Final report for Commerce Commission

# Broadcasting transmission services market review

*Study of the New Zealand market and international trends*

PUBLIC

Network Strategies Report Number 41023. 1 June 2022

www.strategies.nzl.com

NETWORK STRATEGIES

# 0 Executive summary

This objective of this study is to assist the Commerce Commission with its initial review of the broadcasting transmission services market in New Zealand. The purpose of the review is to better understand the broadcasting transmission services market in New Zealand, current performance and potential future developments.

In terms of the traditional broadcasting value chain there are four broad components:

- **production** – development and acquisition of content
- **aggregation** – transport of multiple content sources to aggregation locations and combining into a single signal stream
- **distribution** – transport of the signal to broadcasting sites and transmission to end users
- **audience** – reception of the content by the end-user.

Our focus is on the part of the broadcasting value chain that concerns transmission – that is, excluding production or content creation and aggregation, and the end-user or audience.

*The New Zealand market*

The local market for these services may be characterised in terms of three sectors which are served, namely:

- television
- radio – FM
- radio – AM.

Two service providers – Kordia and Johnston Dick and Associates (JDA) – are the main players in the traditional television and FM radio broadcasting transmission markets, while Radio New Zealand (RNZ) is the main provider of AM broadcasting transmission services.

Although it is difficult to obtain information to quantify market involvement, it is clear that Kordia has a superior geographic footprint and ownership of prime sites which would be difficult to replicate. We note that Kordia accounted for 86% of the total funding provided by Government for the broadcasting transmission waiver scheme in 2020, with the remaining 14% for services provided by JDA, RNZ and others. We believe that this may provide a fair indication of revenue shares in the overall market. While Kordia appears to be the leading player in providing both television and FM radio broadcasting transmission services, more detailed research and analysis would be necessary to define the relevant markets in order to draw any further conclusions.

A number of additional features characterise the current state of these markets.

*Television*

- Kordia and JDA's digital terrestrial television (DTT) transmission services cover differing geographic areas. Kordia's population coverage is approximately 4 million people while JDA's footprint is just 550,000 people.
- Neither Kordia nor JDA engage directly in the television market – that is, these are not vertically integrated entities.
- Sky Television occupies a unique position in the market. It provides pay-TV and free-to-air services, and is engaged in broadcasting transmission for self-supply.
- Kordia and JDA provide managed transmission services for a number of smaller broadcasters, while larger broadcasters have their own multiplexes.
- Online streaming is already a major competitor to linear television in New Zealand, to the extent that service providers which support over-the-top (OTT) television transmission (such as Chorus) could potentially be considered in any relevant market analysis.
- Changing consumer patterns and choices in the downstream market are likely to have implications for the economics of the

traditional broadcasting transmission market, with potential for price rises if the market contracts.

- Television transmission costs are a significant expense for broadcasters, and accordingly represent a major revenue stream for Kordia.

*Radio – FM*

- Geographic boundaries are less well defined for FM radio than for television. However, JDA is the main service provider for the Auckland FM market, operating transmission services from the Sky Tower, while Kordia has a strong presence in most other regions.
- Neither Kordia nor JDA engage directly in the radio market – that is, these are not vertically integrated entities.
- Other vertically integrated entities do own a small number of FM sites (for example, Mediaworks and NZME).
- Commercial radio organisations are moving to embrace alternative delivery platforms as new challenges to advertising revenue (on which they rely) emerge, such as Google and Facebook.
- Nevertheless demand for traditional radio broadcasting services may continue in the medium- to long-term, with a lack of direct substitutes for particular applications such as communication in times of emergency, and listening in cars.

*Radio – AM*

- RNZ is currently the main provider of AM broadcasting transmission services.
- RNZ is a vertically integrated market player.
- A number of RNZ AM sites have already or are in the process of being shut down, with full closure to occur by 2031 – coinciding with the year in which management rights for spectrum expire.
- The AM closure is of concern to some customers, particularly in areas where FM migration or coverage is not an option.

*International trends*

Digitisation is having a huge impact on the broadcasting industry worldwide. It is enabling consumers to have greater power over what, when, where and how they watch and listen to audio-visual content. Consumers have the choice of multiple platforms, influenced by the devices available at their location. Video content can be watched on television sets, on computers or on handheld devices. Radio can be accessed via DTT or direct-to-home (DTH) satellite as well as on computers, handheld devices and traditional radios. These emerging international trends, as well as individual market circumstances have implications for regulation of broadcasting transmission services.

*Traditional transmission is becoming a legacy service*

As audiences for traditional linear programming decline, terrestrial broadcasting transmission is increasingly being viewed by broadcasters as a legacy service. Industry focus is shifting to streaming and on-demand services, delivered over broadband, either terrestrial or satellite, with DTH services reaching consumers outside high speed broadband coverage. Linear programming has become just one amongst many platforms used by broadcasters to distribute content. The implication of these trends is that terrestrial broadcasting transmission services are becoming less important for broadcasters and demand is likely to contract over time.

*Many transmission markets continue to be dominated by a single player for historical reasons*

Since the 1990s, many national public broadcasters have transferred their transmission assets into separate companies, some of which are now privately owned. Such companies are often dominant in the market, or are market leaders, due to the extensive population coverage of the original legacy networks. Transmission assets of those companies are typically in prime sites. New entrants frequently face considerable barriers in establishing similar coverage and may tend to focus only on specific locations which offer the best return on investment. There may be limited or no competition in rural areas.

*There are many ways to define the broadcasting transmission market*

It is clear that the overarching broadcasting transmission market includes several sub-markets. Market structure and competition issues are unique to each jurisdiction, and thus any regulatory analysis and resultant remedies, if required, are based on market definitions appropriate for each jurisdiction.

Some characteristics of market definitions that regulators may consider within their market analyses:

- separate markets for television and radio transmission
- separate markets for DTT, DTH or OTT television transmission
- separate markets for free-to-air and pay TV
- market for colocation and ancillary services
- markets may be defined at national or sub-national levels.

*Regular market monitoring is regarded as a useful regulatory tool*

In a number of overseas jurisdictions regular monitoring of the broadcasting market is used as a regulatory tool. The monitoring typically assesses regulatory obligations imposed in the jurisdiction, which are designed to address various competition or other policy objectives.

Approaches include:

- requirements to submit annual reports, focusing on compliance with the relevant legislation and access undertakings
- obligations to provide financial information and cost breakdowns
- data collection exercises and surveys.

*Future developments in the local market*

Alternative and emerging technologies exist that could potentially supplant traditional broadcasting as a means for distributing linear programming. However, these technologies all require a change in consumer choices to use a non-traditional channel (such as Internet radio or catch-up TV) or investment in new equipment (for example, DAB radio) so the

timeframe for any transition may be several years. We consider it unlikely that this will occur in New Zealand in the short- to medium-term.

The major threat to traditional broadcasting lies in the shift which is occurring in many downstream markets worldwide, from linear programming to on-demand services. Increasing fragmentation of the media market has seen a decline in audiences for traditional broadcasting (television and radio) with rapid take-up of alternative platforms, in particular online video and subscription video on demand (SVOD). This pattern is a common development in many countries, including New Zealand. Moreover, the menu of affordable viewing and audio service offerings in New Zealand is expanding with market entry of international / global players.

As the audiences for traditional forms of broadcasting declines, there is evidence that the remaining users' consumption of content is also decreasing. This will have significant implications for the industry, given the dependence of many local broadcasters on advertising, which in turn is driven by the size of the audience. There is evidence that the major growth segment for advertising is digital (that is, social media), and that via this route international players are now making significant inroads into the previously local advertising market. Many New Zealand broadcasters have already acknowledged that embracing digital streaming and IP platforms is critical for their future survival. As these broadcasters are the customers of broadcasting transmission service providers, such developments should exercise considerable influence on key business decisions, including future investment and pricing.

The main players in the local broadcasting transmission sector are profit maximising commercial entities. This includes Kordia which is a State Owned Enterprise (SOE). As such it would appear that Kordia has commercial incentives to maintain carefully its existing transmission assets – many of which are largely depreciated – as long as possible, particularly if it is the case that the sector is entering a sunset phase. With a lack of publicly available information on the financial and contractual details of Kordia's transmission business it is impossible to examine the relationship of prices to costs. A more detailed study with wider access to key financial information would be necessary to expand upon the initial findings of this report.

# Broadcasting transmission services market review

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## Contents

# 1 Introduction

The legislative definition of "telecommunication" in New Zealand changed to include "broadcasting transmission" with the passing of the Telecommunications (New Regulatory Framework) Amendment Act 2018 (Amendment Act). The amended definition only referred to transmission and did not extend to aggregation and content services. The change was motivated by technological developments which have expanded the means of conveyance of audio-visual / audio content from traditional broadcasting distribution networks to numerous other platforms including mobile and broadband networks.

In some countries convergence of networks and services has already caused policy-makers to extend the mandate of telecoms regulatory authorities to include broadcasting transmission. For practical purposes the amendment in New Zealand now brings broadcasting transmission services under the purview of the Commerce Commission, with powers to conduct reviews and recommend regulation if appropriate.

This objective of this study is to assist the Commission with its initial review of the broadcasting transmission services market in New Zealand. The purpose of the review is to better understand the broadcasting transmission services market in New Zealand, how it is performing, how it might develop (including by reference to trends in other markets), and how to monitor its competitive state and development over time.

The study has relied on publicly available information, together with insights from industry participants obtained from a series of informal discussions.

The report encompasses:

- an overview of the local market (Section 2)

- an analysis of market structure (Section 3)
- a discussion of the value chain (Section 4)
- a review of international experience (Section 5)
- an investigation of emerging trends (Section 6)
- concluding remarks (Section 7).

The report annexes include:

- background on the overseas markets examined (Annex A)
- the beneficiaries of the transmission fee waiver scheme (Annex B)
- a list of organisations consulted as part of this study (Annex C).

All currency amounts are in New Zealand dollars unless otherwise specified.

Although the study has been commissioned by the Commerce Commission the views expressed here are entirely those of Network Strategies.

# 2 Market overview

## 2.1 Broadcasting policy

The Ministry for Culture and Heritage (MCH) occupies a key role in relation to broadcasting and media, encompassing:

- advising Government on policy and legislation
- administering legislation of the two Crown entities, Television New Zealand (TVNZ) and Radio New Zealand (RNZ)
- monitoring other Crown entities such as the Broadcasting Commission (NZ On Air), and the Broadcasting Standards Authority (BSA).

MCH states that the focus of broadcasting policy is[1]:

- supporting widely available quality public broadcasting
- encouraging innovation and technological change
- ensuring value for money through enhanced transparency, accountability, and competition.

It notes that support for local content through contestable funding via NZ On Air is an important priority. Furthermore a policy framework was established in 2019 for regional and

[1] Ministry for Culture and Heritage (undated), *Cultural policy in New Zealand*. Available at: https://mch.govt.nz/what-we-do/cultural-sector-overviews/cultural-policy-new-zealand/5-cultural-industries.

community broadcasting with the objective of promoting local broadcasting services[2]. To support this Government has reserved some radio frequencies and UHF television frequencies for non-commercial broadcasters as well as some FM frequencies for local commercial radio broadcasters.

In March 2022 Government announced a merger of TVNZ and RNZ, to occur in 2023, as a means to 'future-proof public media for New Zealanders for decades to come'[3]. The decision to merge appears to have been driven largely by structural and market changes, particularly increased competition with emerging digital platforms, declining revenues, and shifts in the pattern of consumer demand and ways of accessing content. With an emphasis on the role of public media in providing trustworthy news and relevant local content, the strategy was informed by a business case developed to examine alternative approaches to creating the new entity[4]. However, at this stage few operational details are available, and therefore the potential impact on the broadcasting transmission market is uncertain.

## 2.2 Television broadcasting

The television broadcasting market in New Zealand comprises both public and private enterprises. All generate revenue from advertising.

| | |
|---|---|
| *Television New Zealand* | TVNZ is a Crown entity with linear channels on Freeview, Sky and Vodafone TV platforms, as well as streamed online access via a range of devices. There are five national channels (TV ONE, TV2, TV ONE plus 1, TV2 plus 1 and Duke) which are accessible to almost all of the population. |

2 Ministry for Culture and Heritage (2019), *Regional and community broadcasting framework 2019*, 2019. Available at: https://mch.govt.nz/what-we-do/non-commercial-broadcasting-licences/regional-and-community-broadcasting-framework.

3 Hon. Kris Fa'afoi (2022), *New public media entity to showcase New Zealand voices and stories*, 10 March 2022. Available at: https://www.beehive.govt.nz/release/new-public-media-entity-showcase-new-zealand-voices-and-stories.

4 Ministry of Culture and Heritage (2021), *Strong Public Media Business Case*, 27 August 2021.

The scope of TVNZ's operations encompasses[5]:

- commissioning, production, purchasing and archiving of video content, either independently or with others
- provision of video production facilities
- programming and scheduling of video content for on-air and online distribution
- provision of advertising and sponsorship services
- publishing and distribution of video content on a broad range of relevant platforms and devices
- provision of services to the broadcast industry, both domestically and internationally
- provision of audio-visual footage, programming, video and DVD rights, programme listing information, channel packaging and all other content related services and materials.

In 2021 95% of TVNZ's operating revenue was generated by advertising.[6]

*Māori Television*

Established under the Māori Television Service (Te Aratuku Whakaata Irirangi Māori) Act 2003, Māori Television launched in 2004. The Act sets out the main purpose of Māori Television, which is to contribute to the protection and promotion of te reo Māori me ngā tikanga Māori by providing an informative and engaging cost-effective television service in te reo Māori and English. As such it offers a bilingual linear channel as well as a fully te reo Māori channel on Freeview and Sky. Online and on-demand content are also offered, as Māori Television aims to ensure that technology platforms are

5 Television New Zealand (2021), *Statement of Intent for 4 years ending 30 June 2024*, 14 July 2021. Available at https://corporate.tvnz.co.nz/assets/Uploads/FY21-Statement-of-Intent-FINAL.pdf.

6 Television New Zealand (2021), *TVNZ Annual Report FY2021*, 2021.

relevant for its audience both currently and in the future as media consumption trends evolve[7].

Māori Television's operations are primarily funded by the Crown, with production funding from Te Māngai Pāho and funding from other organisations including Te Puni Kōkiri to produce and deliver content. Revenue is also received from advertising.

*Commercial operators*

There are two commercial operators:

- Sky Television with multiple subscription channels
- Discovery with channels including Three, Bravo, ThreeNow, and the newly launched Rush and eden.

*Regional television*

A number of small commercial and non-commercial television services are providing localised content in regional New Zealand. Some funding is available from NZ On Air for supporting regional content.

*Freeview*

Freeview is a digital television platform owned by TVNZ, Discovery NZ, Māori Television and RNZ (Exhibit 2.1). Government used Freeview as a vehicle to assist in the transition from analogue to digital television. It is now a commercial enterprise.

Freeview is responsible for the Electronic Programming Guide (EPG), although in practice EPG management has been outsourced to Kordia. Via terrestrial and satellite transmission, Freeview delivers TVNZ channels, Discovery's channels, two Māori Television channels, RNZ's two networks, Prime, Choice TV, Parliament TV, and Chinese Television. In addition some regional broadcasts are offered. In 2015 Freeview launched an on-demand service, however

7 Māori Television (2021), *Statement of Intent* 2021 – 2024, 2021. Available at https://www.maoritelevision.com/sites/default/files/attachments/M%C4%81ori%20Television%20Statement%20of%20Intent%202021-2024.pdf.

this is to be discontinued in 2022[8], following the withdrawal of TVNZ from this particular service offering.

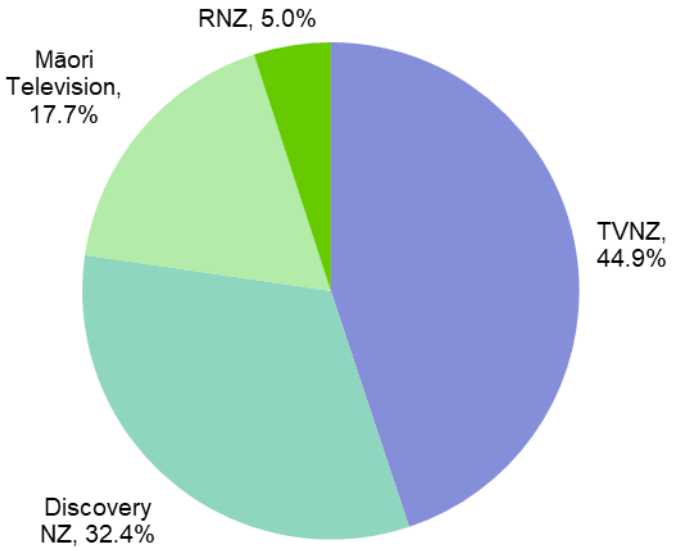



***Exhibit 2.1:*** *Freeview shareholders, 2021 [Source: shareholders]*

## 2.3 Radio broadcasting

The radio sector encompasses a wide range of different broadcasters – public, commercial, independent, student, iwi, local and community entities.

*Radio New Zealand – Te Reo Irirangi o Aotearoa (RNZ)*

Public radio broadcaster RNZ provides:

- RNZ National, providing nationwide news, current affairs, documentaries and entertainment
- RNZ Concert, featuring predominantly classical music

8 Freeview (2021), *Freeview to sunset its On Demand service by late 2022*. 14 December 2021. Available at: https://freeviewnz.tv/news/fod-sunset/.

- Parliamentary radio and proceedings, a live audio broadcast of Parliament, when the House is sitting
- RNZ International, an international shortwave radio service to the Pacific consisting of news and programmes of interest to the region, as well as reliable information during natural disasters or emergencies.

Its services are offered via radio, digital / online, Freeview and Sky. In recent years RNZ has been forging numerous partnerships with third parties to extend the reach of its content. It also distributes and shares content with social media platforms.

RNZ is funded through NZ On Air and the MCH to deliver public broadcasting services. Additional income is generated from third-party revenue – for example, rental on property leases and co-siting.

*Māori Radio*

Te Māngai Pāho provides funding to 21 Māori radio stations covering approximately 80% of the total Māori population. These stations use frequencies reserved for the promotion of Māori language and culture.

*Commercial radio*

According to the Radio Broadcasters Association (RBA) over 750 frequencies are used for commercial radio broadcasts across the AM and FM bands, with 81% of the population (aged ten years or over) listening every week[9]. The two largest market players are MediaWorks and New Zealand Media and Entertainment (NZME). These two entities control 80% of commercial frequencies, while Radio Rhema has approximately a 10% share and the remainder are held by smaller enterprises. NZME stated that in 2021 it had market

9 Radio Broadcasters' Association (2021), *NZ Commercial Radio Ratings Media Release S4 2021*, 25 November 2021.

shares of 37.4% of the audience and 40.9% of the revenue (measured as a proportion of total commercial radio)[10].

*Pacific Island radio*

Niu FM, 531pi and Samoan Capital Radio are all part of the Pacific Media Network, which is owned by the National Pacific Radio Trust. Funding is received from NZ On Air and from other sources, including advertising revenue. Broadcasts are over a nationwide network of reserved FM frequencies, with oversight by the MCH.

*Not-for-profit organisations*

The largest not-for-profit entity is Radio Rhema with three radio networks, 103 spectrum licences and a TV channel.

Access radio is another category of not-for-profit entities, offering a broadcasting platform for community and special interest groups across New Zealand. It consists of 12 not-for-profit entities, broadcasting on a mix of AM, FM and online platforms. Examples include larger urban stations such as Planet FM and Wellington Access Radio, to small regional stations such as Arrow FM and Coast Access. Non-commercial frequencies are used, with oversight by MCH. Funding is received from NZ On Air, as well as donations, advertising and fees charged for broadcasting specific material such as podcasts.

## 2.4 Delivering television and radio broadcasts

### 2.4.1 Digital terrestrial television in New Zealand

The switchover from analogue to digital television services in 2013 saw New Zealand adopt a mixture of satellite and terrestrial services. DTH satellite services commenced in 2007, with DTT services launching the following year. At that time around 75% of New Zealanders were within DTT coverage areas which encompassed Auckland, Waikato, Tauranga,

10 New Zealand Media and Entertainment (2021), *NZME Annual Report 2021*, 2021.

Hawkes Bay, Manawatu, Kapiti, Wellington, Christchurch and Dunedin. Initially DTT licences were granted to TVNZ, Mediaworks and Kordia.

DTT coverage was extended to 87% of the population through the government-funded Digital Terrestrial Extension project in 2011/12. Tenders for nine additional regions were released: Whangarei, Rotorua, Gisborne, Taupo, Whanganui, New Plymouth, Wairarapa, Nelson, Timaru and Invercargill. Johnston Dick and Associates (JDA) won tenders for eight of these regions, with Kordia winning New Plymouth.

As at February 2022, management rights in the spectrum band used for DTT[11] were held by:

- Kordia
- JDA
- TVNZ
- Sky
- Discovery NZ[12]
- World TV[13]
- Māori Television.

With the exception of Kordia and JDA, all the right holders are vertically integrated broadcasters.

Kordia and JDA provide managed transmission services for a number of smaller broadcasters, while larger broadcasters have their own multiplexes (MUXs) (Exhibit 2.2).

11 Radio Spectrum Management, *Register of Radio Frequencies*, accessed on 9 February 2022.

12 The television division of Mediaworks was sold to Discovery Inc in 2020, with the subsidiary company now known as Discovery New Zealand Limited.

13 World TV was acquired by Best News Entertainment (BNE) in 2021.

| *MUX* | *Services* |
|---|---|
| K1 (Kordia) | Prime, CH200, Chinese TV CH28, Eden +1, First light, C33, Parliament TV, Apna (AKL only), RNZ Concert, Base FM, Southern TV (Dunedin). |
| K2 (Kordia) | Al Jazeera, Shine TV, Hope TV, HGTV, RNZ National. |
| K3 (Māori Television) | Māori Television, Te Reo. |
| J1 (JDA) | Prime, Eden +1, Parliament TV, Firstlight, CTV Ch28, RNZ Concert, Kordia TV. |
| J2 (JDA) | Al Jazeera, HGTV, Shine, Hope Channel, Ch39 (Southern TV), Wairapapa TV, RNZ National. |
| J3 (JDA) | Māori Television, Te Reo. |
| TVNZ | TVNZ 1, TVNZ 2, TVNZ Duke, TVNZ1+1 & TVNZ2+1, Duke+1. |
| Discovery | THREE, Bravo, THREE+1, Bravo +1, Rush & Eden. |

***Exhibit 2.2:*** *MUXs in New Zealand [Source: Freeview, Kordia, JDA]*

### 2.4.2 Other television delivery platforms

Outside of the DTT coverage areas, television is accessible via DTH satellite. In January 2022 Kordia renewed its contract with Optus in order to supply Freeview satellite services for another ten years.[14] Optus also supplies capacity for Sky's DTH services, with the current ten-year contract expiring in 2030.

There are several streaming services – TVNZ, Sky and Discovery NZ – delivered over broadband. Vodafone's service (VodafoneTV) will be discontinued from September 2022.

The hybrid fibre coax (HFC) cable television service that was offered by Vodafone in parts of Wellington, Kapiti and Christchurch was closed down in July 2021. Customers were migrated to the Sky service.

A huge range of content is delivered via on-demand OTT services, including Sky, Netflix, Disney+, YouTube and Google Play.

14 Kordia (2022), *Kordia contract renewal ushers in another decade of Freeview via satellite*, media release, 24 January 2022. Available at https://www.kordia.co.nz/news-and-views/kordia-contract-renewal-ushers-in-another-decade-of-freeview-via-satellite,

### 2.4.3 Radio delivery platforms

As in the case of television, radio content in New Zealand is delivered over several different platforms: via traditional radio broadcasts (AM and FM), Freeview TV, Sky, streaming services, podcasts and OTT services.

In recent years in New Zealand there has been significant growth in the accessing of radio content via digital and social media platforms. As an example, information from RNZ indicates that while its radio listenership has been increasing, its rate of growth is outstripped by that of digital and social media platforms (Exhibit 2.3).

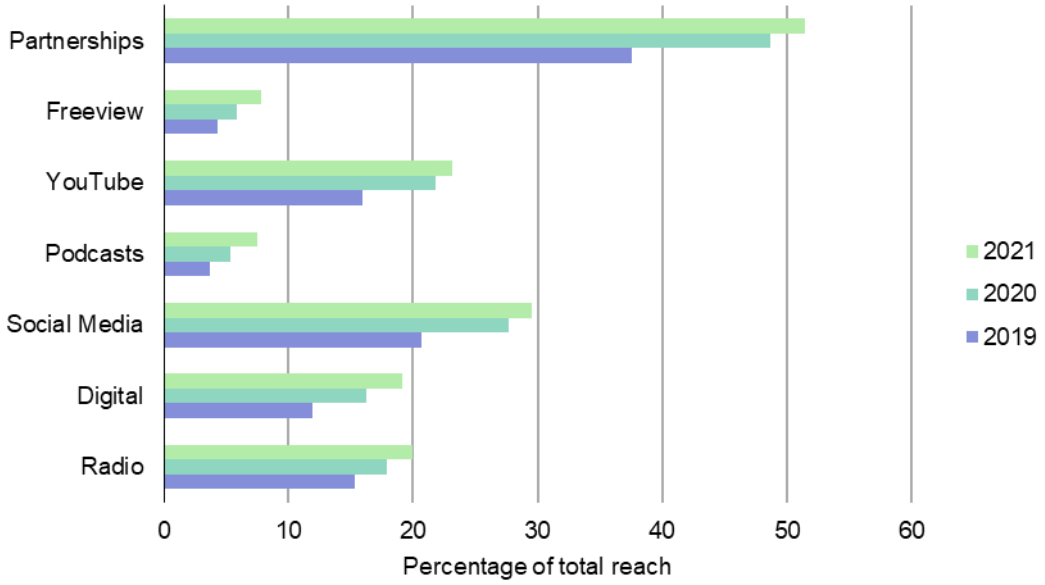



***Exhibit 2.3:*** *Platforms used to consume RNZ content, last week of August 2021, as percentage of RNZ's total reach [Source: Radio New Zealand]*

The provision of AM broadcasting transmission services is dominated by RNZ (Section 3.1.5), while FM transmission services are largely provided by Kordia and JDA (Sections 3.1.1 and 3.1.2 respectively). NZME and Mediaworks each own a small number of transmission sites (both AM and FM) where some co-siting occurs.

# 3 Market structure

## 3.1 Key players in the transmission services market

The legislative change in the definition of telecommunications extended the liability of broadcasting transmission service providers as qualifying liable persons for contribution to the Telecommunications Development Levy (TDL). As such the TDL now provides some information on the major players in the market for broadcasting transmission services.

The liability was confirmed in a recent High Court judgement, which clarified definitional issues disputed by key stakeholders[15]. Qualified revenue now includes revenue from supplying telecommunications services by means of a broadcasting transmission network, or by means that rely primarily on the existence of a broadcasting transmission network or any other broadcasting transmission network.

As a result of this, the 2020-2021 TDL levy liability allocation[16] includes Sky Network Television Limited (with qualified revenue of $35.7 million), and increases Kordia's share (with qualified revenue of $33.1 million, compared to $23.9 million for 2019-2020). JDA, a private company, also offers broadcasting transmission services, but is not a qualifying liable person, indicating that its annual revenues are below the threshold of $10 million.

It should be noted that Section 85A(1)(a) of the Act specifically excludes from qualified revenue "any amount of revenue received in relation to a broadcasting service that is supplied

15 Commerce Commission v Kordia Group Ltd [2021] NZHC 2777.

16 Commerce Commission (2021), *Final telecommunications development levy liability allocation determination for 1 July 2020 to 30 June 2021* [2021] NZCC 28, 14 December 2021.

to end-users free of charge (for example, revenue derived from a free-to-air radio or television service)". As a result, RNZ is not a liable person for the purposes of the TDL.

### 3.1.1 Kordia

Kordia, a State Owned Enterprise (SOE), was formerly the broadcasting transmission arm of TVNZ, known as Broadcast Communications Limited (BCL). As such it has effectively been providing transmission services for over 60 years, and owns prime high sites, originally acquired using government powers available at the time (for example, under the Public Works Act).

Today Kordia offers broadcasting transmission services for terrestrial DTT and FM radio networks, and has the head lease for one satellite transponder for DTH broadcasting. Free-to-air radio programmes are broadcast via all of these platforms while free-to-air television programmes are broadcast via DTT and DTH. Kordia owns infrastructure on approximately 200 sites in total including 19 broadcast sites, and continues to maintain 50 large lattice towers of up to 121 metres in height.

Using these networks Kordia provides broadcast services to national and regional free-to-air television and radio broadcasters. FM radio transmission services are offered across the country with the exception of Auckland. Kordia offers a broad suite of products and services to customers, who range from large, nationwide broadcasting companies to small, regional organisations wishing to distribute content. These services include access / co-location and provision of capacity at commercial rates, and managed services for entities with FM frequencies. In addition, Kordia carries out production, aggregation and broadcast services to the Clerk of the House, as well as operating the live streaming for the free-to-air Parliament TV service. Kordia also broadcasts the free-to-air Kordia TV channel on DTT.[17]

Over recent years Kordia has diversified considerably. As early as 2009 it moved from a broadcasting wholesale business to dealing directly with commercial customers. In 2014 it entered the managed security and cloud services market, and today the cybersecurity space

17 Kordia (2020), *Submission on Consultation Paper: Treatment of broadcasting services revenue in the Telecommunications Development Levy (TDL)*, 12 February 2020.

represents a significant proportion of its business. A Maritime division manages and operates a monitoring service for mariners in distress.

Another business unit, Kordia Solutions Australia (KSA), engaged in contracting work in Australia but was divested in 2021 following a number of difficult trading years in that market. In discontinuing this operation Kordia published in its 2021 Annual Report details of the revenues and costs associated with KSA for 2020 and 2021[18]. Previously revenue from Australian operations had been reported but Australian / New Zealand costs were not disaggregated. The 2020 results indicate that the business was loss-making. The 2020 results were also restated, removing the KSA operation[19]. Performance metrics using the restated 2020 results are considerably better than key performance metrics using the actual 2020 results (Exhibit 3.1).

| *Metric* | *2020 actual* | *2020 restated* |
|---|---|---|
| Operating margin | 14% | 27% |
| Return on equity | 10% | 14% - 15%[1] |
| Return on capital employed | 9% | 12% - 14%[1] |

1 Two different estimation approaches have been applied.

***Exhibit 3.1**: Kordia performance metrics 2020 – actual versus restated (without KSA) [Source: Kordia, Network Strategies]*

It should be noted that the 2020 restated performance metrics for return on equity and return on capital employed are our estimates using two different measurement approaches. As Kordia's approach is unclear from the accounts we cannot be certain that the actual and restated metrics are directly comparable.

18 Kordia (2021), *Annual Report 2021*, page 52.

19 *Ibid*, page 27.

*Investment*

Kordia does not provide in its annual reports any investment guidance. The statement of performance in the 2021 Annual Report included for the first time a capital replacement metric. This is defined as capex / (depreciation plus amortisation), and is stated as 1.0 for 2021[20], indicating that Kordia's annual capital expenditure is keeping pace with depreciation. As this is an aggregate value we reviewed historical information from the accounts relating to capital expenditure and depreciation on two categories of assets which are required to provide broadcasting transmission services:

- masts and aerials
- transmission equipment.

The useful lifetime of many of these assets may range from 4 to 25 years for masts and aerials, and 3 to 25 years for transmission equipment. It is important to note that, given Kordia's wider communications business, these assets will not all be solely devoted to the provision of broadcasting services.

A comparison of cost and book values from the annual accounts indicate that significant capital investment in these two categories occurred many years ago (Exhibit 3.2). The first available records were from 2012 and even at this point in time total book values were around 25% of cost.

20 *Ibid*, page 69.

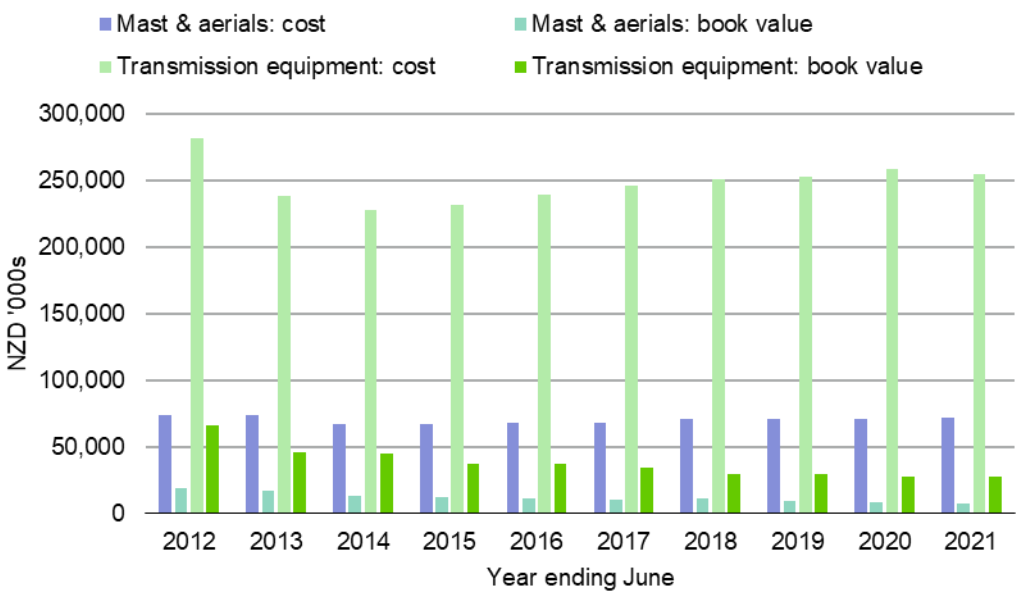



***Exhibit 3.2:*** *Kordia broadcasting assets: cost versus book value, 2012 – 2021 (NZD, '000s) [Source: Kordia]*

We reviewed additions, transfers and disposals for these two asset categories over time in order to assess the extent of annual investment (Exhibit 3.3). In 2013 and 2014 the quantum of additions and disposals of (analogue) transmission equipment was significant, as a result of the analogue switchoff. Apart from that it appears there has been no major new investment in masts and aerials over the time period examined, except in 2018 with additions totalling $2.7 million. Between 2016 and 2020 $5 million to $10 million has been spent annually on transmission equipment.

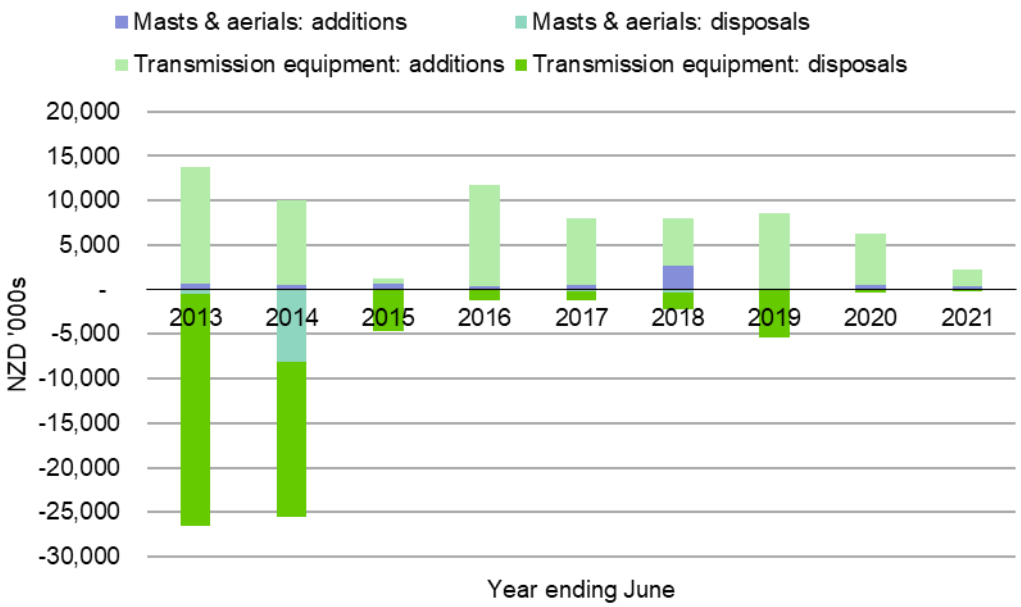



***Exhibit 3.3:*** *Kordia broadcasting assets – additions and disposals, 2013 – 2021 (NZD, '000s) [Source: Kordia]*

So how does this annual investment compare with annual depreciation (Exhibit 3.4)? For masts and aerials replacement capex has been only a small proportion of depreciation, except for 2018. We would expect lumpy investments for this category, therefore many years with little to no investment is unsurprising. Transmission equipment is replaced more regularly and on average many assets may have shorter useful lifetimes than the masts and aerials asset category. Even so, over the last eight years only once (in 2016) does the capital replacement ratio reach one.

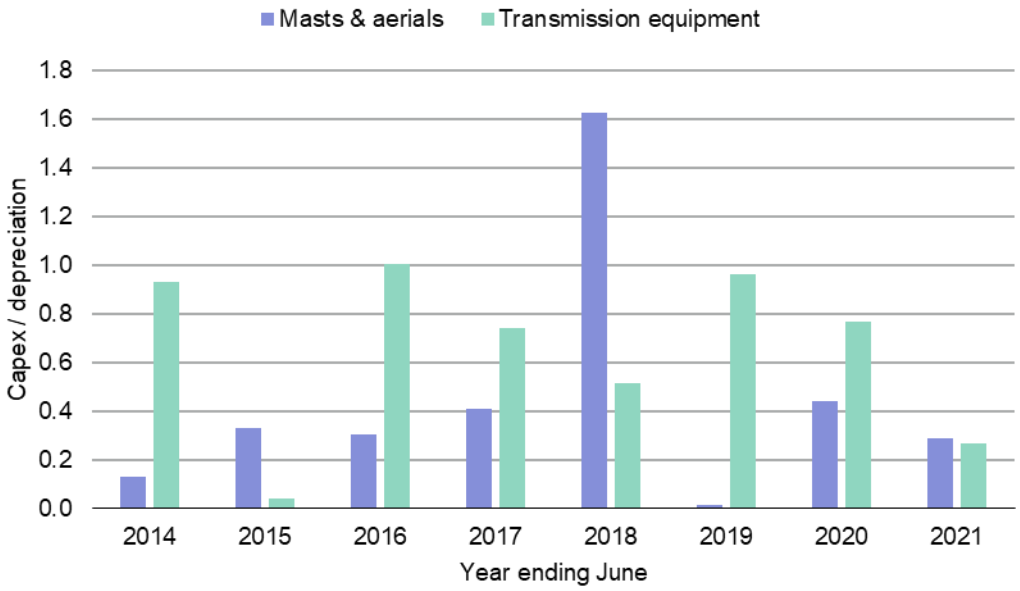



***Exhibit 3.4:*** *Kordia capital replacement, 2014 – 2021 [Source: Kordia, Network Strategies]*

In summary, evidence from Kordia's reports appears to indicate that it may be close to fully recovering much of its original investment in these two asset categories which are relevant for broadcasting transmission services.

*Pricing and revenue*

As regards service pricing Kordia has a standard rate card, however it claims to offer to tailor services and products to individual customer needs based on the number of services and service level required. According to Kordia key drivers for price setting are capital and operational costs as well as service levels (Exhibit 3.5).

| *Cost drivers* | *Key components* |
|---|---|
| Capital costs | Direct infrastructure: transmitters, combiners, antennas, power supply.<br>Shared infrastructure: towers, buildings, electrical, roads, genset, Network Operations Centre (NOC), Digital Microwave Radio (DMR) network, site rents. |
| Operating costs | All costs related to maintaining and delivering services. |
| Service Level Agreements (SLAs) | Required resilience, redundancy and back-up: for example, utilising Kordia's DMR network to transport content to the towers/antennas for distribution supported by a DWDM network and other fibre linking to provide high availability and redundancy. |

***Exhibit 3.5**: Cost drivers for Kordia pricing [Source: Kordia]*

The rate card is not publicly available, nor is there any breakdown of the revenues and costs of Kordia's broadcasting activities in annual reports. With this lack of publicly available information it is difficult to draw any independent conclusions regarding the relationship of the rate card to costs. While other stakeholders did acknowledge that the maintenance costs for Kordia's infrastructure would likely be significant, the lack of any ring-fencing in the annual reports prevents any independent scrutiny or analysis of ongoing / unavoidable costs.

Anecdotal evidence indicates that the broadcast revenues are dominated by receipts from television transmission services, with a smaller contribution from FM radio transmission.

As part of the Government relief package for COVID-19, the MCH funded television and radio transmission fees for six months from May 2020. The first round of funding applied to fees payable to Kordia, RNZ and iwi radio stations. This was subsequently extended for broadcasters using other transmission providers (e.g. JDA). A list of the transmission fee waiver scheme recipients is provided in Annex B.

123 applications for this support were received and awarded, with $19.82 million made available under this fund. Kordia received $17.06 million[21]. This implies that Kordia receives at least $34.1 million annually from broadcast transmission services, which represents approximately 30% of its total New Zealand revenue (which was $115.2 million in 2021 according to its Annual Report). This is indicative of the transformation of its business over

21 Kordia (2021), *Annual Report 2021*, page 56.

time from a broadcasting transmission only service provider to a diversified communications company. It should be noted that $34.1 million represents a lower bound for estimated Kordia revenue from broadcasting, as we understand that not all transmission fees were covered under the waiver scheme.

Kordia is well aware of the competitive pressure on traditional broadcasting services from other platforms, to the extent that the former services appear to be regarded as legacy. There are numerous regular acknowledgements of the risks of structural changes in the broadcasting and media markets in Kordia's annual reports[22]. Given that Kordia is required to operate as a profit-making enterprise, any future substantive declines in demand for broadcasting transmission services may have implications for pricing, if fewer customers remain to share costs which are essentially unavoidable (such as fixed costs and those involved in maintaining the infrastructure). Furthermore, it is possible that Kordia faces less competition in its broadcasting transmission business than it does in its other lines of business (such as telecommunications activities and cybersecurity) and as such may have more scope to obtain higher profit margins from broadcasting services.

### 3.1.2 JDA

JDA, a relatively small private transmission service provider, is the only true direct competitor to Kordia. JDA provides services to a range of broadcasting and telecommunications clients across the public and private sectors. Some stakeholders noted that, although JDA is a small operation, it plays a very important role in a market which would otherwise be largely controlled by Kordia.

Established in 1978 JDA's origins were in private AM radio broadcasting design and development in the 1960s. JDA was originally the engineering arm of TV3, New Zealand's first private television network, and subsequently TV4. JDA played a pivotal role in engineering the frequency allocations for both new networks.

The company has designed and built many transmission towers in the country, and in 2013, in conjunction with the change from analogue to DTT transmission, acquired the

22 See, for example, Kordia (2021), *Kordia Annual Report 2021*, 2021, pages 4 and 44.

transmission sites of Mediaworks. With the digital switchover JDA successfully tendered for contracts for DTT transmission at 11 sites in nine regions across the country encompassing Whangarei, Rotorua, Taupo, Gisborne, Whanganui, Wairarapa, Nelson, Timaru and Invercargill. These DTT sites cover approximately 550,000 people. In contrast, Kordia's coverage extends to approximately 4 million people.

In total JDA has over sixty transmission sites (including the DTT sites), and subleases space to a variety of customers such as FM broadcasters, land mobile operators and Wireless Internet Service providers (WISPs). The company also has for many years designed and constructed broadcast masts, antennae and transmission equipment for radio stations.

JDA manages third party transmission facilities, including management of Sky Tower. The company was involved in the design and construction of the Sky Tower broadcasting facilities in the early 1990s and continues to manage these today. Although it does not own the broadcasting site, using these facilities it provides FM radio broadcasting transmission services in Auckland. Prior to the construction of the Sky Tower Kordia serviced the Auckland FM market from its site in West Auckland, however we understand that most broadcasting customers subsequently moved across to the new prime FM site in Central Auckland where JDA was offering more economical services than Kordia.

### 3.1.3 Sky Television

Sky Television, a commercial broadcaster, commenced operations in 1990. Sky provides content services via free-to-air, OTT and satellite transmissions. Sky's satellite subscribers access linear and on-demand content via satellite transmissions (using a set-top-box) as well as both linear and on-demand content via OTT using the set-top-box and other devices such as phone, laptops, tablets, and smart TVs[23]. Sky contracts directly with Optus for its satellite service.

23 Sky (2020), *Submission on treatment of broadcasting services revenue in the TDL*, 12 February 2020.

Sky provides on-demand and other content services (e.g. Neon, Sky Sport Now, and Sky Go) via OTT delivery. Sky makes a number of services available on a free-to-air basis (such as Prime, which it owns, and other Freeview channels).

Since 2016 Sky Box subscribers have declined by 24% (Exhibit 3.6). Over the same period average revenue per user (ARPU) for Sky Box has fallen by 9.5%. The gain in streaming customers has done little to offset this situation, with streaming ARPU less than one quarter of Sky Box ARPU.

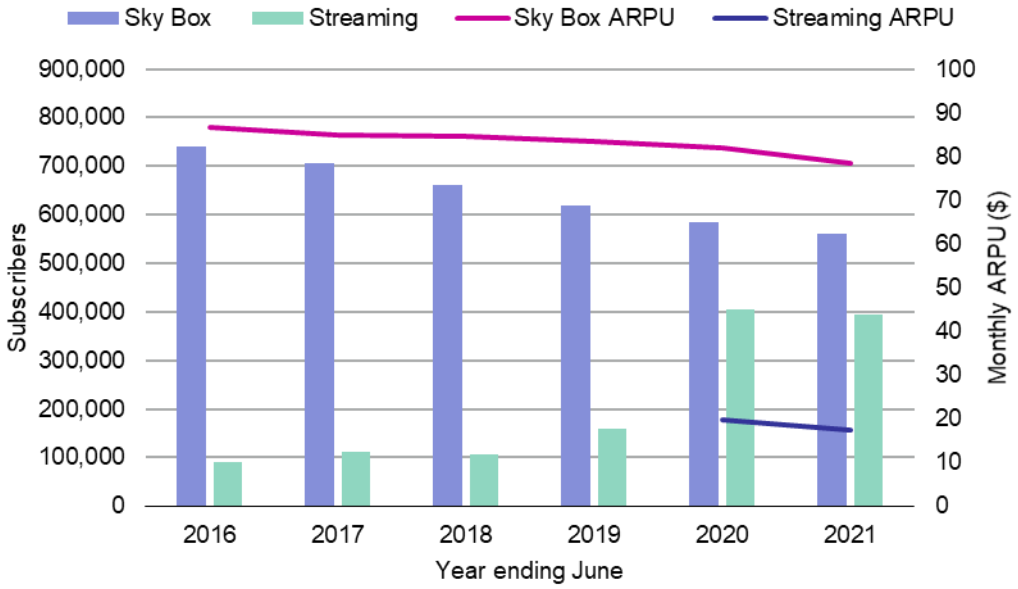



***Exhibit 3.6:*** *Sky subscribers and monthly ARPUs, 2016 to 2021 [Source: Sky Television]*

### 3.1.4 Chorus

Chorus owns a number of large radio sites which were originally constructed to provide microwave radio services. These are prime high sites which were originally acquired by the New Zealand Post Office. Such sites are no longer in demand for telecommunications services, although with some investment it may be possible for Chorus to utilise these to enter the broadcasting transmission services market. The scale of required investment is likely to be significant and it is doubtful that Chorus could establish a satisfactory business

case for this, given market conditions and the fact that it would represent a departure from core business.

Chorus' core business is extending and maintaining its already widespread fibre network which is a major enabler of OTT services. According to Chorus in October 2021 data usage on average was 515GB per premise, compared to 329GB in October 2019, an increase of 57%. While some of this increase may be attributed to working from home as a result of COVID-19 response measures, Chorus reports that the upward trend in data usage is continuing despite the easing of such measures[24].

### 3.1.5 Radio New Zealand

RNZ operates 19 AM sites across the country. While some land is leased for this purpose, most of the sites are fully owned by RNZ. Supporting assets include transmitters at each of its sites, towers and other ancillary infrastructure, as well as spectrum licences. Sites are linked via fibre, with satellite back-up. The AM platform is used to deliver RNZ's own broadcasts (e.g. RNZ National) as well as those of diverse customers. Parliament is a major client, with Rhema using that channel during parliamentary downtime. RNZ is gradually exiting the AM market and in recent years has closed three sites. Decisions on site continuation are made on a pragmatic basis, taking into account the size of the population served as well as maintenance and remediation costs – note that most of the radio masts are 60 to 70 years old. Full closure of the AM network is planned for 2031.

RNZ has a short wave radio service with two transmitters on leased land in Taupo with digital and analogue capabilities. This is used for its Pacific broadcasts which cover the whole of the Pacific region.

RNZ is also a participant in the FM market. RNZ owns FM transmitters and holds FM spectrum licences, however most of RNZ's transmission – with the exception of FM in some local areas which RNZ provides itself – is supplied by Kordia, via a single contract, which covers the whole country including Auckland. Given that JDA delivers FM transmission in

[24] Chorus (2021), *Record broadband data use by New Zealand homes and businesses*, 30 November 2021. Available at: https://company.chorus.co.nz/record-broadband-data-use-new-zealand-homes-and-businesses.

Auckland, this implies that Kordia has a subcontract agreement with JDA. RNZ also purchases DTT broadcasting transmission services via individual contracts with both Kordia and JDA and has DTH services via Sky TV and Freeview.

As RNZ is both a provider and purchaser of broadcasting transmission services it benefitted from the transmission fee waiver scheme through:

- direct payments from MCH for fees normally incurred by AM broadcasters for co-siting
- services in kind for transmission services normally purchased from its suppliers.

In total RNZ received approximately $2.1 million from the transmission fee waiver scheme (Exhibit 3.7). It is clear from a review of RNZ's annual accounts that revenue from services related to broadcasting transmission is a relatively small component of total revenue.

RNZ's own distribution and transmission expenses in 2021 were $4.8 million, although it is important to note that these include additional costs apart from fees paid to Kordia and JDA, such as the cost of maintaining the AM infrastructure.

| | *2021* | *2020* | *2019* |
|---|---|---|---|
| Co-siting revenue | 857,000 | 1,166,000 | 1,407,000 |
| Revenue from Government support package | 1,373,000 | 767,000 | - |
| Total revenue | 49,933,000 | 49,634,000 | 45,638,000 |
| Distribution & transmission fees | 4,799,000 | 4,598,000 | 4,121,000 |
| Total expenses | 49,895,000 | 49,848,000 | 46,103,000 |
| Distribution & transmission fees as a proportion of total expenses | 9.6% | 9.2% | 8.9% |

***Exhibit 3.7:*** *RNZ – transmission revenue and expenses (NZD) [Source: Radio New Zealand]*

### 3.1.6 Rhema

Rhema, a national Christian media service, is both a provider and consumer of broadcast transmission services. It has its own AM and FM sites on which other broadcasters co-locate (and vice versa). It currently broadcasts on 105 frequencies across New Zealand, holds

97 spectrum licences and leases eight frequencies from RNZ during parliamentary downtime.

Rhema has more physical sites than Kordia as Rhema's are of less height and therefore lower powered. To achieve national coverage, in addition to its own sites Rhema uses both Kordia and JDA sites. In some locations there are no alternatives, although Rhema does explore opportunities for new sites, typically on private farmland. If it is possible to make an agreement with the landowner and power can be supplied economically then a site may be established, and additional revenue may be generated if other market players wish to seek coverage in that area.

Once the RNZ AM network closes Rhema – with 12 AM transmission sites – will have the most AM sites in the country, although their future is uncertain. We understand that Rhema's AM infrastructure is aging and will require significant investment if the service is to be maintained. Rhema is currently exploring possible future strategies, including co-operative models and even potential buy-outs. It should also be noted that Rhema does not have AM sites in Auckland.

As a not-for-profit organisation Rhema relies primarily on donations for funding, with some revenue from advertising and other transactions, including broadcast transmission services. In FY2021 it spent $1.5 million on broadcasting distribution expenses, and a similar amount in FY2020[25] (Exhibit 3.8). This represented approximately 14% of total operating costs.

25 Rhema Media Incorporated, *Financial Statements for the year ended 31 March 2021*, 2021.

| | *2020* | *2021* |
|---|---|---|
| Broadcasting distribution | 1,511,000 | 1,523,000 |
| – as a proportion of total operating costs | 14.2% | 13.9% |
| Satellite costs | 1,075,000 | 1,098,000 |
| Power | 370,000 | 327,000 |
| Technical & engineering | 204,000 | 219,000 |
| Transmitter site expenses | 66,000 | 73,000 |
| Radio frequency annual licensing fees | 17,000 | 15,000 |
| Staff costs | 4,872,000 | 5,060,000 |
| Other costs | 2,504,000 | 2,641,000 |
| **Total operating costs** | **10,619,000** | **10,956,000** |

***Exhibit 3.8**: Rhema – operating costs, 2020 to 2021 [Source: Rhema]*

## 3.2 Contracts for broadcasting transmission

*Television*

The pre-requisites for broadcasting on Freeview national television in New Zealand are:

- a contract with Freeview
- for satellite (DTH), an uplink via Kordia or Sky
- for DTT, a contract with Kordia (covering 80% of New Zealand) and a contract with JDA (for additional coverage).

Kordia informs that its broadcasting services contracts are generally consistent as regards duration / term, and provision of service and service levels. Differing SLAs may influence prices across contracts.

Information provided in the Māori Television Annual Report on contracts with Kordia and JDA (Exhibit 3.9)[26] indicates that contract duration may be around five years. However,

26 Māori Television (2021), *Annual Report of Māori Television 2021*, 2021.

Kordia refers in its annual reports to concluding "re-signs of long-term contracts"[27] and there is anecdotal evidence that some contracts may exceed five years.

Furthermore, when comparing annual transmission fees with expenditure we find that these fees represent approximately 28% to 32% of annual operating costs, and between 8% to 9% of total annual expenditure over the last two financial years. This level of expenditure is consistent with television broadcasters' comments that transmission fees represent a significant proportion of their operating costs.

| | *2020* | *2021* |
|---|---|---|
| Transmission fees | 3,217,000 | 3,261,000 |
| As a proportion of operating costs | 32% | 28% |
| As a proportion of total expenditure | 9% | 8% |
| *Contracts: Kordia & JDA* | | |
| Not later than one year | 3,248,000 | 3,215,000 |
| Later than 1 but no later than 2 years | 3,183,000 | 3,185,000 |
| Later than 2 but not later than 5 years | 6,703,000 | 3,485,000 |
| Later than 5 years | 0 | 0 |
| **Total contracts** | **13,134,000** | **9,885,000** |

***Exhibit 3.9**: Māori TV broadcasting transmission costs / contracts, 2020 to 2021 [Source: Māori TV]*

Given the quantum of television broadcasting transmission costs multiple stakeholders noted the importance to their businesses of obtaining the best possible outcome from negotiations with Kordia, particularly in view of the ongoing market disruption and funding challenges evident in the sector. While in general there is a perception that Kordia is now more amenable to entering into negotiations than previously, some anecdotal evidence indicated that negotiations could be lengthy and challenging, with bargaining power diminished by the lack of viable alternatives for national coverage. Some unease and concerns were expressed regarding the lack of detail associated with the rates charged by Kordia, whether the revenue

27 Kordia (2018), *Kordia Annual Report 2018*, 2018. See page 3.

from broadcasting services was cross-subsidising other Kordia activities and the extent of investment in maintaining broadcasting service quality levels.

*Radio*

Spectrum licences for AM and FM are due to expire in April 2031. Consequently contracts tend to encompass terms which align with this expiry date. Both Kordia and JDA have standard rate cards. However, information from stakeholders indicated that there is some flexibility in contract terms and conditions to suit individual needs of customers. For example, some of the smaller broadcasters seek to avoid long-term commitments and as such prefer annual arrangements. Co-location charges for smaller entities tend to be annual, while invoicing occurs monthly or quarterly for larger broadcasters.

In general transmission service quality appears to be regarded as satisfactory by radio broadcasters, in contrast to some television broadcasters who voiced concerns about the need to ensure that, at a minimum, baseline service standards continue to be met. Any degradation in service levels or change in response times may be more noticeable in television than radio broadcasting. However, as differing views were expressed by industry participants further detailed investigation would be required to draw any definitive conclusions on this issue.

Information provided in the NZME Annual Report[28] indicates that it was a beneficiary of the Government COVID-19 transmission fee waiver scheme. This is stated as relief from paying transmitter tower rental, power and contracted maintenance costs for six months for transmitter sites leased from Kordia and Radio New Zealand. The amount received was $1,337,300 which suggests that NZME's annual expenditure on transmission expenses is approximately $2.7 million. This represented only 1% of total operating costs for 2020. However, NZME total costs also cover its publishing division (print and digital news and journalism products) as well as e-commerce. Revenue from radio represents approximately 30% of total revenue. If we then adopt a simplifying assumption and allocate 30% of the total costs to radio, then annual transmission expenses are estimated to be about 3.3% of the radio division operating costs.

28 New Zealand Media and Entertainment (2020), *NZME Annual Report 2020*, 2020.

## 3.3 Competition

The DTT market has an established structure and there appears to be little scope for change. Furthermore, with its size and scale of operations, Kordia has inherent advantages in both television and radio FM broadcasting markets. Kordia's sites in general are in prime areas, have a height advantage, and in some locations it offers the only sites. It should be noted that high sites are very attractive for the provision of FM broadcasting services.

Although JDA is a much smaller business than Kordia it appears that there is scope for some competition in the site market. There is also evidence that broadcasters will switch transmission providers if a better deal can be offered – for example in Auckland when JDA was able to offer FM transmission from the Sky Tower. As noted in Section 3.1.6 new sites may be established through commercial deals with landowners in favourable areas followed by the installation of infrastructure / facilities. The scale of investment involved differs considerably – for example, the facility may entail only small wooden poles or, at the other end of the range, expensive large lattice towers.

Nevertheless it does appear that it would be unlikely that other transmission companies could mount a serious competitive challenge to Kordia's position in the market as a provider of national broadcasting transmission services for a number of reasons, such as:

- obtaining cost-effective access to multiple Kordia sites to provide the necessary coverage
- difficulties associated with identifying and developing new / alternative sites where access to existing sites is uneconomical
- possible constraints (for example, financial) associated with relative company size.

In other words, the structure of the market is such that other transmission companies may have limited scope to challenge Kordia at the national level, particularly in television broadcasting services which is the highest revenue market segment.

RNZ effectively has little competition in the AM transmission market. The only AM transmission site in Auckland is owned by RNZ. Some radio broadcasters expressed concern that no other options or solutions were available, in the light of RNZ's decision to shut down its AM services. The main issues were stated to be difficulties in migrating listeners to FM services, and in some cases FM coverage would not be available at all. The scope for

alternative AM service providers, such as Rhema, to address the gap left by RNZ in the market, is very limited with both geographic and financial constraints (see Section 3.1.6). As a result it is seen as inevitable that some services would need to be discontinued altogether. On the other hand, some stakeholders acknowledged that the costs of maintaining AM sites were relatively high, driven largely by the cost of power and the ongoing maintenance requirements associated with sites in low lying areas.

## 3.4 Barriers to market entry

New market entry ultimately depends upon the future prospects for the broadcasting industry. Potential entrants to the broadcasting transmission services market would need at a minimum some certainty of obtaining a reasonable return on investment in the medium- to long-term. However some existing market players appear to regard broadcasting as a legacy service with receding growth prospects, as other platforms continue to encroach on traditional broadcasting services. On the cost side the entry threshold is relatively high, involving locating, preparing and powering sites, and installing infrastructure / facilities. Furthermore, many of the prime sites have already been taken, leaving only the possibility of creating infill sites.

In order to offer national broadcasting transmission services any prospective new entrant would inevitably require access to some Kordia sites. Although we understand from Kordia that it will provide non-discriminatory access at commercial rates, without further details or a publicly available reference offer it is impossible to determine how access conditions affect potential new market entry or to verify Kordia's compliance with its own non-discrimination commitments.

As regards downstream market entry for television broadcasters, cost is likely to be the major barrier. We understand that the annual cost of access to one Freeview satellite / DTT channel is $1.2 to $1.5 million**,** which includes a Freeview fee, and payments to Kordia for DTT / DTH services and JDA for DTT services. Meanwhile, entry to the commercial FM market is challenging, with one of the major constraints being available spectrum. In fact, industry participants inform us that all frequencies are currently being used with working business models.

Given all of these considerations, including the scale of required investment required to establish a national presence, we conclude that entry into the traditional transmission market is unlikely to be an attractive commercial proposition for any potential competitor to Kordia at the national level.

## 3.5 Market exit

*Kordia*

Kordia has no statutory requirement to continue to provide broadcasting services. Nevertheless, as an SOE Kordia would have an obligation to consult with its shareholding Ministers on the potential sale or disposal of any substantial part of its business. Kordia's agreed scope of activities, as published in its 2022 Statement of Corporate Intent[29], includes:

- ownership, operation and maintenance of broadcast networks
- delivery of design, build, operation and maintenance services to broadcast companies.

In the same document Kordia also acknowledged that 'the outlook of the media market remains uncertain and there is considerable risk to future earnings'[30].

However, Kordia is unlikely to exit the market in the short- to medium-term. It has existing multi-year contracts with major customers. As an SOE Kordia is expected to return profits to its shareholder, and its accounts indicated that it is currently profitable (without the Australian operation). If it is indeed the case that DTT is in transition towards a sunset phase then it would make commercial sense to maximise value from existing assets, investing in careful maintenance to avoid any significant additional capital expenditure.

We note that some markets, such as Australia and the United Kingdom (see Annex A.1 and A.9), have shown that there is considerable interest from investors in the acquisition of

29 Kordia Group Limited (2021), *2022 Kordia, Statement of Corporate Intent*, 2021, page 4.

30 *Ibid*, page 12.

transmission assets. Kordia, with its diverse range of activities, may have more appeal to investors than a pure broadcasting transmission provider. Alternatively, there may be some interest from telecommunications tower companies seeking to expand their site portfolio to provide broadcasting services.

We have not investigated in detail potential alternative uses for Kordia's prime sites but make two observations:

- Wireless broadband has been deployed in New Zealand for some years now; our expectation is that providers have made use of suitable available sites and that these include some Kordia and JDA transmission sites.
- Wireless access networks are based on a cellular architecture that allows for spectrum reuse to maximise capacity. As a result high transmission sites may be inappropriate because their extensive coverage could limit spectrum reuse and hence capacity. Wireless broadband is frequently better served by a larger number of lower sites that have visibility of a cluster of customers consistent in size with the capacity of the spectrum available. The high transmission sites are unlikely to have much impact on wireless broadband coverage.

*Radio New Zealand*

RNZ has no statutory requirement to maintain its AM network. However it is a designated Civil Defence Lifeline Utility under the Civil Defence Emergency Management Act 2002. As such it has certain responsibilities in the event of a civil defence emergency. In particular it has a statutory duty to ensure that it can continue to function and it must maintain appropriate systems for dissemination of emergency-related information. Therefore we assume that as AM transmission sites are shut down, RNZ has available appropriate alternatives to meet its obligations.

Currently there is no obvious high value alternative use for the AM spectrum band (535-1606.5kHz). Adjacent users in the bands above and below the AM band consist of maritime radio, radio navigation, and land mobile. This is consistent with the International Telecommunication Union (ITU) designations for this spectrum. While releasing the AM band could potentially make more spectrum available for land and maritime radio, sourcing

equipment could be problematic given the almost universal use of this band for radio broadcast. In addition, this spectrum is unsuitable for cellular mobile for three main reasons:

- cellular radio relies on compact and efficient antenna, and with 4G and 5G, on multi element antennas that allow beam forming – if using the AM frequency band, the antenna element would need to be hundreds of times larger than antennas for the 700MHz band (the lowest frequency band used for cellular mobile in New Zealand).
- the entire AM radio band encompasses just over 1MHz – this is insufficient to serve a single 4G or 5G channel, which are between 5MHz and 20MHz.
- cellular radio relies on the ability to reuse spectrum between cells. For that reason it is desirable to use frequencies that do not propagate over long distances. The AM radio band propagates far too well to be suitable for cellular mobile. RNZ operates 19 AM radio transmitters to cover New Zealand while Vodafone and Spark require around 2,000 for cellular coverage.

## 3.6 Summary

The market for broadcasting transmission services in New Zealand may be characterised in terms of three sectors which are served, namely:

- television
- radio – FM
- radio – AM.

Two service providers (Kordia and JDA) are the main players in the traditional television and FM radio broadcasting transmission markets, while RNZ is a leading provider of AM broadcasting transmission services. Although it is difficult to obtain information to quantify market involvement, it is clear that Kordia is the major player, partly due to its superior geographic footprint and ownership of prime sites. As an example, Kordia accounted for 86% of the total funding provided by Government for the broadcasting transmission waiver scheme in 2020, while the remaining 14% was for services provided by JDA, RNZ and others. We believe these proportions may be a reasonable reflection of relative market revenues (Exhibit 3.10).

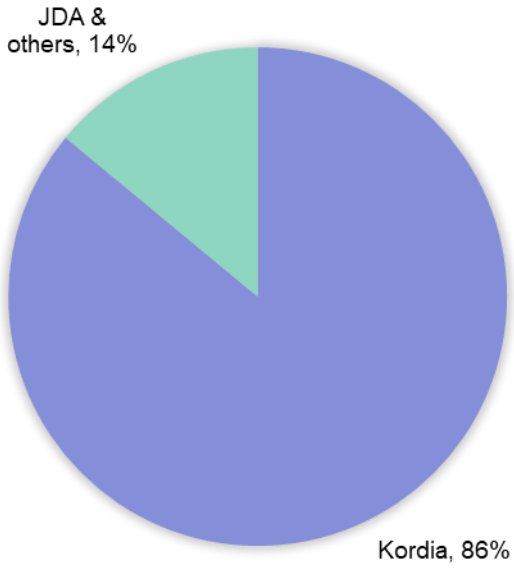



***Exhibit 3.10:*** *Broadcasting transmission fee waiver scheme – share paid to Kordia and others [Source: Network Strategies]*

A number of additional features characterise the current state of these markets.

*Television*

- Kordia and JDA's DTT transmission services cover differing geographic areas. Kordia's population coverage is approximately 4 million people while JDA's footprint covers 0.55 million.
- Neither Kordia nor JDA engage directly in the television market – that is, these are not vertically integrated entities.
- Sky Television occupies a unique position in the market. It provides pay-TV and free-to-air services, and is engaged in broadcasting transmission for self-supply.
- Kordia and JDA provide managed transmission services for a number of smaller broadcasters, while larger broadcasters have their own MUXs.
- Online streaming is already a major competitor to linear television in New Zealand, to the extent that service providers which support OTT television transmission (such as Chorus) could potentially be considered in any relevant market analysis.
- Changing consumer patterns and choices in the downstream market are likely to have implications for the economics of the

traditional broadcasting transmission market, with potential for price rises if the market contracts.

- Television transmission costs are a significant expense for broadcasters, and accordingly represent a major revenue stream for Kordia.

*Radio – FM*

- Geographic boundaries are less well defined for FM radio than for television. However, it appears that JDA has captured the Auckland FM market, operating transmission services from the Sky Tower site, while Kordia has a strong presence in most other regions.
- Neither Kordia nor JDA engage directly in the radio market – that is, these are not vertically integrated entities.
- Other vertically integrated entities own a small number of FM sites (for example, Mediaworks and NZME).
- Commercial radio organisations are moving to embrace alternative delivery platforms as new challenges to advertising revenue (on which they rely) emerge, such as Google and Facebook.
- Nevertheless demand for traditional radio broadcasting services may continue in the medium- to long-term, with a lack of direct substitutes for particular applications such as communication in times of emergency, and listening in cars.

*Radio – AM*

- RNZ is a significant player in the provision of AM broadcasting transmission services.
- RNZ is vertically integrated in the market.
- A number of RNZ AM sites have already or are in the process of being shut down following commercial decisions, with full closure to occur by 2031.
- The AM closure is of concern to some customers, particularly in areas where FM migration or coverage is not perceived to be a feasible option.

# 4 The value chain

## 4.1 Overview

In terms of the traditional broadcasting value chain there are four broad components:

- **production** – development and acquisition of content
- **aggregation** – transport of multiple content sources to aggregation locations and combining into a single signal stream
- **distribution** – transport of the signal to broadcasting sites and transmission to end users
- **end users** – reception of the content by the end-user.

Our focus is on that part of the broadcasting value chain (Exhibit 4.1) that concerns transmission – that is, excluding production or content creation and aggregation, and the end-user (audience).

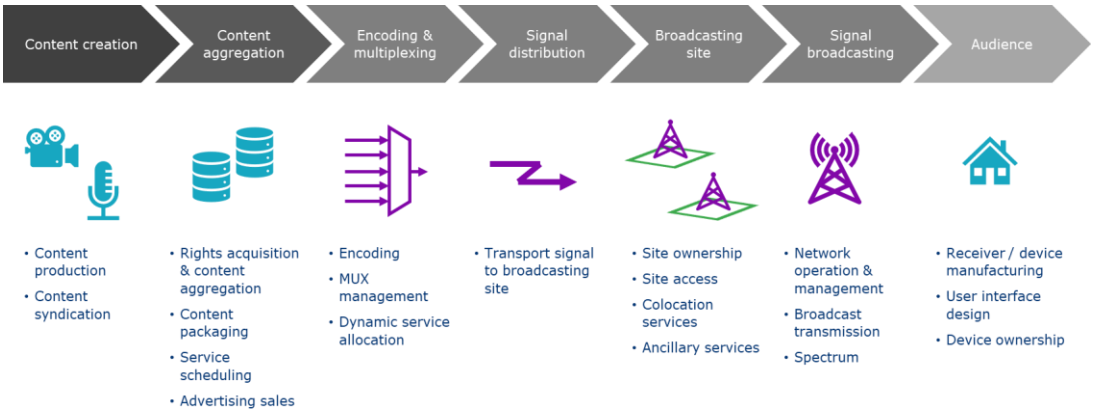



***Exhibit 4.1:*** *Generic broadcasting value chain [Source: Network Strategies]*

Note that the transmission components of the value chain do differ by technologies – DTT, DTH and OTT in the case of television, and for radio, AM/FM, DAB and Internet radio. Exhibit 4.1 is applicable to DTT, DTH, AM/FM, and DAB.

We note that a 2019 report for the Commission[31] distinguished between IPTV and OTT on the basis of the managed nature of IPTV services. We believe this distinction is no longer applicable. IPTV used IP multicast and packet level quality of service (QoS) to cope with networks that had material capacity constraints in an environment with less well developed standards. OTT services can now deliver the same quality of experience using the vanilla Internet and suitable protocols[32]. Consequently we have not considered IPTV as a separate technology option.

A generic value chain for broadband delivery of broadcast content is illustrated in Exhibit 4.2. In this instance, broadcasting sites with their physical assets – land, towers and ancillary services – do not form part of the value chain. Exhibit 4.2 is applicable to OTT, Internet Radio and IPTV.

31 Analysys Mason (2019), *Introduction to broadcasting technologies*, 9 December 2019, page 13.

32 For example, MPEG-DASH, a streaming method that divides videos into smaller sections which are encoded at different quality levels. This makes it possible to stream videos at different quality levels, and to switch in the middle of a video from one quality level to another if the available bandwidth changes. In addition the bandwidth required, even for HD video, is now well within the bandwidth available on New Zealand broadband networks.

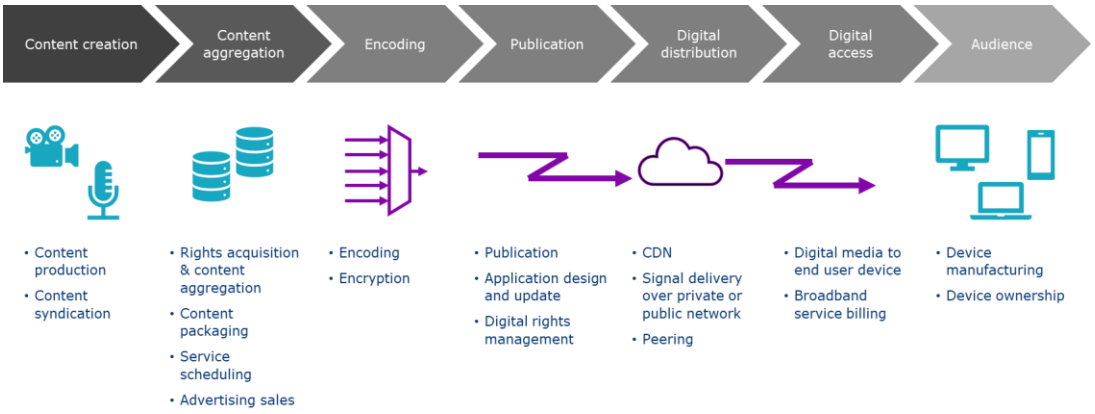



***Exhibit 4.2:*** *Generic broadcasting value chain for Internet delivery [Source: Network Strategies]*

## 4.2 The value chain in the New Zealand market

In the New Zealand market, the boundaries within the broadcasting transmission value chain are quite blurred. Many of the market players span multiple components of the value chain. In addition they may be both providers and purchasers of the components within the value chain.

The main players in the television transmission value chain (Exhibit 4.3) and radio value chain (Exhibit 4.4) are listed below.

| | *Encoding & multiplexing* | *Signal distribution* | *Broadcasting site* | *Signal broadcasting* |
|---|---|---|---|---|
| Kordia | ✓ | ✓ | ✓ | ✓ |
| JDA | ✓ | ✓ | ✓ | ✓ |
| TVNZ | ✓ | | | |
| Māori Television | | | | |
| Sky TV | ✓ | ✓ | | ✓ |
| Discovery | ✓ | | | |
| Freeview | | | | |
| Regional television | | | | |

***Exhibit 4.3:*** *Main players in the New Zealand television broadcasting transmission market, 2022 [Source: Network Strategies]*

| | *Circuit to head end* | *Encoding & multiplexing* | *Broadcasting site* | *Signal broadcasting* |
|---|---|---|---|---|
| Kordia (FM) | ✓ | ✓ | ✓ | ✓ |
| JDA (FM) | ✓ | ✓ | ✓ | ✓ |
| RNZ (AM) | ✓ | ✓ | ✓ | ✓ |
| RNZ (FM)[1] | ✓ | ✓ | ✓ | ✓ |
| MediaWorks | ✓ | ✓ | ✓ | ✓ |
| NZME | ✓ | ✓ | ✓ | ✓ |
| Rhema | ✓ | ✓ | ✓ | ✓ |
| Local radio[2] | ✓ | ✓ | | ✓ |

1 Most of RNZ FM transmission is provided by Kordia, however RNZ does provide some FM transmission itself.

2 Some local radio stations provide their own transmission over small coverage areas.

***Exhibit 4.4:*** *Main players in the New Zealand radio broadcasting transmission market, 2022 [Source: Network Strategies]*

## 4.3 Value chain stages

As already noted the transmission components of the value chain differ across technologies. We provide further technical details below, including identifying the key differences with respect to OTT.

*Compression and encoding*

The compression and encoding stage takes the studio quality programme content and any ancillary data and generates a suitable programme stream for distribution and broadcast. This output is constrained by a range of international standards to ensure interoperability with customer devices. Video, for example, will use the MPEG-4 family of standards[33], and radio programmes would encode channel associated data as RDS (Radio Data Service).

In the case of OTT, compression and encoding can occur offline and be stored prior to transmission. It may involve a range of different levels of compression. Real time streaming or linear TV would use the same process but with a shortened delay between storage and retransmission making it "near real time".

*Multiplexing*

Multiplexing is a feature of digital wireless transmission as a single broadcast radio channel for TV or radio (DAB) carries multiple programmes or radio channels. The multiplexing stage takes the encoded digital programme streams and assembles a multiplex transport stream for transmission. There is a one-to-one relationship between the multiplex transport stream and a radio transmitter and channel (either DTT or DAB).

Analogue broadcast does not have this multiplexing stage as there is a one-to-one correspondence between the programme content and the radio channel.

33 MPEG-4 is referred to as a family of standards as it includes standards for a range of requirements such as an evolving set of video codecs and audio codecs, and transport stream formats.

*Signal distribution*

Signal distribution is the stage that transports the multiplex transport stream from the head end to all of the transmission sites. This is a telecommunications service and does not need to be a specifically broadcast network. For example, RNZ uses point-to-point links to transport linear radio channels to its AM transmission sites, as do its clients transmitting from those sites.

OTT distribution, in its simplest form, relies on the Internet Service Provider (ISP) to distribute the signal. However, as the number of users increases and the bandwidth impact on the ISP grows it is mutually beneficial for the content provider to make use of a content distribution network (CDN), for example, YouTube and Netflix in New Zealand.

*Modulation and amplification*

This is performed by the radio transmitter, mapping the signal into the allocated radio channel and feeding it to the antenna for broadcast. This stage is the same for all wireless broadcast solutions, both analogue and digital.

Transmitter ownership can vary. Kordia provides transmitters for DTT as part of a head end to air service, whereas RNZ owns its own transmitters and uses Kordia for signal distribution and antenna and site services.

OTT does not require modulation and amplification.

*Antenna and site services*

The antenna is an essential part of transporting the signal from the transmitter into the air and, if pointed in a suitable direction, maximises customer reception and minimises interference. The antenna will be mounted on a tower with height determined by the antenna and coverage requirements. Other site services will include equipment colocation with site access, reliable power, environmental stability, security and monitoring.

Antenna and site services are one of the most difficult parts of the value chain to replicate. In New Zealand prime sites are largely owned by Kordia and Chorus. As a result any alternative sites will often be inferior, and further constrained by land owner reluctance, which would increase the cost of coverage.

*Audience*

The customer premises devices include the receiver and receive antenna. The reach of any broadcast transmission solution is dependent on the customer's willingness to invest in the necessary antenna and receiver. For example, a switch from analogue to digital audio broadcast (DAB) radio would require customers to invest in DAB radios to replace existing domestic and car radios. It is also dependent on the customers' willingness to engage with new technology for an existing use case. For example, catch-up television on a computer may not be attractive to a traditional television viewer.

While technical disaggregation of stages of the value chain is possible for traditional broadcasting services, it is largely irrelevant for OTT (Exhibit 4.5). Some of these stages of the value chain may be bundled as one offering: for example, a single service comprising distribution, antenna services, modulation and amplification.

| *Value chain stage* | *DTT* | *Radio* | *OTT* |
|---|---|---|---|
| Compression and multiplex | Yes | Not applicable | Not applicable |
| Distribution | Yes | Yes | Not applicable |
| Co-location and antenna services | Yes | Yes | Not applicable |
| Modulation and amplification | Yes | Yes | Not applicable |
| CDN | Not applicable | Not applicable | Yes |

***Exhibit 4.5:*** *Value chain stages amenable to technical disaggregation [Source: Network Strategies]*

# 5 International experience: key lessons

## 5.1 Study jurisdictions

We have explored experiences in the broadcasting transmission markets across a number of jurisdictions worldwide, encompassing:

- Australia
- Canada
- Finland
- Ireland
- Norway
- Portugal
- Sweden
- Switzerland
- United Kingdom.

While every market has its own unique characteristics and circumstances – described in more detail in Annex A – there are some similarities in regulatory approaches (Section 5.2) and several key themes emerge (Section 5.3).

## 5.2 Regulatory approaches

Australia applies access obligations to broadcasting transmission markets, administered by the Australian Competition and Consumer Commission (ACCC). However, the majority of

our study jurisdictions were from Europe. As such the position of the European Commission provides some guidance on regulatory approaches.

In the European Commission's 2003 Recommendation on relevant product and service markets[34] broadcasting transmission services were identified as a market which may be susceptible to *ex ante* regulation (Market 18). The scope of the market was explained in the following statement:

> …electronic communications services include transmission services in networks used for broadcasting but exclude services providing or exercising control over content transmitted using electronic communication networks and services. The provision of broadcasting services therefore lies outside the scope of this regulatory framework, but the networks and associated facilities used for delivery of broadcast services are within the scope.

By 2006 ten national regulatory authorities had conducted market analyses and identified Significant Market Power (SMP) operators, however there were a number of differences in the way markets were characterised[35]. Many regulators distinguished the market in terms of the services delivered:

- analogue terrestrial television transmission
- digital terrestrial television transmission
- analogue terrestrial radio transmission
- digital terrestrial radio transmission.

Other approaches involved further delineation of the markets by type of provider – transmission providers and broadcaster providers (i.e. vertically integrated entities).

Some regulators scrutinised the physical transmission network and different parts of the value chain. From this perspective markets related to infrastructure could be identified, such as access to sites, masts, and antennae systems (use of the antenna, the feeder and the

34 European Commission (2003), *Commission Recommendation of 11 February, 2003 on relevant product and service markets,* 11 February 2003.

35 European Regulators Group (2006), *Market 18 Broadcasting transmission services to deliver broadcast content to end-users*, 1 September 2006.

multiplexer) and it became clear that sellers and customers could both be transmission service providers. In some cases it was recognised that there was no substitute for access to sites and masts and therefore this constitutes a bottleneck, similar to copper or fibre local loop services in telecoms.

The 2003 European Commission (EC) recommendation was subsequently amended (in 2007[36]) and the services were removed from the list of relevant markets. The reasons given were[37]:

- significant market changes bringing greater platform competition and fewer capacity constraints as the transition from analogue to digital delivery platforms occurs
- evidence that many Member States have three to four competing platforms (terrestrial, satellite, cable and telecom-based)
- potential access or market power problems may be addressed either by competition law or by other regulatory measures
- Member States can impose must-carry obligations in the general public interest when a significant number of end users use a network as the principal means of receiving radio and television broadcasts.
- possibilities of Member States imposing sharing of facilities or property (including physical co-location) on an undertaking operating an electronic communications network, including rules for co-location.

Despite this change, if national regulatory authorities had already imposed remedies it was necessary that these remained until if and when an updated market analysis justified their withdrawal. As such a number of European regulators – for example, Portugal – undertook one-off market studies in the years following the amendment while several appeared to

36 European Commission (2007), *Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services,* 17 December 2007.

37 European Commission (2007), *Commission Staff Working Document Explanatory Note Accompanying document to the Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services*, 2007.

continue to conduct market studies to determine whether and where SMP exists and apply remedies, such as Finland and Ireland.

## 5.3 Key themes

*Digitalisation is changing the way consumers engage with content*

Digitisation is having a huge impact on the broadcasting industry worldwide. It is enabling consumers to have greater power over what, when, where and how they watch and listen to audio-visual content.

Consumers have choice of multiple platforms, influenced by the devices available at their location. Video content can be watched on television sets, on computers or on handheld devices. Radio can be accessed via DTT or DTH as well as on computers, handheld devices and traditional radios.

Digitisation is also enabling the rise of democratisation of content. Users bypass traditional content providers to create, personalise and distribute their own digital media content.

*Traditional transmission is becoming a legacy service*

As audiences for traditional linear programming decline, terrestrial broadcasting transmission is increasingly being viewed by broadcasters as a legacy service. Industry focus is shifting to streaming and on-demand services, delivered over broadband, either terrestrial or satellite, with DTH services reaching consumers outside high speed broadband coverage. Linear programming has become just one amongst many platforms used by broadcasters to distribute content.

To date, only a few broadcasters have shut down their terrestrial broadcasting networks. In 2019 Swiss broadcaster SRG shut down its DTT network while in Canada over the past few years several broadcasters have reduced their coverage of DTT. Norwegian national FM radio broadcasts transitioned to DAB in 2017. The only other country that has committed to

closure of FM broadcasts is Switzerland, scheduled for the end of 2024. There is a proposal to phase out public DTT broadcasting and FM radio in the French-speaking areas of Belgium from 2027.

Other jurisdictions have been more cautious about replacing DTT and FM radio. While it is clear that audiences are shifting to other forms of media, demand for traditional television and radio is likely to continue for some time, representing an ongoing cost for broadcasting distribution. Experiences in Canada and Norway suggest that there may be considerable public opposition to the cessation of terrestrial transmissions. There may also be other considerations for continuing services, such as requirements for emergency or civil defence broadcasts.

The implication of these trends is that terrestrial broadcasting transmission services are becoming less important for broadcasters and demand is likely to contract over time.

*Many transmission markets are dominated by a single player*

Since the 1990s, many national public broadcasters have transferred their transmission assets into separate companies, some of which are now privately owned. Such companies are often dominant in the market, or are market leaders, due to the extensive population coverage of the original legacy networks.

The transmission assets of those companies are typically in prime sites. Alternative players or new entrants frequently face considerable barriers in establishing similar coverage and may tend to focus only on specific locations, such as urban areas, which offer the best return on investment. There may be limited or no competition in rural areas.

*Market definitions vary*

It is clear that the overarching broadcasting transmission market includes several sub-markets. Market structure and competition issues are unique to each jurisdiction, and thus any regulatory analysis and resultant remedies, if required, are based on market definitions appropriate for each jurisdiction.

Some characteristics of market definitions that regulators may consider within their market analyses:

- separate markets for television and radio transmission
- separate markets for DTT, DTH or OTT television transmission
- separate markets for free-to-air and pay-TV
- market for colocation and ancillary services
- markets may be defined at national or sub-national levels.

## 5.4 Market monitoring

Several regulators in the jurisdictions we have examined conduct regular monitoring of the broadcasting market, however the main focus tends to be on broadcasters rather than transmission providers. The monitoring typically assesses regulatory obligations imposed in the jurisdiction, which are designed to address various competition or other policy objectives, such as content requirements. Two examples follow.

*Australia* — The ACCC undertakes annual monitoring of digital radio multiplex transmission services. Licensees are required to submit annual reports to the ACCC, with those reports focusing on compliance with the relevant legislation and access undertakings for digital radio multiplex transmission capacity services, including pricing and weighted average cost of capital (see Annex A.1 for further details of these undertakings). The ACCC does not monitor any other broadcasting transmission markets on a regular basis.

*Canada* — The Canadian Radio-television and Telecommunications Commission (CRTC) conducts extensive data collection exercises for broadcasting and telecommunications, in conjunction with Statistics Canada. The CRTC's Annual Broadcasting Survey requires broadcasting licensees to file financial statements covering revenues and costs, which include detailed breakdowns of costs associated with different types of content.

With telecommunications services, inefficiencies associated with wholesale inputs flow through to increased costs for end-users. However in the case of free-to-air broadcasting, there will be no financial impact on end-users as a result of inefficient wholesale inputs. Any financial impact will have a direct effect on broadcasters, but there may be a non-financial effect on end-users. Minimising the impact of inefficient wholesale costs may require broadcasters to cut costs in other areas, with possible reductions in desirable content and / or content quality. This could lead to increased migration of end-users to alternative platforms. With migration being driven by many different factors, it would be challenging to identify the extent of end-user migration (if any) due to issues in the transmission market. It would be more useful to monitor service providers and / or broadcasters.

If markets are to be monitored regularly, how frequently should this be? As contracts for broadcasting transmission typically span many years, annual data collection is likely to be sufficient. Long-term contracts – which typically include annual price adjustments – also mean that transmission for access seekers is likely to be largely an inflation-linked fixed cost, unless access seekers expand their coverage footprint or implement changes in managed services or technology that would result in step changes to expenditure.

Over time, tracking expenditure on transmission may capture significant price movements, but would not detect if prices were inefficient. This could only be determined by a comprehensive pricing review.

# 6 Emerging trends

## 6.1 The decline in traditional broadcasting

Increasing fragmentation of the media market has seen a decline in audiences for traditional broadcasting (television and radio) with rapid take-up of alternative platforms, in particular online video and SVOD. This pattern is a common development in many countries, including New Zealand.

In 2021, the daily audience for online video in New Zealand surpassed that of television, according to survey evidence (Exhibit 6.1). Data from NZ On Air indicates that over a seven year period television audiences dropped by almost one third, declining from 83% of the adult population to 56% in 2021. Radio audiences have followed a similar trend: falling from 67% of the adult population in 2014 to 47% in 2021.[38]

38 NZ On Air (2021), *Where are the audiences?*, August 2021. Available at https://www.nzonair.govt.nz/research/where-are-audiences-2021/.

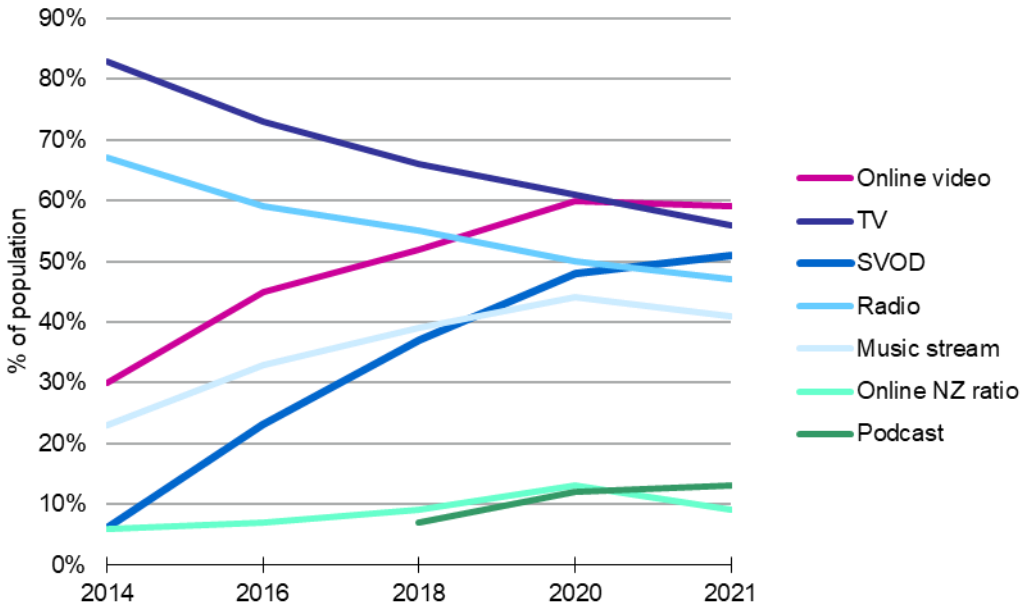



***Exhibit 6.1:*** *Daily audience amongst population aged 15 years and over [Source: NZ On Air]*

Not only are the audiences for traditional forms of broadcasting shrinking, but also the remaining users' consumption of content is decreasing. From a peak of 226 minutes per day in 2018, the average user spent 202 minutes per day watching television in 2021. Consumption of the average radio listener also peaked in 2018, at 185 minutes per day, declining to 152 minutes per day in 2021 (Exhibit 6.2).[39]

39 *Ibid*.

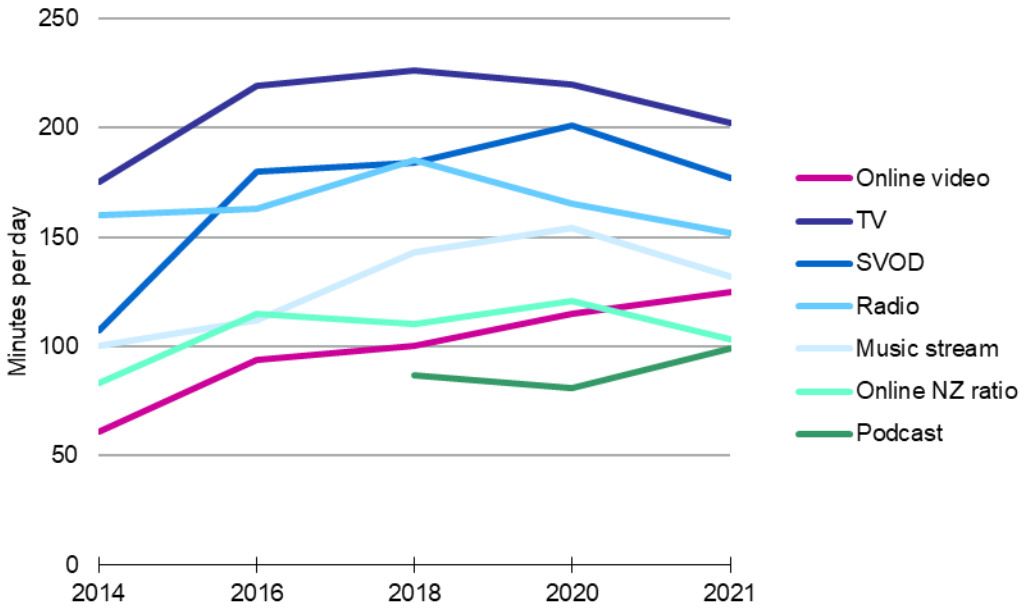



***Exhibit 6.2:*** *Time spent using different media amongst users aged 15 years and over [Source: NZ On Air]*

Over the past two years, the radio audience has remained relatively stable, for both commercial radio and RNZ (Exhibit 6.3).

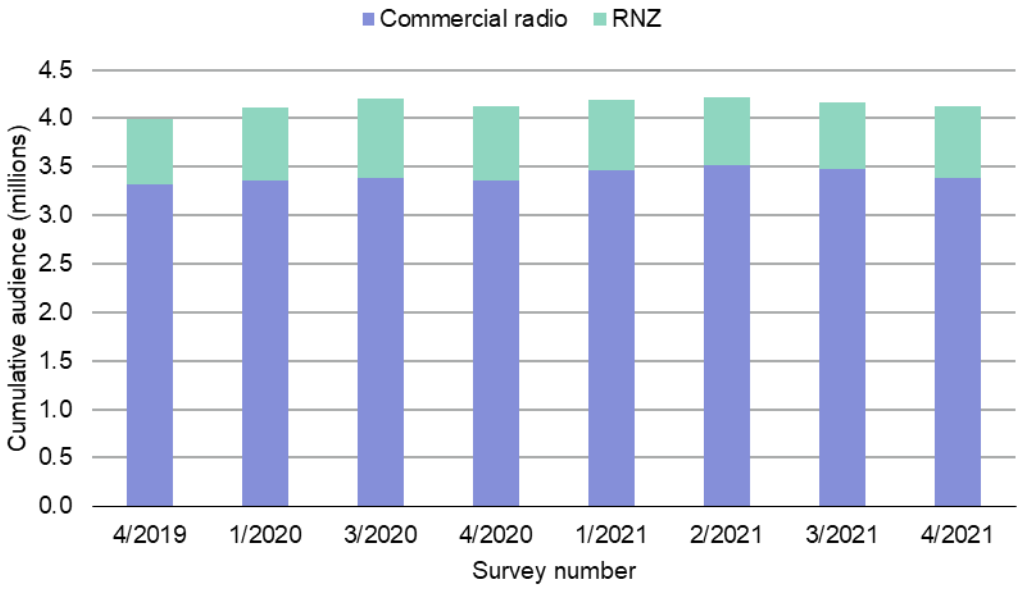
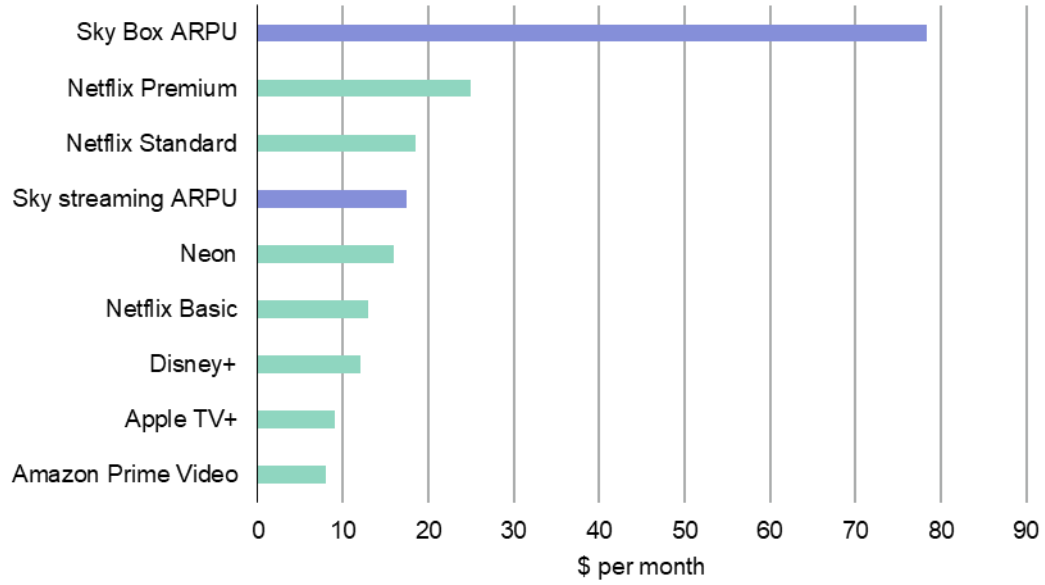



***Exhibit 6.3:*** *Cumulative radio audience (millions) for commercial radio and RNZ [Source: GfK]*

As is the case in many markets worldwide, people are shifting from linear programming to on-demand services, being able to watch what they want, when they want and over a variety of devices – televisions, computers, tablets or mobile handsets. Furthermore, the menu of viewing and audio service offerings is expanding with market entry of international / global players.

In New Zealand many OTT services are more affordable than the local Sky Box offering (Exhibit 6.4), with no minimum-term contracts or discounts for one-year contracts.




Note: Amazon Price Video and Disney+ offer discounted rates for 12-month subscriptions (the rates shown are the undiscounted prices).

***Exhibit 6.4:*** *Monthly cost for content services, New Zealand, as at March 2022 [Source: Sky Television, service providers]*

As viewers and listeners for traditional broadcasting services decrease, there will be significant implications for the industry. Revenues are dependent upon advertising, which in turn is driven by the size of the audience. Total advertising revenue across main media has exhibited a modest upward trend since 2015, with the exception of a drop in 2020, likely to be affected by the COVID-19 pandemic. The growth segment has been 'digital only'[40], comprising almost half (49.2%) of advertising revenue in 2020 (Exhibit 6.5). However television's share of advertising revenue has fallen from 23.4% in 2015 to 19.2% in 2020 and is likely to decline further. Radio's share of advertising revenue has dropped slightly, from 10.5% in 2015 to 9.5% in 2020.

40 Social media, such as Google and Facebook, but not including digital television, digital radio, digital newspapers or digital magazines.

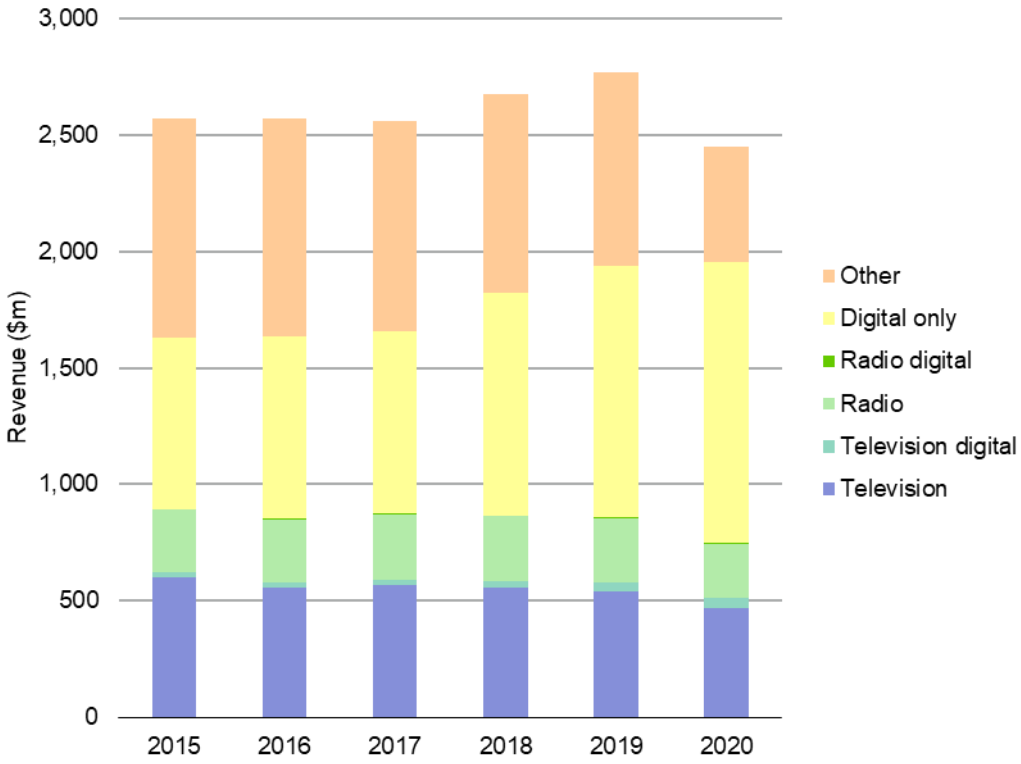



***Exhibit 6.5:*** *Advertising revenues, New Zealand, 2015 to 2020 [Source: Advertising Standards Authority]*

Many New Zealand broadcasters have already acknowledged that embracing digital streaming and IP platforms is critical for their future survival. For example, the TVNZ Annual Report 2021 states:

> Connected TVs are now the norm; international streaming services are launching direct to consumers in competition with local players; and fibre and mobile networks are bringing streaming to the masses. Broadcast TV audiences are holding up better than predicted, with audiences moving comfortably between linear and streaming options. However, the direction consumers are moving is clear and digital streaming is critical to TVNZ's future success. Ultimately the future of TVNZ is IP delivered content and the record growth of simulcast viewing of channels and video on demand streaming demonstrates this, with TVNZ OnDemand now reaching one million viewers a week. In its present iteration, our platform can adequately support our currently forecast video on demand and simulcast viewership

levels, but to keep pace with ever changing consumer preferences we need to upgrade the capacity and capability of our IP platform in the near to medium term.[41]

## 6.2 Alternative technical options

A number of alternative technologies for distribution of broadcast programming have the potential to affect the broadcasting transmission landscape. There are two radio technologies of interest: DAB, and Multimedia Broadcast Multicast Services (MBMS). In addition, broadband is already being used as a platform for limited streaming of live content as well as for the delivery of podcasts, Internet radio, and video on demand (VOD). The role of broadband has the potential to change as a result of affordable access networks with high bandwidth and uncapped services. These are discussed below.

### 6.2.1 Digital Audio Broadcasting

As at March 2022, commercial DAB or DAB+ services are available in over 26 countries worldwide, including Australia, France, Germany, Norway (see Annex A), South Korea, Switzerland and the United Kingdom.[42]. In New Zealand, Kordia introduced a trial DAB service in Auckland and Wellington, commencing in 2006 and concluding in June 2018. With oversight by the Ministry for Business, Innovation and Employment (MBIE), the purpose was to test the technical capacity of DAB. By 2018 MBIE concluded that the trial had achieved its objectives.

DAB requires a spectrum allocation in the 174MHz to 230MHz range. DAB's greater spectral efficiency – allowing more channels to fit in the same spectrum – is achieved partly through improved modulation and efficient codecs but also through improved reuse of the spectrum.

41 Television New Zealand (2021), TVNZ *Annual Report FY2021*, 2021.

42 WorldDAB (2022), *Countries*. Available at https://www.worlddab.org/countries.

The advantages of DAB have long been recognised:

- more efficient use of spectrum, enabling broadcasters to deliver multiple program streams rather than a single FM channel
- enhanced audience experience via additional services, including audio, images and text
- less sensitive to interference from adjacent channels
- can deliver an improved sound quality – although this will depend on the bitrate used by the broadcaster. Quality is improved with high bitrates but with a trade-off of fewer program streams.

The main disadvantages of DAB are the cost of transition, the cost of additional transmitter sites to fill coverage gaps as the result of a move to a higher frequency band, and the cost of new digital radio receivers for end-users. The latter is a considerable barrier given that a significant amount of radio listening occurs in cars – older model cars without factory-installed DAB radios would require retro-fitting with adaptors and DAB antennas.

Following the Kordia trial, Government decided that the case for DAB adoption was insufficiently compelling at that time[43]. We understand that the major commercial operators did not support a switch to DAB.

### 6.2.2 Multimedia Broadcast Multicast Service

MBMS is a standard for the efficient use of cellular networks to carry broadcast transmissions. MBMS was first specified for 3G networks but the standards have continued to develop along with 4G – evolved Multimedia Broadcast Multicast Service (eMBMS), also known as LTE Broadcast (LTE-B) – and 5G – Further evolved Multimedia Broadcast Multicast Service (FeMBMS).

The technology has been slow to find commercial applications but it is possible that this could change as the suite of capabilities develops. In 2019 the Global Mobile Suppliers

43 Minister of Broadcasting, Communications, and Digital Media (2019), *Digital Audio Broadcasting (DAB): advice and options*, 28 March 2019. Available at: https://mch.govt.nz/sites/default/files/projects/BR2019_129%20DAB%20Briefing%20March%202019.PDF.

Association (GSA) stated that five operators had deployed or launched commercial services using eMBMS[44]. In Australia, Telstra launched LTE-B over its mobile network in 2018.[45] Subsequently, however, there has been little interest by other major mobile operators in LTE-B, suggesting perhaps that operators preferred to wait for 5G solutions.

There have been some trials of FeMBMS in Germany[46] and China[47]. The European Broadcasting Union (EBU) conducted a two-year project known as 5G-Xcast[48] and hosted a demonstration at Mobile World Congress in 2019. Currently, however, limited end user devices are available which will constrain adoption of the technology in the short-term.

The use cases for MBMS are not limited to delivery of broadcast video content. Instant re-plays at sports venues and over-the-air (OTA) delivery of information to mobile terminals, such as cars, are also possibilities that might lead to deployment of the technology in mobile networks. It could also find application as part of a fixed wireless service. At this stage the technology is still emerging and its importance will be determined over the next three to five years.

### 6.2.3 Linear programming over broadband networks

Delivering video or audio content over broadband relies on high coverage and uptake of a high-speed broadband network with the capability and capacity to carry the offered traffic. This can be limited by geographic coverage and affordability. In New Zealand broadband access is generally over UFB (i.e. over fibre) which currently serves a similar proportion of the country to DTT – the footprints are similar but do not exactly overlap. However,

44 GSA (2019), *LTE Broadcast (eMBMS) Market Update - January 2019*. Available at https://gsacom.com/paper/embms-lte-broadcast-market-update-3/.

45 Telstra (2018), *Telstra deploys Australia's first LTE-Broadcast technology to support sports streaming*, media release, 11 July 2018. Available at https://www.telstra.com.au/aboutus/media/media-releases/Telstra-deploys-Australias-first-LTE-Broadcast-technology-to-support-sports-streaming.

46 Rohde & Schwarz (2021), *Mobile TV reloaded*, 23 April 2021. Available at https://www.rohde-schwarz.com/au/about/technical-stories/5g-broadcast_251259.html.

47 IBC (2019), *China unveils new 5g broadcast trials*, 12 August 2019. Available at https://www.ibc.org/trends/china-unveils-new-5g-broadcast-trials/4268.article.

48 5G-Xcast (2018), *About 5G*-Xcast, available at https://5g-xcast.eu/.

broadband is also provided over fixed wireless, which achieves additional coverage, and mobile networks which enable mobility – important for radio listening in cars.

Video and audio programming are already consumed over the Internet via broadband access, and that usage is growing. However, linear video content is not widely distributed over broadband.

There are two options for delivering linear programming over broadband networks:

- multicast – one-to-many transmission
- unicast – one-to-one transmission.

*Multicast*

Multicast uses the routers and switches in the network to replicate the programme stream at each network node as required so that the minimum amount of network bandwidth is consumed. While conceptually simple, there are complications caused by the need to manage which end devices are part of a multicast stream at any point in time, which are authorised to join, and management of error correction for each end device.

In 2006 the DSL Forum (since renamed the Broadband Forum) published a standard for the delivery of broadcast-like services over broadband access networks[49]. This was later extended to Gigabit Passive Optical Network (GPON) networks[50]. The technology took advantage of multicast capabilities in the network to minimise the total bandwidth required when the same content was being viewed by multiple households which is ideal for linear programming. The standard was adopted by the Telecommunications Carrier Forum (TCF) in New Zealand as part of its UFB Ethernet Access Service Description[51] and was included in the reference offers of all Local Fibre Companies (LFCs) and Chorus.

49 DSL Forum (2006), TR-101: *Migration to Ethernet-Based DSL Aggregation*, April 2006.

50 Broadband Forum (2008), TR-156: *Using GPON Access in the context of TR-101*, 2008.

51 Telecommunications Carrier Forum (2017), *UFB Ethernet Access Service Description, v33*, May 2017.

The advantage of multicast is that it minimises the network bandwidth consumed by the broadcast programme stream. However, it does have some disadvantages. The standards require a customised solution design for each retail service provider (RSP) or broadcaster using it, being locked to the geographic coverage of the access service providers offering the multicast solution. A set top box is also required at the customer premise which increases the cost of the delivery solution of the RSP or broadcaster.

This technology solution has already been widely deployed overseas[52]. It has also been used in New Zealand but has since been deprecated in favour of unicast solutions.

*Unicast*

Unicast solutions involve dedicated sessions between every end user device and the programme head end or an intermediate node in a content distribution network (CDN)[53].

Unicast solutions are used for OTT VOD services such as Netflix, YouTube, and TVNZ OnDemand. Such solutions require no special design or set top box to work. Dedicated bandwidth is consumed for every view of each piece of content. Historically this has been seen as too bandwidth hungry for linear programming. However, more recently several developments are changing this perception:

- The UFB broadband network has grown in capacity in response to demand for VOD and other streaming services to the extent that over 50% of content being viewed is now being carried as unicast traffic. To extend capacity to carry all linear programming is now potentially a cost-effective option.
- The development of CDNs – and particularly highly distributed CDNs – helps reduce the impact on the core network of streaming content by removing multiple copies of the same content stream for the high cost long distance core links of the network.

52 One example is AT&T which launched U-verse TV in 2005, since re-branded as “DirecTV streaming.”

53 A CDN is network of servers that distribute content (such as video or audio programmes). The servers are managed in a way that ensures that the most frequently used content is held close to the end users and minimises the level of traffic in the long haul, core network. Dedicated CDNs are operated by content owners or managers such as YouTube, Netflix and Spark. Shared commercial CDNs are also operated by companies such as Akamai.

- Extending the coverage of a service can be straightforward, facilitating global reach (e.g. Netflix) at low cost.

In 2018 Chorus trialled a 4K broadcasting service over its fibre network[54]. This proof of concept exercise, in conjunction with Nokia and other partners, was anticipated to lead to a potential commercial service. Chorus used unicast technology as described above but it was implemented as a stand-alone service that placed content in a walled garden. The trial has been discontinued. The implementation as a stand-alone service may have been unattractive to broadcasters. Spark's launch of Spark Sport occurred shortly afterwards delivering linear programming over broadband.

### 6.2.4 Broadband over satellite

Satellite has the potential to extend the coverage of broadband beyond the UFB footprint.

Satellite is the access technology of last resort in remote areas. Traditionally this global reach has been achieved with geosynchronous satellites (GEOs) which have been associated with high cost and low capacity with the result that it was regarded as unsuitable for delivery of OTT video. The emergence of Low Earth Orbit (LEO) satellites has the potential to extend coverage of the broadband network to hard-to-reach locations with the capacity to carry OTT video and linear programming at a reasonable cost. In fact, LEOs could extend the coverage of broadband to exceed the coverage of DTT. Note that this is a potential substitute broadcast distribution platform: it is not a DTH solution. Unlike DTH the programming is carried over the Internet/broadband network in exactly the same way as content delivered to UFB end points. The only difference is that the access technology is via satellite.

## 6.3 Summary

Trends in television viewing in New Zealand are similar to those in many overseas markets. Audiences for linear broadcasting are declining while the popularity of digital streaming, particularly SVOD, continues to increase. As such broadcasters have recognised the

54 Chorus (2018), *The future of TV*, 12 December 2018. Available at https://sp.chorus.co.nz/stories/future-tv.

importance of IP platforms for future survival. Radio audiences appear to be fairly constant in recent years, suggesting that the demand for traditional radio broadcasting may in the longer term be stronger than demand for traditional television broadcasting. However, many broadcasters (both television and radio) in New Zealand rely on income from advertising, and evidence indicates that social media platforms are exercising a growing disruptive influence on these revenue streams.

Alternative and emerging technologies exist that could supplant traditional broadcasting as a means for distributing linear programming. However, these technologies all require a change in consumer choices to use a non-traditional channel (such as Internet radio or catch up TV) or invest in new equipment (for example, DAB radio) so the time-frame for any transition may be several years. We consider it unlikely that this will occur in New Zealand without any major driver. As an example, one possible cause for reconsideration of DAB radio may be the expiry of spectrum licences in 2031.

# 7 Concluding remarks

As in many overseas markets, the structure of the broadcasting transmission service sector is largely the result of historical Government ownership of transmission assets and networks, originally for the provision of public radio broadcasting services and then subsequently television services. In New Zealand the assets are now the responsibility of the SOE, Kordia. As the transmission assets are located in prime sites, and involve significant capital investment, potential new entrants would face considerable barriers in achieving similar coverage. Furthermore, in recent years the traditional broadcasting sector has been subject to considerable disruption with a particularly strong challenge from streaming services supported by widespread availability of technologies such as fibre broadband and fixed wireless access. This factor elevates the risk for any prospective new entrant to the traditional broadcasting transmission market. With the scale of required investment to deliver national coverage, coupled with the risk of declining revenues, the projected return on capital is highly unlikely to be commercially attractive in New Zealand.

In addition to Kordia, other players operate in certain pockets of the sector. Examples include:

- JDA offers a complementary rather than substitute DTT service in very limited geographical areas
- RNZ offers AM radio transmission services, which is a relatively small market not serviced by Kordia.

Kordia appears to be the leading player in providing both television and FM radio broadcasting transmission services. However, further research and analysis would be necessary to define the relevant markets in order to draw any further conclusions. Some

broadcasting transmission customers expressed the view that such a detailed assessment is both warranted and long overdue in this market.

As an SOE Kordia is required to act as a profit maximising commercial entity. As such we would not expect Kordia to release publicly contractual and costing details of its transmission business. However, in the absence of this it is impossible to examine the relationship of prices to costs. With the information available it does appear that Kordia has commercial incentives to focus investment on maintaining its existing transmission assets – many of which are largely depreciated – as long as possible, particularly if it is the case that the sector is entering a sunset phase. However, a more detailed study with wider access to key financial information is necessary to confirm these initial conclusions.

# Annex A: Broadcasting transmission in selected countries

## A.1 Australia

*Regulation*

In Australia, access obligations apply to providers of broadcasting transmission. Part 5 of Schedule 4 of the *Broadcasting Services Act 1992* (BSA)[55] requires that the owner or operator of a broadcasting tower or designated associated facility must provide access to the tower or facility to holders of commercial television broadcasting licences or national broadcasters[56]. The tower owner or operator must also provide access to the tower site to holders of commercial television broadcasting licences or national broadcasters.

The ACCC is responsible for determinations and arbitration regarding transmission access. The arbitration process for disputes is specified in the *Broadcasting Services (Transmitter Access) Regulations 2001*[57].

55 Available at http://classic.austlii.edu.au/au/legis/cth/consol_act/bsa1992214/sch4.html.

56 ABC, SBS and services provided under the *Parliamentary Proceedings Broadcasting Act 1946*. It does not include subscription broadcasting or open narrowcasting services provided by ABC or SBS.

57 Available at http://classic.austlii.edu.au/au/legis/cth/num_reg/bsar20012001n249540/.

In 2009 an access regime for digital radio multiplex transmission services was implemented, with the commencement of digital radio (DAB+) in the metropolitan areas (Adelaide, Brisbane, Melbourne, Perth and Sydney).

The ACCC is charged with implementing and enforcing the digital radio access regime, and assesses proposed access undertakings against the *Digital Radio Multiplex Transmitter Licences (Decision-Making Criteria) Determination 2018*. Criteria used to assess proposed undertakings[58] include:

- compliance of the undertaking with the framework specified in Division 4B of Part 3.3 of the *Radiocommunications Act 1992*, relating to obligations applicable to a digital radio multiplexer licence
- the undertaking should not restrict competition in related markets, or favour particular access seekers
- terms and conditions of access should be reasonable – described as "efficient, open and transparent, and generally non-discriminatory"
- prices, or pricing methodologies, must be fair and reasonable, and "should reflect the efficient costs of providing access to the multiplex capacity and associated services including a normal commercial rate of return"
- an obligation not to hinder access to services
- the undertaking provides for a reasonable dispute resolution mechanism.

As digital radio services were progressively launched in other licence areas[59], new undertakings were implemented. All were substantially similar to the undertakings for metropolitan areas.

There are no access pricing obligations for other types of broadcasting transmission in Australia.

58 Australian Competition and Consumer Commission (2018), *Digital Radio Multiplex Transmitter Licences (Decision-Making Criteria) Determination 2018 Explanatory Statement*, 23 May 2018. Available at https://www.accc.gov.au/system/files/F2018L00643ES.PDF.

59 These additional licence areas were Canberra, Darwin and Hobert (2018); Mandurah (2019); and, Gold Coast (2022).

*Retransmission services*

In Australia, retransmission of television and radio programmes is permitted, subject to certain conditions specified in the BSA. Programs from national broadcasters – the public broadcasters ABC and SBS – or from commercial or community broadcasters can be retransmitted.

Retransmission services are typically provided in areas in which the broadcasters do not have existing coverage, or have coverage 'black spots'. As such, services tend to be in remote areas and are offered by 'self-help providers', such as local councils, mining companies and community organisations[60].

There are two types of retransmission:

- in-area retransmission – within the licence area of the originating service
- out-of-area retransmission – outside the licence area of the originating service.

As at 17 March 2022, there were 1,736 in-area retransmission licences and 39 out-of-area retransmission licences.[61]

SBS offers a subsidy scheme for self-help providers, with up to 100% funding assistance for establishing an SBS radio service (with a ceiling of AUD25,000) and 75% of the establishment costs for the SBS digital television service (with a ceiling of AUD30,000). Funding can increase up to AUD50,000 if coverage is provided for two communities.[62]

60 Subsection 212A(1) of the BSA defines entities that can be self-help providers.

61 Australian Communications and Media Authority (2022), *Register of Radiocommunications Licences*, accessed 17 March 2022. Available at https://web.acma.gov.au/rrl/browse_licences.cat_listing.

62 SBS (2020), *The SBS self help retransmission subsidy scheme*, 4 December 2020. Available at https://www.sbs.com.au/aboutus/transmission-information.

*Key market players*

The main players in the Australian market for broadcasting television transmission services are BAI Communications (BAI), TX Australia (TXA), Axicom and Regional Broadcasters Australia Holdings (RBAH). Although there are several players, the market remains highly concentrated, particularly in certain geographic areas, with high entry barriers.

Over the past two decades there has been a steady trend in outsourcing transmission, with vertically integrated broadcasters divesting their transmission facilities into joint ventures with other broadcasters, selling those assets to transmission providers, or entering maintenance agreements for their network.

Transmission services are typically provided under long-term commercial contracts.

*BAI Communications*

BAI is majority owned by the Canada Pension Plan Investment Board (CPP Investments). The company has operations in Australia, Canada, Hong Kong, Europe, the United Kingdom and the United States. Its Australian network, previously known as Broadcast Australia, was acquired in 2009. Originally government-owned, the organisation managed the television and radio networks of the government-owned broadcasters before being privatised in 1997.

BAI is the leading provider of television and radio broadcast transmission in Australia, across 752 sites nationwide, and covering 99% of the population. It currently has long-term contracts for fully managed television and radio transmission services with the two government-owned national broadcasters, ABC and SBS, as well as with Southern Cross Austereo (SCA) and provides television transmission services to Network Ten.

In 2019 SCA entered into an agreement with BAI, whereby SCA's transmission assets were transferred to BAI, with BAI to provide managed transmission for more than 500 services nationwide. The

agreement is for an initial term of 15 years.[63] SCA had previously sold 45 of its tower sites to Axicom in 2017.

Last year the WIN Network – a privately owned television network with coverage across regional Australia – outsourced maintenance activities of its television network to BAI. This encompassed more than 300 broadcast services.[64]

BAI Communications has recently announced that it is selling its Australian broadcasting tower portfolio, in an auction process commencing in May.[65]

*TX Australia*

TXA offers digital television transmission services to the cities of Sydney, Melbourne, Brisbane, Perth and Adelaide, encompassing over 69 sites. Its customers include the commercial television broadcasters Nine Network Australia and Seven Network as well as community television broadcasters, such as Melbourne's C31.

TXA was originally a joint venture between the three free-to-air commercial television broadcasters in those cities – Nine, Seven and Network Ten – combining the transmission assets of the three shareholders. Under a clause within the shareholders' agreement, if a shareholder entered administration or receivership the remaining shareholders had a pre-emptive right to purchase that shareholder's shares. This clause was triggered when administrators and receivers

63 Southern Cross Austereo (2019), *Southern Cross Austereo to outsource transmission services*, ASX release, 6 August 2019. Available at https://asx.api.markitdigital.com/asx-research/1.0/file/2924-02130743-3A520865?access_token=83ff96335c2d45a094df02a206a39ff4.

64 BAI Communications (2021), *BAI Communications secures maintenance contract with WIN*, media release, 13 October 2021. Available at https://www.baicommunications.com/mediarelease/bai-communications-secures-maintenance-contract-with-win/.

65 The Australian (2022), *BAI Communications towers auction is multibillion-dollar signal to infrastructure investors*, 10 April 2022. Available at https://www.theaustralian.com.au/business/dataroom/bai-communications-towers-auction-is-multibilliondollar-signal-to-infrastructure-investors/news-story/ba804c3fdb6a61d8c37716be928a7043.

were appointed to Network Ten in 2017. In 2018 Ten's shares were acquired by the other two partners.

After conducting a competition analysis, the ACCC cleared the acquisition, finding that it would not substantially lessen competition in relevant markets, as BAI would remain a viable alternative to supply services to Ten.[66] Ten subsequently entered into an agreement with BAI to provide transmission services.[67]

*Axicom*

Axicom (known as Crown Castle Australia until its acquisition by a consortium of investors in 2015) owns and operates around 2,000 towers nationwide. Its portfolio includes mobile towers acquired from Optus, Vodafone and Hutchison, as well as fixed wireless towers acquired from Aussie Broadband and Agile.

In 2017 the broadcaster SCA sold 45 tower sites across regional Australia to Axicom. SCA subsequently entered into a long-term agreement with Axicom for use of the sites.[68]

More recently, in April 2022 Axicom was sold to Australian Tower Network (ATN) for AUD3.58 billion.[69] Until October 2021, when 70% of the company was sold to AustralianSuper, ATN was a wholly-owned Singtel subsidiary, operating tower infrastructure used by telecommunications operator Optus (also a Singtel subsidiary).

66 Australian Competition and Consumer Commission (2018), *Seven and Nine cleared to acquire Ten's TXA shares*, media release, 3 May 2018. Available at https://www.accc.gov.au/media-release/seven-and-nine-cleared-to-acquire-tens-txa-shares.

67 Network Ten (2019), *A smooth transition for 10's transmission*, media release, 28 May 2019. Available at https://www.10viacomcbs.com.au/news-and-insights/a-smooth-transition-for-10s-transmission/.

68 Southern Cross Austereo (2018), *Annual report 2017*, page 30. Available at https://www.southerncrossaustereo.com.au/media/1072/sca_annual-report-2017.pdf.

69 Macquarie Asset Management (2022), *Macquarie Asset Management announces sale of Axicom to Australia Tower Network*, 1 April 2022. Available at https://www.macquarie.com/au/en/about/news/2022/macquarie-asset-management-announces-sale-of-axicom-to-australia-tower-network.html.

*Regional Broadcasters Australia Holdings*

RBAH is owned by a collection of regional television broadcasters, providing retransmission services to commercial broadcasters, as well as infill transmission for ABC and SBS. It has around 90 sites.

Prime TV was a company that controlled several regional television stations and was a part-owner of RBAH, with a 21% share. It had a commercial agreement with RBAH to supply transmission facilities for periods up to ten years.[70] In December 2021 Prime was acquired by Seven West Media (the owner of the Seven Network).

*Australian broadcasters use a mix of transmission providers*

The two government-owned national broadcasters, ABC and SBS, use several providers for transmission services (Exhibit A.1 and Exhibit A.2). In FY2015 the two broadcasters renegotiated their contract with BAI, claiming to receive a 17% cost saving over the term of the contract by extending the contract to 2035.[71]

| *Service* | *Number of transmitters* |
|---|---|
| *Television transmission* | |
| BAI fully managed service | 420 transmitters<br>(ABC holds apparatus licences) |
| RBAH infill | 77 transmitters<br>(RBAH holds apparatus licences) |
| *Radio transmission* | |
| BAI fully managed service | 707 transmitters (analogue)<br>24 transmitters (digital) |

Note: This table does not include self-help providers.

***Exhibit A.1:*** *ABC transmission network as at June 2021 [Source: ABC annual report 2021]*

70 Prime Media Group (2021), *2021Annual report*. Available at https://prtcompany.com.au/wp-content/uploads/2021/10/Annual-Report-2021.pdf.

71 Commonwealth of Australia (2018), *National broadcasters efficiency review*, December 2018. Available at https://www.infrastructure.gov.au/sites/default/files/2018-national-broadcasters-efficiency-review-redacted.pdf.

| *Service* | *Number of sites* |
|---|---|
| *Television transmission* | |
| BAI | 350 services |
| RBAH & TXA | 116 retransmission services |
| Self-help providers | 74 services |
| *Radio transmission* | |
| SBS managed sites | 15 sites (analogue radio) |
| | 23 sites (DAB+) |
| Self-help providers | 116 sites |

***Exhibit A.2:*** *SBS transmission network as at June 2021 [Source: SBS annual report 2021]*

*The future of radio in Australia*

In its 2020 study on the future delivery of radio[72], the Australian Communications and Media Authority (ACMA) found that:

- a mix of radio delivery platforms – AM, FM and DAB+ – will continue to be required for Australia's geographic diversity and range of listening environments
- FM and DAB+ were not able to replicate economically high-power, wide coverage AM transmissions
- AM broadcasting will continue to play an important role in the delivery of radio in regional and remote Australia for the medium to long term, in areas where other platforms cannot reach
- AM radio plays a vital role in informing regional and remote communities during natural disasters and emergencies.

The ACMA noted that there is insufficient spectrum to convert all AM transmission to FM, and that the spectrum band used for AM radio has little value in alternative use.

72 Australian Communications and Media Authority (2020), *The future delivery of radio*, final report, March 2020. Available at https://www.acma.gov.au/publications/2020-03/report/future-delivery-radio.

## A.2 Canada

Canada started its transition to digital television in 2011, requiring stations in 28 mandatory markets – the national capital region, provincial capitals, markets served by multiple originating stations or with more than 300,000 population – to convert by 31 August 2011. Stations outside the mandatory markets were not obliged to convert to digital.

The shift to digital television – which has been implemented in many countries worldwide – has enabled a more efficient use of spectrum, a scarce resource. This has, however, resulted in reductions in the total amount of spectrum held by television broadcasters. In Canada, both the 600MHz and 700MHz bands – previously designated for broadcast television – have been repurposed for mobile services.

With the combined effect of budget cuts and the digital transition, the national public broadcaster, the Canadian Broadcasting Corporation (CBC), shut down all of its 620 analogue television transmitters in July 2012, installing just 27 digital transmitters over the period 2011 to 2012. It therefore aimed to rely on other platforms to distribute its programming in areas outside its digital transmission coverage. In discussions over the introduction of digital television, CBC had stated that:

> …we wouldn't duplicate our analogue footprint in digital, that we would build digital transmitters only in centres where we originate television programming, and that we would eventually be shutting down our analogue transmitters, given the obsolescence of analogue technology and its disappearance throughout the world.[73]

CBC claimed that over 600 of those analogue transmitters provided coverage to just 1.7% of the Canadian population.[74]

Over the period 2014-15 the Canadian Radio-Television and Telecommunications Commission (CRTC) conducted an extensive review of the market for local television programming and 'over-the-air' (OTA) traditional television broadcasting. It found that

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73 CBC/Radio-Canada (2012), *Annual report 2011-2012*, page 61.

74 *Ibid*, page 61.

although very few Canadians accessed free OTA television – the norm being subscription to pay-TV platforms over cable or satellite – there was a need to continue OTA services.

> The Commission considers that over-the-air transmission of television signals continues to play an important role in the Canadian broadcasting system, at this time, particularly with respect to the local programming offered by conventional television stations. In addition, over-the-air transmission provides a widely available and affordable choice for Canadians wishing to access local and other television programming.[75]

At that time, 97% of the population lived within range of a transmitter, yet the majority of Canadians received local programming over other platforms, with just 8.1% of people using OTA antennas to receive television signals.[76] Note that it is a regulatory requirement for cable, satellite and fibre providers to offer local programming through broadcasting distribution undertakings (BDUs). The CRTC observed that OTA television was low-cost and often had higher quality signals than those over cable or satellite, yet few people used it.

The CRTC also stated:

> …any cost savings gained from a transmitter shutdown would not be significant enough to provide any meaningful additional assistance to local stations in the production of local programming. Further, the Commission is mindful of the significant investments that broadcasters, Canadians and government recently made into the successful transition to digital over-the-air technology. The Commission is of the view that the broadcasting system should continue to benefit from those investments. The Commission also took into account the significant public opposition to the proposals to shut down transmitters.[77]

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75 Canadian Radio-Television and Telecommunications Commission (2015), *Broadcasting Regulatory Policy CRTC 2015-24, Over-the-air transmission of television signals and local programming*, 29 January 2015. Available at https://crtc.gc.ca/eng/archive/2015/2015-24.htm.

76 *Ibid*.

77 *Ibid*, paragraph 18.

The outcome of the review was CTRC Decision 2015-24, which stated that conventional television licensees who shut down their transmitters would lose the following regulatory privileges:

- programming would not be distributed on the basic BDU service
- licensees would be unable to request simultaneous substitution ('simsub') as described in the *Broadcasting Distribution Regulations* – this is the temporary replacement of one television channel with another channel showing the same programme; usually the replacement of an American signal with a Canadian signal.

Since that decision, Bell Media – owner of several television networks and stations, including CTV, Canada's largest private television network, CTV2 and Noovo – has also decommissioned a number of its analogue transmitters and re-transmitters across the country. For example, in 2017 it shut down 40 analogue transmitters, which covered a population of 726,000 across 40 communities. Those communities were served by terrestrial and satellite BDUs. Bell Media stated that it was 'aware of the loss of certain regulatory privileges (distribution on the basic service, the ability to request simultaneous substitution) that would result from the shutdown of these transmitters' and claimed that the transmitters were costly to maintain and generated no incremental revenue.[78] In a reversal of that trend, Bell Media has reactivated several former CBC-owned transmitters that had been decommissioned in 2011.

In February 2017 the public broadcaster TVO – owned by the Government of Ontario and serving that province – proposed to decommission eight of its nine digital transmitters, all located outside the city of Toronto, however this decision was reversed after extensive public criticism.[79] TVO had previously shut down 114 analogue transmitters without converting them to digital in the 2011 transition to digital television – note that the affected communities were given an option to take over ownership of the local transmission tower on TVO-owned sites.

78 Canadian Radio-Television and Telecommunications Commission (2017), *Broadcasting Decision CRTC 2017-149*, 15 May 2017, paragraph 51.

79 TVO (2017), TVO's 8 over-the-air transmitters will continue to send signals, 17 February 2017. Available at https://www.tvo.org/about/tvos-8-over-the-air-transmitters-will-continue-to-send-signals-0.

As at March 2021, CBC's broadcast network included 727 radio transmitters and 27 digital television transmitters across 528 sites.[80] An independent division within CBC – CBC/Radio-Canada Transmission – provides television and radio transmission services to CBC and Radio-Canada, as well as to commercial organisations.

Most Canadians still subscribe to BDU services – cable, fibre or satellite – however the number of subscribers has declined by almost 10% in the four years to Q3 2021 (Exhibit A.3). A survey in late 2021 found that more Canadians subscribe to SVOD services than BDU services (77% vs 70%).[81]

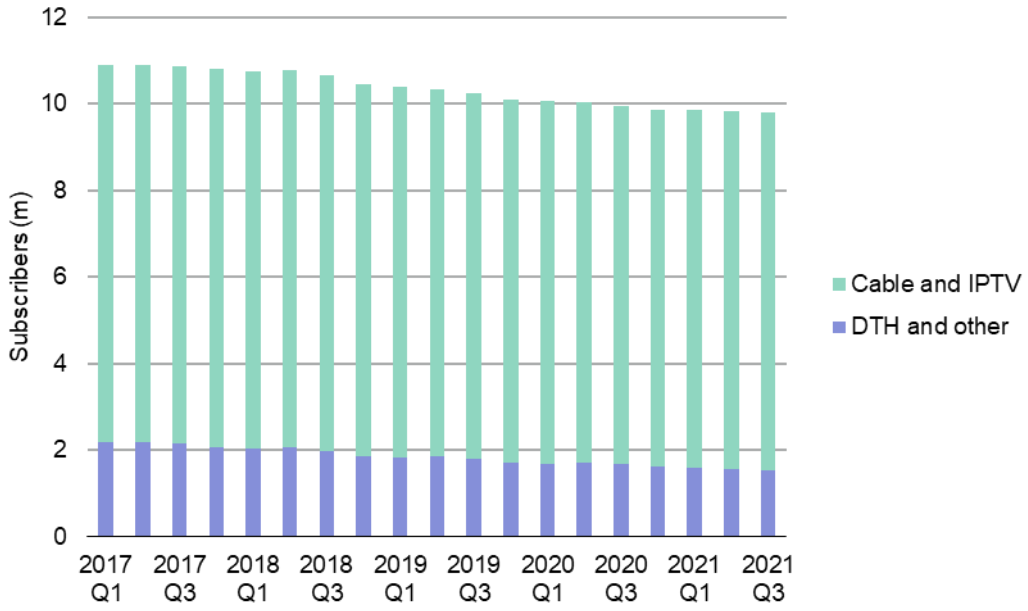


***Exhibit A.3:*** *BDU subscribers, Canada, 2017 to 2021 [Source: CRTC]*

80 CBC/Radio-Canada (2021), *Annual report 2020-21*. Available at https://site-cbc.radio-canada.ca/documents/impact-and-accountability/finances/2020-2021-annual-report.pdf.

81 Media Technology Monitor (2022), *More Canadians subscribe to SVOD than traditional TV*, media release, 25 February 2022. Available at https://mtm-otm.ca/_files/NewsAlert/02-25-2022.pdf.

## A.3 Finland

In January 2022 the Finnish regulator, Traficom, released its draft decision on its review of the markets for television and radio broadcasting services.[82] This draft decision declared that Digita Oy (Digita) had SMP in these markets. Digita has undertaken a series of voluntary commitments to resolve competition issues rather than through regulatory obligations – a process that became possible as a consequence of amendments to the *Communications Services Act* that came into force in 2021. While the consultation period for the draft decision closed on 28 February, Traficom has not yet released its final decision.

Digita is the only operator in Finland that provides nationwide television and radio broadcasting networks. Its broadcasting services include:

- wholesale terrestrial television services
- hybrid television solutions (TV + Internet)
- wholesale radio broadcasting services
- pay-TV provider – over Digita's UHF terrestrial network.

The regulator's previous market review[83], in 2015, found that Digita had SMP in three markets:

- wholesale market for access to antenna sites and capacity – antenna sites and capacity services of the primary broadcasting stations and associated facilities required to provide either television or radio broadcasting services
- wholesale market for television broadcasting services – used for transmitting, broadcasting and bundling television programmes, in the frequency ranges of multiplexes A, B, C, D, E and H

82 Traficom (2022), *Lausuntopyyntö huomattavasta markkinavoimasta (HMV) televisio- ja radiolähetyspalveluiden markkinoilla*, 27 January 2022. Available at https://www.traficom.fi/fi/ajankohtaista/lausuntopyynto-huomattavasta-markkinavoimasta-hmv-televisio-ja.

83 European Commission (2015), Commission Decision concerning Case FI/2015/1723: Markets for television and radio broadcasting transmission services, to deliver broadcast content to end users in Finland, 1 April 2015.

- wholesale market for national radio broadcasting services – the FM network used for transmitting and broadcasting national radio programmes.

The obligations imposed on Digita in 2015 included:

- to lease out antenna sites and capacity, including ancillary services
- to offer television broadcasting services in the main multiplexes used by service providers (A, B, C, D, E and H)
- to publish delivery terms, tariff information and a reference offer in the wholesale markets for antenna sites and capacity (including associated facilities) and television broadcasting services
- to publish delivery terms and tariff information only for the wholesale market for radio transmission
- to apply cost-oriented pricing and non-discriminatory conditions in the wholesale markets for access to antenna sites and capacity and television broadcasting services
- to apply price control on the lease of antenna sites, with a maximum price calculated by the regulator for each of Digita's primary broadcasting station masts
- to apply cost accounting procedures.

The European Commission noted that only 38 of Digita's 129 masts were used for primary broadcasting transmission services. These particular masts were characterised by unique geographical locations and extreme height, with 27 of the 38 masts having a height over 200 metres, the remainder being between 72 and 179 metres. Digita could therefore achieve 100% population coverage at a lower cost than through other existing masts used for communications services.

The above SMP obligations expired in April 2018 at the end of the three year regulatory period. Digita subsequently issued a new price list for 2019, in which the prices for a number of antenna sites increased significantly.

Traficom's 2022 draft decision has removed most of the earlier SMP obligations, as they are largely supplanted by Digita's voluntary commitments. The only remaining regulatory obligation in the draft decision is for the application of cost-oriented pricing for radio broadcast services and antenna capacity.

The draft decision stated that Digita's voluntary commitments[84] would become binding over the next five-year regulatory period. These commitments include:

- to lease out antenna sites and capacity, including ancillary services
- to provide television broadcasting services to free-to-air television broadcasting services on channels A, B, C, D, E and F
- to provide a nationwide analogue FM radio broadcasting service to YLE (the national public broadcaster) and all licensees
- to use a cost accounting system
- to publish on Digita's website the delivery terms, price lists and reference offers for the above services
- to comply with fair and non-discriminatory pricing and reasonable and non-discriminatory terms in the provision of the above services
- prices for DVB-T services to reduce by 5% from the prices implemented in January 2021 and to remain in force with no changes other than those specified below
- prices for HD and SD DVB-T2 services to reduce by 11% from the prices implemented in January 2021 and to remain in force with no changes other than those specified below
- for DVB-T services and HD and SD DVB-T2 services, there will be no price increases other than annual inflation adjustments or any changes to taxes, government fees and other public costs
- to provide for each licensee one nation-wide HD channel free-of-charge during the licensee's simulcast phase.

Submissions received in the regulator's consultation process viewed the above commitments as being insufficient to address competition concerns. Before making a final decision on the regulatory obligations to be imposed, Traficom is seeking a submission from Digita on whether the company will modify those commitments.[85]

84 Traficom (2022), *Huomattavan markkinavoiman yrityksen sitoumusten sito-vaksi määrääminen*, 27 January 2022. Available at https://www.traficom.fi/fi/ajankohtaista/lausuntopyynto-huomattavasta-markkinavoimasta-hmv-televisio-ja.

85 Traficom (2022), *Kilpailuongelmat televisio- ja radiolähetyspalveluiden markkinoilla jatkuvat - Traficomin on muutettava sääntelyratkaisuehdotusta*, 19 April 2022. Available at https://www.traficom.fi/fi/ajankohtaista/kilpailuongelmat-televisio-ja-radiolahetyspalveluiden-markkinoilla-jatkuvat.

The cable television market in Finland remains strong, with over 1.8 million subscribers as at June 2021, equivalent to approximately two-thirds of households (Exhibit A.4). The IPTV market is also increasing, however to date there does not appear to have been an impact on the cable television market.

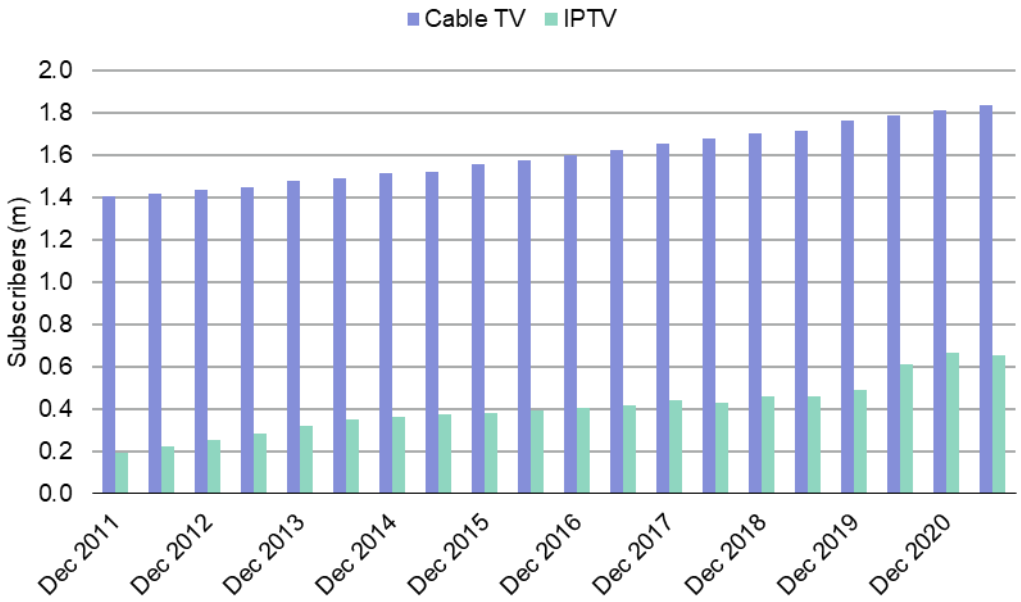


***Exhibit A.4:*** *Cable TV and IPTV subscribers, Finland, 2011 to 2021 [Source: Traficom]*

Unlike many of the other countries we have examined, the proportion of the population accessing television or radio on a daily basis has shown only a slight decline over the past decade (Exhibit A.5). Time spent each day listening to radio has also declined slightly since 2016, although television viewing increased in 2020, possibly due to COVID-19 restrictions (Exhibit A.6).

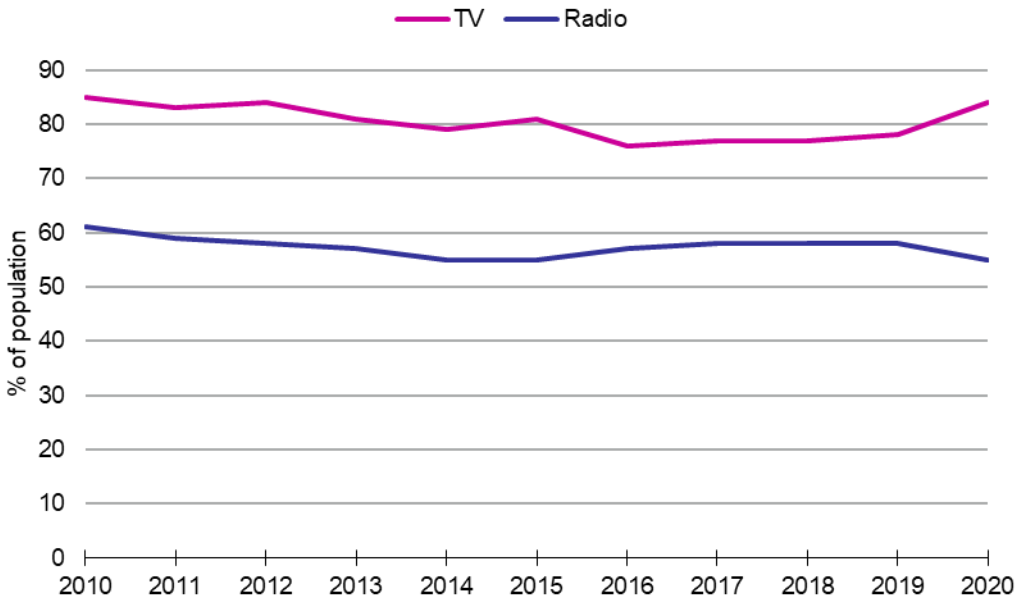


***Exhibit A.5:*** *Proportion of the population accessing medium each day, Finland, 2010 to 2020 [Source: Statistics Finland]*

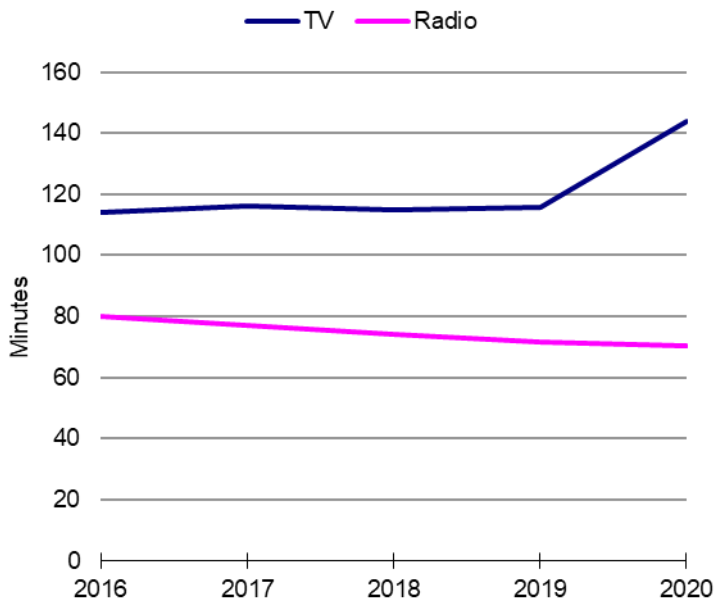


***Exhibit A.6:*** *Average minutes per day accessing medium, Finland, 2016 to 2020 [Source: Statistics Finland]*

## A.4 Ireland

The Commission for Communications Regulation (ComReg) recently reviewed the Irish broadcasting transmission and distribution markets[86]. The review concluded that *ex ante* regulation remained necessary for two separate wholesale markets:

| | |
|---|---|
| *Market A: Wholesale Access to National Terrestrial Broadcast Transmission Services* | A wholesale upstream market whereby a provider supplies a transmission and distribution service via towers/masts and relevant associated facilities, including equipment, to enable:<br>• broadcast of national analogue terrestrial radio signals to end users<br>• broadcast by a multiplex operator of its digital terrestrial broadcasting signals to end users. |
| *Market B: Wholesale Access to DTT Multiplexing Services* | A DTT multiplex operator, using purchased wholesale inputs from Market A, combined with carriage on its own DTT multiplex, supplies wholesale managed broadcasting transmission services to DTT retail broadcasters to enable transmission of DTT broadcasting programme signals to end users. |

Market A consists of one national terrestrial network provider, 2rn, a wholly owned subsidiary of RTÉ. The latter is a publicly and commercially funded public service broadcaster, and both the primary TV broadcaster and leading radio broadcaster in Ireland. 2rn facilitates near nationwide coverage from an extensive range of high tower / mast sites across the country. ComReg designated 2rn as having SMP in this market on the grounds that:

- no alternative terrestrial network exists which would provide the same level of services for national terrestrial broadcasters and multiplex operators
- as a vertically integrated entity RTÉ could potentially exert considerable influence on the terrestrial broadcasting market, via (for example) limiting access and charging

86 Commission for Communications Regulation (2021), *Market Review Broadcasting Transmission Services in Ireland.* 26 February 2021.

excessive fees to manage perceived competitive threats in the downstream retail broadcasting markets
- the existence of barriers to market entry: for example, high entry costs, difficulty to replicate infrastructure, economies of scale and scope
- insufficient countervailing buying power, given the lack of credible alternative sources of supply.

In Market B ComReg determined that RTÉ has SMP, with the ability and incentive to act independently of competitors, customers and consumers. Key reasons include:

- a 100% share of the relevant market
- limited competitive constraints on RTÉ, with many legal / regulatory obstacles to market entry such as:
  - the lengthy process involved in acquiring a commercial DTT multiplex contract
  - coverage obligations of Irish terrestrial television broadcasters
  - potential switching costs for customers of RTÉ.
- RTÉ is vertically integrated and as such competes at the retail level with other broadcasters while also acting as a wholesale supplier to broadcasters
- unlikely that credible alternatives will emerge during the regulatory period
- insufficient countervailing buying power.

In respect to remedies, ComReg imposed obligations on 2rn in Market A and on RTÉ in Market B. Market A obligations consist of:

| | |
|---|---|
| *Transparency* | • Publish a Reference Offer and service level agreements (SLAs)<br>• Publish all SLAs (and any updates) on publicly available website, network characteristics, terms and conditions for supply and use, and prices. |
| *Non discrimination* | • Apply equivalent conditions in equivalent circumstances to broadcast operators. |

| | |
|---|---|
| *Access* | • Meet all reasonable requests from broadcast operators for the provision of access<br>• Grant broadcast operators access to a fully managed Broadcast Transmission Service including associated facilities. |
| *Price control and cost accounting* | • Provide access using cost oriented price control based on Historical Cost Accounting (HCA) and Fully Distributed Cost (FDC) methodology. |
| *Accounting separation* | • Maintain separate accounts and provide accounting records on request to ComReg which may be subject to publication. |

Requirements for Market B are very similar to those above for Market A. Note that the access obligation on RTÉ is simply to meet all reasonable requests from broadcasters for the provision of access.

## A.5 Norway

Norway was the first – and as at March 2022 the only – country to replace its national FM radio broadcasts with digital radio. After a year-long phased transition, the last of Norway's six regions switched off national FM services in December 2017. FM was still available from local radio stations, however the national broadcasters that dominate the market – state-owned NRK and the two commercial operators P4 Group (part of the Swedish media company MTG) and German-owned Bauer Media – now only deliver digital radio services. Almost all stations are using the DAB+ standard.

Emergency broadcasts are also delivered over DAB radio, via the NRK P1 channel.

The transition was largely driven by industry, for economic reasons. Maintaining extensive dual transmission coverage across a country with challenging geography and many remote settlements is expensive. In its 2011 report on the digitisation of radio[87] the Ministry of

87 Kultur- og likestillingsdepartementet (2011), *Digitalisering av radiomediet*, report to the Storting. Available at https://www.regjeringen.no/no/dokumenter/meld-st-8-20102011/id632619/.

Culture identified that the ageing FM transmission network, owned by Telenor subsidiary Norkring, would require substantial upgrade and maintenance – costs that would ultimately be borne by the broadcasters.

There was considerable opposition to the FM switch-off. In a December 2017 survey[88], 56% of respondents were unhappy with the switch to DAB, with just 31% satisfied by the transition. One of the opposition political parties, Senterpartiet, called for the re-introduction of FM services. Audiences declined to record low levels. Broadcasters were also losing listeners to cross-border radio, mostly Swedish FM stations, which reach around half the Norwegian population.

By 2018 radio audiences appeared to have stabilised, with just under 50% of the population listening to radio (including local radio and DAB radio) on an average day. DAB radio is accessed by just under 40% of the population (Exhibit A.7).

88 Dagbladet (2017), *Folkets knusende dom: En av to er misfornøyd med DAB*, 12 December 2017. Available at https://www.dagbladet.no/kultur/folkets-knusende-dom-en-av-to-er-misfornoyd-med-dab/69078453.

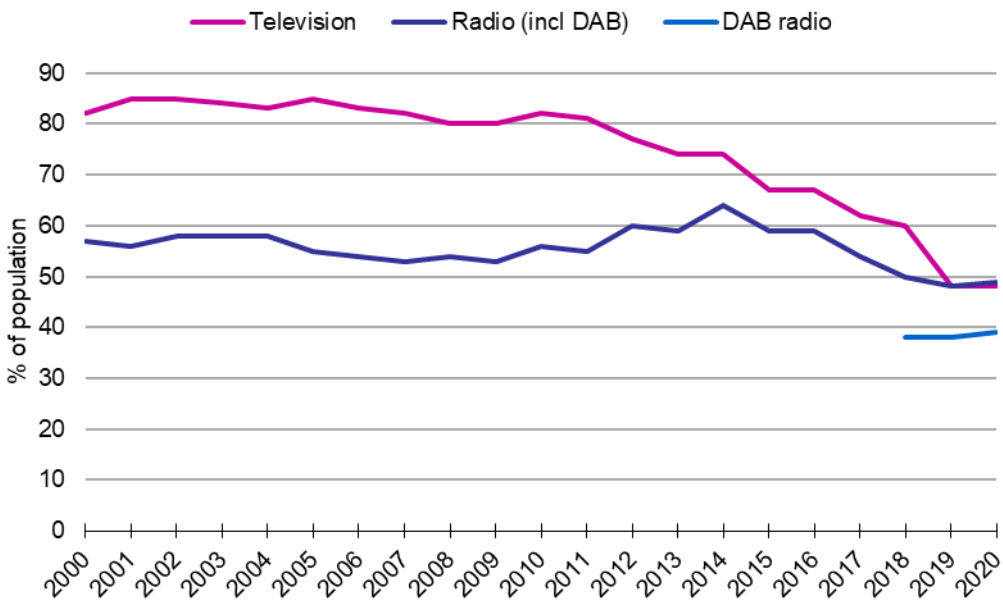


***Exhibit A.7:*** *Proportion of the population (aged 9-79) accessing medium on an average day, Norway, 2000 to 2020 [Source: Statistics Norway]*

Norwegians also spend less time listening to the radio. This has declined from a peak of 100 minutes on an average day in 2014 to a record low of 65 minutes in 2019 (Exhibit A.8).

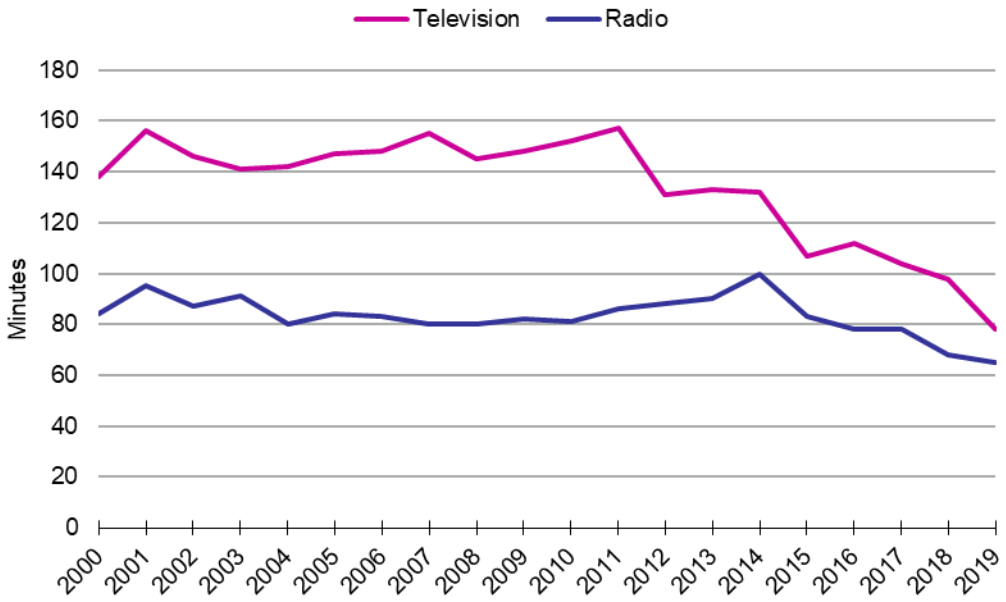


***Exhibit A.8:*** *Minutes of use on an average day, Norway, 2000 to 2019 [Source: Statistics Norway]*

In 2021 the new coalition government pledged that local radio would remain on FM until 2031.[89] Local radio FM licences were due to expire in 2022, but had already been extended to 2026.

## A.6 Portugal

The Portuguese regulator, Autoridade Nacional de Comunicaçoes (ANACOM), notified the European Commission in 2015[90] that it proposed to define a relevant wholesale product market for the provision of DTT as the market of terrestrial digital broadcasts of free-to-air television channels, including the supplementary service of DTH (satellite) coverage for

89 Radionytt.no (2021), *FM will continue to exist in Norway*, 26 October 2021. Available at http://www.radionytt.no/eng2108.php.

90 European Commission (2015), *Commission Decision concerning Case PT/2015/1817: Wholesale broadcasting market for the delivery of broadcast content to endusers in Portugal*, 17 December 2015.

remote areas without digital terrestrial coverage. It considered that *ex ante* regulation was appropriate for this market, on the basis of:

- the existence of a sole network provider, MEO, with 100% market share
- significant barriers to entry with high sunk costs to duplicate the network
- lack of potential new market entry
- lack of countervailing buyer power[91].

The European Commission expressed serious doubts as to the appropriateness of ANACOM's conclusions. The key reasons for this were:

- ANACOM had not considered the extent to which MEO is constrained in its ability to act independently by competitive pressure from alternative broadcasting platforms providing pay-TV television services
- MEO's licence to operate the DTT multiplex (Mux-A), included constraints as to its ability to set prices freely
- ANACOM did not receive any complaints or disputes during MEO negotiations for commercial agreements with broadcasters
- ANACOM had previously found that prices currently charged by MEO were not excessive but cost-oriented.

In the light of this feedback ANACOM subsequently abandoned its proposal to declare MEO dominant in the relevant market[92].

## A.7 Sweden

In Sweden, the state-owned company Teracom is the provider of wholesale broadcasting transmission services for free-to-air terrestrial television and radio broadcasting. In a 2019

91 Autoridade Nacional de Comunicaçoes (2015), *Mercado grossista de teledifusao para a entrega de conteudoa a utilzadores finais*, 2015.

92 Autoridade Nacional de Comunicaçoes (2016), *Decision on the expiry of regulatory obligations imposed on MEO, in the context of the wholesale market of television broadcasting services over analogue terrestrial networks*, 3 March 2016.

market analysis, the Swedish regulator, Post-och telestyrelsen (PTS), found that there is no effective competition in the wholesale broadcasting markets, defined as:

- wholesale market for national broadcasting transmission of free-to-air TV via the terrestrial network
- wholesale market for national analogue radio broadcasting via the terrestrial network.

PTS concluded that there are significant barriers to entry in these markets. In relation to the market for free-to-air television broadcasting:

> Free TV is only provided via the terrestrial network, the broadcaster purchasing Teracom's broadcasting service. [Public broadcaster] SVT's broadcasting licence requires a terrestrial network that provides coverage for 99.8% of Sweden's population. Teracom owns and operates the terrestrial network, which covers almost all of Sweden. A network of a scope similar to Teracom's is difficult to replicate, namely because of the significant investment costs, difficulties in obtaining building permits and the fact that the direction of current receiver antennas would need to be adjusted.[93]

PTS found a similar situation in relation to the wholesale radio broadcasting market:

> …there are significant barriers to entry in the wholesale market for national analogue broadcasting radio. [Public broadcaster] SR's broadcasting licence requires a terrestrial network that provides coverage for 99.8% of Sweden's population. Teracom's terrestrial network meets these requirements. The most obvious obstacles to an operator considering the establishment of a parallel nationwide terrestrial network are the significant investment costs, presumed difficulties in obtaining building permits, and extensive reprogramming and international re-coordination of frequency resources.[94]

PTS noted that conditions imposed by the Swedish broadcasting licensing system entrenched Teracom's monopoly. Public free-to-air television and radio broadcasters are required to

93 European Commission (2019), *Commission Decision concerning Case SE/2019/2178: Wholesale market for national broadcasting transmission of free-to-air TV via the terrestrial network in Sweden and Wholesale market for national analogue radio broadcasting via the terrestrial network in Sweden*, 28 June 2019.

94 *Ibid*.

cover 99.8% of the residential population, while commercial radio broadcasters are required to cover 70% of the residential population. Only the Teracom network provides this level of coverage. While there are no similar coverage obligations for commercial free-to-air television broadcasters, PTS considered that it would be impractical for them to substitute other platforms for the Teracom network as this would likely result in a considerable loss of audience and thus also advertising revenue.

PTS declared Teracom to have SMP in the two wholesale broadcasting markets, based on the following criteria:

- 100% market share
- absence of potential competition
- low degree of countervailing buyer power
- economies of scale and scope that lead to high barriers to entry
- for free-to-air TV, possibility to leverage its position in order to gain competitive advantage on other markets.

Regulatory remedies imposed on Teracom include:

| | |
|---|---|
| *Wholesale market for national broadcasting transmission of free-to-air TV via the terrestrial network* | • Obligation to provide wholesale access for distribution of free-to-air TV, with the product to include:<br>– connection to Teracom's network via a central point in Teracom's network infrastructure<br>– multiplexing<br>– transmission via radio link, fibre and/or relay supply to relevant transmission stations and broadcasting<br>– breakdown of the transmissions into regional programmes if requested by the customer.<br>• Cost-oriented pricing based on a fully distributed cost (FDC) model with historical (actual) costs and a weighted cost of capital (WACC) of 6.4%.<br>• Accounting separation. |

| | |
|---|---|
| *Wholesale market for national analogue radio broadcasting via the terrestrial network* | • Obligation to provide a wholesale product in order to distribute national analogue radio<br>– connection to Teracom's network via a central point in Teracom's network infrastructure<br>– transmission via radio link, fibre and/or relay supply to relevant transmission stations and broadcasting<br>– breakdown of the transmissions into regional programmes if requested by the customer.<br>• Cost-oriented pricing based on an FDC model at historical (actual) costs and a weighted cost of capital (WACC) of 6.4%.<br>• Accounting separation. |

Unlike Norway, Sweden currently has no plans to transition from FM to DAB – as at March 2022 around 42% of the Swedish population are within DAB coverage.[95] In its 2015 report on digital radio[96] the Swedish National Audit Office (NAO) identified numerous risks associated with a proposed switch to DAB, including inadequate investigation of technical options and future industry trends, lack of demand by users and weaknesses in the technical assessment of the proposed transition. Furthermore the NAO's investigation showed the transition was unlikely to have a positive economic benefit, even in the long-term, due to the costs that would be borne by consumers. As a result of these findings, in 2015 the Swedish Government rejected the proposal to switch to DAB.

The Swedish broadcasting regulator, MPRT, is currently undertaking a review of commercial radio, which will include an analysis of the digital radio market in Sweden and the market's development in Europe. This review is scheduled for completion by the end of 2022.

95 WorldDAB (2022), *Sweden*, accessed 30 March 2022. Available at https://www.worlddab.org/countries/sweden.

96 Swedish National Audit Office (2015), *Major risks in transfer to digital radio*, RiR 2015:5, 22 April 2015. Available at https://www.riksrevisionen.se/en/audit-reports/audit-reports/2015/major-risks-in-transfer-to-digital-radio.html.

## A.8 Switzerland

The Swiss public broadcaster, SRG, shut down its DTT network following Government provisions included in a new licence[97], effective on 1 January 2019. The main drivers for this decision were the relatively low customer base (less than 2% of households in 2018) and the need to cut costs. In addition, Switzerland is well served with other platforms, including cable, satellite and IPTV.

Prior to the shutdown a number of studies were conducted to consider public broadcasting policy in the light of changing consumer preferences, particularly the use of the Internet by young people. These studies examined the role and funding of SRG in the evolving media landscape, as well as private local and regional radio and television broadcasters.[98] As local content and accessibility was a priority for Government, SRG now offers a streaming digital platform, Play Suisse, which it touts as both offering barrier-free access to Swiss programmes in all Swiss languages, and meeting the media consumption preferences of its audiences[99].

A market study[100] reported that in 2021:

- 192 online video services were produced by 127 providers in Switzerland with traditional media (TV, radio or print) comprising 62% of the total online video market
- 58% of Swiss online TV/video content was streamed via the Internet
- 78% of Swiss Internet users subscribe to at least one pay-TV or video streaming service
- 50% of all Internet users have a subscription to Netflix, Amazon Prime Video and other OTT services
- 59% of Swiss Internet users listened to radio/audio content via the Internet.

97 Schweizerishe Eidgenossenshaft (2018), *Konzession für die SRG SSR (SRG-Konzession)*, 29 August 2018.

98 See, for example, Schweizerishe Eidgenossenshaft (2016), *Rapport d'analyse de la définition et des prestations du service public de la SSR compte tenu de la position et de la fonction des médias électroniques privés*, 17 June 2016.

99 https://www.srgssr.ch/en/news-media/dossiers/play-suisse.

100 Bundesamt für Kommunikation (2021), *Online media monitoring, online audio and video services in Switzerland*, 2021.

## A.9 United Kingdom

As the result of a review in 2005, Ofcom found that two players in the broadcasting transmission market, Crown Castle and ntl:broadcast, had significant market power. Ofcom imposed certain regulatory obligations[101] on those two companies, namely:

- provide network access to their respective masts and sites on reasonable request
- do not unduly discriminate in providing network access
- provide network access to their respective masts and sites on cost-orientated terms
- requirement to publish a reference offer for that provision of network access.

Just two years later, a series of mergers and acquisitions resulted in just a single player in the broadcasting transmission market. Macquarie UK Broadcast Ventures Ltd ('Macquarie'), a subsidiary of Macquarie Bank, acquired ntl:broadcast, rebranding as Arqiva. Crown Castle was acquired by National Grid Transco and was renamed National Grid Wireless (NGW). Then in April 2007 Macquarie acquired NGW. The Competition Commission approved the acquisition, despite recognising that there would be a significant lessening of competition – the two companies were the only integrated terrestrial broadcasting companies in the United Kingdom – subject to a package of undertakings[102].

In a 2016 market review Ofcom noted that these merger undertakings incorporated the regulatory obligations that had been imposed as part of its earlier review. Ofcom found that *ex ante* regulation was no longer appropriate, as the merger undertakings and competition laws were deemed to be sufficient to address any market failures, even with Arqiva's strong market position.[103]

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101 Ofcom (2005), *Broadcasting Transmission Services: a review of the market*, final statement, 25 April 2005. Available at https://www.ofcom.org.uk/__data/assets/pdf_file/0022/53860/mastsites.pdf.

102 Competition Commission (2008), *Undertakings to the Competition Commission by Macquarie UK Broadcast Holdings Limited, Macquarie MCG International Limited, Macquarie European Infrastructure Fund II, Macquarie European Infrastructure Fund III and Macquarie Capital Funds (Europe) Limited*, 1 September 2008. Non confidential version available at https://webarchive.nationalarchives.gov.uk/ukgwa/20140402195729/http://www.oft.gov.uk/OFTwork/mergers/register/final-undertakings/Macquarie.

103 Ofcom (2016), *Broadcasting Transmission Services: a review of the market*, final statement, 10 November 2016. Available at https://www.ofcom.org.uk/consultations-and-statements/category-1/broadcasting-transmission-services.

It should also be noted that Ofcom found that at the wholesale level there were two separate markets for broadcasting transmission services: the provision of network access for digital terrestrial television broadcasters and the provision of network access for analogue and digital radio broadcasters.

# Annex B: Transmission fee waiver beneficiaries

The Ministry of Culture and Heritage lists the following organisations as beneficiaries of the transmission fee waiver scheme in 2020. Under the first round of this initiative MCH paid the costs of six months of transmission fees payable to Kordia (television and FM), RNZ (AM) and for iwi radio stations. The initiative was subsequently extended to broadcasters using other transmission providers, again for a period of six months. It should be noted that some of the organisations may have been eligible for relief from more than one source.

- Access Community Radio Auckland (Planet FM)
- Access Radio Taranaki
- Al Jazeera
- Allied Press
- APNA Networks (Radio APNA)
- APNA Television
- Ara Institute of Canterbury
- Arrow FM
- Auckland Radio Trust (BBC World Service)
- Base FM
- Big River FM
- Brian FM
- Campus Radio BFM
- Canterbury Communications Trust
- Central Lakes Media (Radio Wanaka)
- Central Media Group
- Chinese Voice Broadcasting
- Choice TV
- Cruise FM

- Firstlight Charitable Trust
- Great Lake Taupo Radio
- Humm FM
- Kapiti's Beach FM
- Kia Ora FM
- Lets Play Live Media
- Mainland Television
- Māori Television
- Media Asia Pacific
- MediaWorks
- Monarch Broadcasting
- National Pacific Radio Trust
- Niu FM
- Noise Productions
- North Canterbury Radio Trust
- NZ Racing Board
- NZC Media
- NZME
- Otago Access Radio
- Otago University Students Assn
- Perryscope Productions
- Pulzar FM
- Racing Industry Transition Agency
- Radio Bay of Plenty
- Radio Central
- Radio Coromandel
- Radio Kidnappers
- Radio New Zealand
- Radio Ngati Porou
- Radio Samoa
- Radio Tarana
- Rhema Media
- Samoa Multimedia Group
- Seventh-Day Adventist Church (NZ)
- Sky Network Television

- South Ruapehu FM
- Southland Community Broadcasters
- Station Media
- Taranaki FM
- Tasman Broadcasting Trust (Fresh FM)
- Te Irirangi o Te Hiku o Te Ika (Te Hiku Media)
- Te Korimako o Taranaki
- Te Reo Irirangi o Ngāti Hine (Ngāti Hine FM)
- Te Reo Irirangi o Ngāti Raukawa (Raukawa FM)
- Te Reo Irirangi o Pare Hauraki (Nga Iwi FM)
- Te Reo Irirangi o Tainui (Radio Tainui)
- Te Reo Irirangi o Te Manuka Tutahi (Tumeke FM)
- Te Reo Irirangi o Whanganui (AWA FM)
- Te Reo o Ngati Kahungunu (Radio Kahungunu)
- Te Rūnanga o Ngāi Tahu (TahuFM)
- Te Rūnanga o Ngāti Whātua
- Te Upoko o Te Ika (1161 AM)
- Te Whare Awhina O Te Iwi Community Trust (Tautoko Radio)
- Television New Zealand
- Telstra Broadcast Services
- Top TV
- Tuwharetoa FM
- TVSN
- Uma Broadcasting (Radio Waatea)
- Waikato Community Broadcasting (Free FM)
- Wellington 105.3 FM
- Wellington Access Radio
- Whakaatu Whanaunga Trust (The Bridge 91.7FM)
- World TV

# Annex C: Organisations consulted in study

Australian Competition and Consumer Commission
Discovery
Free TV Australia
Johnston Dick and Associates
Kordia
Māori Television
Mediaworks
New Zealand Media and Entertainment
Radio Broadcasters Association
Radio New Zealand
Rhema Media
Sky Network Television Limited
Television New Zealand
Other industry participants