to the technological neutrality principle, which is also included in European Union Information Society policy. On the other hand, both the Council of Europe and the European Parliament have encouraged public service media to be active and develop ways to fulfil their remit with new technology and new platforms (Neuvonen & Kuusela, 2022).

More relevant than any choice of technology is that the content and services offered would meet the obligations of the national public service remit, including the provision of universal access – as it is described in the Commission Communication about state aid rules (European Commission, 2009: Recital 84): "State aid to public service broadcasters may be used for distributing audiovisual services on all platforms provided that the material requirements of the Amsterdam Protocol are met". Also, the Resolution of the Council and the Representatives of the Governments of the Member States (European Council, 1999) confirms that the member states unanimously want to emphasise the mission of public broadcasting; thus, the provisions of the Treaty

establishing the European Community do not limit the competence of the member states to finance public broadcasting, as far as funding is granted to national broadcasting companies to fulfil the mission of the public service given, as defined and organised by each member state. This right to adjust the public service provision according to changes in a dynamic market environment has also been confirmed in a European Parliament resolution on Concentration and Pluralism in the Media (European Parliament, 2008). All this together means that, at least from the legal point of view, public service without any form of broadcasting included should be eligible for state aid in the European Union, although this has not yet been confirmed by the Commission or the European Court of Justice.

Conclusions

In a competition state, public service media may still enjoy many traditional regulatory protections and priorities, but it should also be ready to compete over vital public resources in case of conflict of interest. The case discussed in this chapter is especially interesting because the conflict was within the domain of one single ministry controlling all spectrum use in Finland, and not between public and private institutions or between two ministries administering parts of the same domain. When the sheer economic value of spectrum was emphasised too much, the Ministry had to be reminded about the social, cultural, and political value of the spectrum use.

However, our first research question regarding whether the Finnish government would have taken the advice of the civil servants and started to prepare a DTT shutdown right after 2027, public service broadcaster Yle would not have been able to get enough broadband network capacity for a truly universal nationwide television delivery to meet its remit – not in that timeframe and most likely not later, either. The most obvious problem is economic, because additional network capacity would be necessary, and that would require large investments. Another small problem is that Finland cannot just release any part of the ultra high frequency spectrum from broadcast use to mobile use unless the changes have been accepted internationally – and at the moment, the odds are against Finland winning the Region 1 vote at WRC-23.

It is not possible to give here an exhaustive evaluation of whether the new regulatory measures suggested by Yle in case of a DTT shutdown would be sufficient to guarantee a universal nationwide television service on broadband. It might be better to ask whether it would have been possible to get all these new regulations favouring and prioritising Yle content in the online environment politically accepted and confirmed. They would require a wide parliamentary consensus and much political will, and in the current context of the Finnish parliament restricting Yle's activities online, there would be absolutely no guarantee of achieving this. And even if there would be parliamentary support, it is almost sure that complaints and court cases would follow.

Based on the real-world European case examples and simple calculations, it seems rather obvious, regarding our second research question, that the nationwide DTT system revenues would collapse if the national public service media did not pay part of the expenses, especially for operating transmitters in more sparsely inhabited regions. However, an estimate of the critical number of DTT channels needed to cover the network expenses would require additional studies. But, for example, the future ability of the commercial television broadcasters in Finland to continue traditional advertising-financed free-to-air broadcasting should be examined, because all the television operators would benefit from having as many channels as possible on air and collecting revenues to cover the network expenses.

As we have noted earlier, terrestrial broadcasting as a technology or a means of delivery is not an existential question for public service media in Europe from a legal perspective. A completely different question is how well Finland could then meet the national public service media remit and provide truly universal service without broadcasting with the limited amount of funding available. For the last hundred years or so, it has in most cases been the most cost-effective way to arrange free and universal services nationwide. When its reliability and energy consumption are now compared to broadband, especially Internet-based services used over the mobile networks, broadcasting remains socially responsible, resilient, and sustainable.

References

ACP (Danish Agency for Culture and Palaces). (2022). *Distributører af digitalt tv [Distributors of digital TV]*. https://slks.dk/omraader/medier/tv/tv-modtagelse-frit-valg-must-carry/distributoerer-af-digitalt-tv

Ala-Fossi, M. (2016). Radiodifusión terrestre en Europa después de la CMR-15: ¿el final de una era o un nuevo principio? [Terrestrial broadcasting in Europe after WRC-15: The end of an era or a new beginning?] In M. Bonet (Ed.), *El Imperio del Aire: Espectro Radioeléctrico y Radiodifusión. Oberta UOC Publishing*.

Ala-Fossi, M. (2020). Finland: Media welfare state in the digital era? *Journal of Digital Media & Policy, 11*(2), 133–150, https://doi.org/10.1386/jdmp_00020_1

Ala-Fossi, M., Alén-Savikko, A., Grönlund, M., Haara, P., Hellman, H., Herkman, J., Hildén, J., Hiltunen, I., Jääsaari, J., Karppinen, K., Koskenniemi, A., Kuutti, H., Lehtisaari, K., Manninen, V., Matikainen, J., & Mykkänen, M. (2018). *Media- ja viestintäpolitiikan nykytila ja mittaaminen: Loppuraportti [The state of media- and communications policy and how to measure it. Final report]*. Publications of the Ministry of Transport and Communications, no. 4/2018. https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/160714/04_18_Media-%20ja-viestintapolitiikan-nykytila.pdf

Ala-Fossi, M., & Bonet, M. (2016). Clearing the skies: European spectrum policy and future challenges of DTT in Finland and Spain, *International Journal of Digital Television, 7*(3), 363–377. https://doi.org/10.1386/jdtv.7.3.363_1

Ala-Fossi, M., & Bonet, M. (2018). Who's afraid of a pan-European spectrum policy? The EU and the battles over the UHF broadcast band. *International Journal of Communication, 12,* 337–358. http://ijoc.org/index.php/ijoc/article/view/6713/2238

Ala-Fossi, M., Grönlund, M., Hellman, H., Lehtisaari, K., Karppinen, K., & Nieminen, H. (2023). Prioritizing national competitiveness over support for democracy? Finnish media policy in the 21st century. *Studia Europejskie – Studies in European Affairs, 4/2022,* 149–175. https://doi.org/10.33067/SE.4.2022.6

Ala-Fossi, M., & Lax, S. (2016). The short future of public broadcasting: Replacing digital terrestrial television with internet protocol? *International Communication Gazette, 78*(4), 365–382, https://doi.org/10.1177/1748048516632171

Avaava Digital. (2022). *Selvitys laajakaistan kautta jaettavien tv-palvelujen esteettömyydestä [Report on the accessibility of television services over broadband].* Finnish Transport and Communications Agency Traficom. https://www.traficom.fi/fi/ajankohtaista/tv-jakelua-laajakaistaverkoissa-selvitetty

BEREC. (2012). *BEREC Findings on traffic management practices in Europe.* Body of European Regulators for Electronic Communications. https://www.berec.europa.eu/en/document-categories/berec/reports/berec-findings-on-traffic-management-practices-in-europe

Brun, L. (2020). *Television viewing in Finland 2019.* Finnpanel. https://www.finnpanel.fi/lataukset/tv_year_2020.pdf

Brun, L. (2022). *Television katselu Suomessa 2021 [Television viewing in Finland 2021].* Finnpanel. https://www.finnpanel.fi/lataukset/tv_vuosi_2022.pdf

DCMS. (2021). *Consultation outcome: Consultation on the renewal of digital terrestrial television (DTT) multiplex licences expiring in 2022 and 2026.* https://www.gov.uk/government/consultations/consultation-on-the-renewal-of-digital-terrestrial-television-dtt-multiplex-licences-expiring-in-2022-and-2026

Dongxu, C. (2020). *5G Power: Creating a green grid that slashes costs, emissions & energy use.* Huaweitech. https://www.huawei.com/en/publications/communicate/89/5g-power-green-grid-slashes-costs-emissions-energy-use

EBU (European Broadcasting Union). (2020). *Preparing for WRC-23: Majority of countries support DTT access to UHF spectrum.* https://tech.ebu.ch/news/2020/10/preparing-for-wrc-23-majority-of-countries-support-dtt-access-to-uhf-spectrum

European Commission. (2009). *Communication from the Commission on the application of state aid rules to public service broadcasting (text with EEA relevance).* https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009XC1027(01)

European Council. (1999). *Resolution of the Council and of the representatives of the governments of the member states, meeting within the Council of 25 January 1999 concerning public service broadcasting.* https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:41999X0205

European Parliament. (2008). *Concentration and pluralism in the media in the European Union European Parliament resolution of 25 September 2008 on concentration and pluralism in the media in the European Union (2007/2253(INI)).* https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52008IP0459

Galperin, H. (2004). Beyond interests, ideas, and technology: An institutional approach to communication and information policy. *The Information Society: An International Journal, 20*(3), 159–168, https://doi.org/10.1080/01972240490456818

Grönlund, M., & Lehtisaari, K. (2021). Media business environment. In E. Sirkkunen, M. Horowitz, & H. Nieminen (Eds.), *Media platformisation and Finland* (pp. 51–56). University of Helsinki.

Harjaluoma, L. (2021). *5G NR-verkon energiatehokkuuden kehittämisen keinoja [Ways to improve energy-efficiency of a 5G NR-network]* [Bachelor's thesis, Tampere University, Finland]. https://trepo.tuni.fi/handle/10024/133086

Jessop, B. (2005). The future of the capitalist state. Polity Press. (Original work published 2002)

Kankare, M. (2015). Sähkökatkot hiljentävät tukiasemat nopeasti – parannusta ei luvassa [Power outages silence base stations quickly – there is no promise for improvement]. *Talouselämä.* https://www.talouselama.fi/uutiset/sahkokatkot-hiljentavat-tukiasemat-nopeasti-parannusta-ei-luvassa/365f6764-242c-318f-ba80-5e5b4f10e0d1

Lombardo, M. (2018). DTT: *In decline or on the up? tech-i, December 2018*. European Broadcasting Union. https://tech.ebu.ch/docs/tech-i/tech-i-038.pdf

Manner, J. (2022, May 3). Researchers investigated the size of 1 000 popular websites – more than tenfold differences within categories. *News bulletin, Aalto University*. https://www.aalto.fi/en/news/researchers-investigated-the-size-of-1-000-popular-websites-more-than-tenfold-differences

MINTC (Finnish Ministry of Transport and Communications). (2019). *Liikenne- ja viestintäpolitiikka hallitusohjelmassa 2019–2023 [Transport- and communications policy in the Government Programme 2019–2023]*. http://www.ytl.fi/files/147/LVM_Virkamiesnakemys_1.4.2019.pdf

MINTC (Finnish Ministry of Transport and Communications). (2012). *Communications policy programme for electronic media*. Government report to the Parliament of Finland.

Neuvonen, R., & Kuusela, K. (2022, August 31). *Yleisradion julkisen palvelun toteuttaminen uusien jakelutapojen avulla Euroopan unionin valtiontukisääntelyn näkökulmasta [Implementation of Yleisradio's public service through new distribution methods from the point of view of European Union state aid regulation]*. Yleisradio. https://drive.google.com/file/d/1yykQbLawG0Mg1WPRiHWqgAfmOEvwI_9U/view

NTV. (2022). *Om Norges Televisjon, (NTV) [About Norwegian Television, (NTV)]*. Norges Televisjon AS. https://ntv.no/om-ntv/

Omnitele. (2022). *Selvitys matkaviestinverkkojen kapasiteetin riittävyydestä ja vaadittavista lisäinvestoinneista tv-katselun enimmäishetkinä [Report on the sufficiency of mobile network capacity and necessary investments for peak hours of TV consumption]*. Finnish Transport and Communications Agency Traficom. https://www.traficom.fi/fi/ajankohtaista/tv-jakelua-laajakaistaverkoissa-selvitetty

Pursiainen, H. (2015). *Stagnant spectrum policy*. Ministry of Transport and Communications. https://www.lvm.fi/-/stagnant-spectrum-policy-859099

Reimers, U. H. (2013). *DTT Quo Vadis – Germany as a case study*. EBU Technical Review –2013 Q1. http://tech.ebu.ch/docs/techreview/trev_2013-Q1_DTT_Reimers.pdf

Reunanen, E. (2021). *Uutismedia verkossa 2021: Reuters-instituutin digital news report - Suomen maaraportti [News media online 2021: Reuters Institute's digital news report – Finland's country report]*. https://trepo.tuni.fi/handle/10024/133136

Reunanen, E., Alanne, N., Helske, H., Lappalainen, E., Niemi, M. K., Pettersson, M., & Seuri, V. (2022). *Uutismedia verkossa 2022: Reuters-instituutin digital news report - Suomen maaraportti [News media online 2022: Reuters Institute's digital news report – Finland's country report]*. https://trepo.tuni.fi/handle/10024/140958

Rosemain, M., Mukherjee, S., & Pollina, E. (2022, September 29). Exclusive: Europe braces for mobile network blackouts. *Reuters*. https://www.reuters.com/business/media-telecom/exclusive-europe-braces-mobile-network-blackouts-sources-2022-09-29/

Runsten, K. (2020, September 28). Näin Yle vetoaa liikenne- ja viestintäministeriöön kirjeitse – tavoitteena "lopettaa tv-jakelu perinteisissä maanpäällisissä tv-verkoissa" [This is how Yle appeals to the Ministry of Transport and Communication in order to be able "to stop TV delivery in traditional terrestrial networks"]. *Maaseudun Tulevaisuus*. https://www.maaseuduntulevaisuus.fi/politiikka/artikkeli-1.1202837

Solvik, T. (2022, September 20). Telenor warns on 2022 profit amid massive restructuring plans. *Reuters*. https://www.reuters.com/business/media-telecom/telenor-warns-2022-profit-due-energy-prices-2022-09-20/

SPBA (2022). *Marksänd tv [Terrestrial TV]*. Swedish Press and Broadcasting Authority. https://www.mprt.se/sanda-och-publicera-media/For-dig-som-sander-tv/marksand-tv/

Syvertsen, T., Gunn, E., Mjøs, O. J., & Moe, H. (2014). *The media welfare state: Nordic media in the digital era*. University of Michigan Press. https://doi.org/10.3998/nmw.12367206.0001.001

Tamminen, T. (2022). Säästä sähköä! Netti kiinni! [Save electricity! Shut down the Internet!] *Suomen Kuvalehti, 41,* 38–43.

Tiainen, A. (2020, March 19). Netin käyttö kasvoi Suomessa ennätyslukemiin koronaviruksen takia – Kuormitus koettelee eniten etätyöläisten yhteyksiä [The use of the internet increased to record levels in Finland due to Covid 19 - The connections of remote workers under the heaviest load]. *Helsingin Sanomat*. https://www.hs.fi/teknologia/art-2000006445093.html

Traficom. (2020). *Määräys viestintäverkkojen ja -palvelujen varmistamisesta sekä viestintäverkkojen synkronoinnista [Order on securing communication networks and services and synchronizing communication networks]*. Finnish Transport and Communications Agency Traficom. http://tinyurl.com/54ktjxs2

Traficom. (2022a). *High-speed fixed internet connections available to 60% of households*. Finnish Transport and Communications Agency Traficom. https://www.traficom.fi/en/news/high-speed-fixed-internet-connections-available-60-households

Traficom. (2022b). *Small minority of users use the majority of data in mobile networks*. Finnish Transport and Communications Agency Traficom. https://www.traficom.fi/en/news/small-minority-users-use-majority-data-mobile-networks

Traficom. (2023). *Increase in HD ready equipment in households*. Finnish Transport and Communications Agency Traficom. https://tieto.traficom.fi/en/statistics/increase-hd-ready-equipment-households

Vironen, P. (2021, March 21). Etätyö lisää edelleen liikennettä mobiiliverkossa – omaa nettiyhteyttä voi usein kohentaa kotikonstein [Remote work continues to increase traffic on the mobile network – you can often improve your internet connection at home]. *Yle Uutiset*. https://yle.fi/uutiset/3-11858118

Yle. (2015, October 4). Long term AV-media delivery. *Public summary of internal memorandum*. Yleisradio.

Yle. (2020, September 11). *Ylen tv-sisältöjen saatavuuden turvaaminen laajakaistaverkoissa koko yleisölle [Ensuring the availability of Yle's TV content in broadband networks for the entire audience]* [Public letter to the Ministry]. Yleisradio. https://drive.google.com/file/d/14cy85XwyJshHMApdQIJ5SxnXgj5okAd0/view

Yle. (2023, August 15) Commercial broadcaster MTV begins restructuring, redundancy talks. *Yle News*. https://yle.fi/a/74-20045327

Yli-Äyhö, J. (2020, September 28). *Yle vastaa: Ylen kanavat näkyvät antennissa koko 2020-luvun [Yle answers: Yle's channels will be shown via antenna network throughout the 2020s]* [Press release]. Yleisradio. https://yle.fi/aihe/artikkeli/2020/09/28/yle-vastaa-ylen-kanavat-nakyvat-antennissa-koko-2020-luvun

Yli-Äyhö, J. (2022, January 12). *Julkisen palvelun Ylen saatavuudesta ei voi päättää kaupallisin perustein [The availability of the public service Yle cannot be decided on commercial grounds]* [Press release]. Yleisradio. https://yle.fi/aihe/a/20-10001967

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