Recommendations for telecommunications regulation in New Zealand

A report for the Commerce Commission

Richard Feasey

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Executive summary

1. This report discusses the history of telecommunications regulation in New Zealand against the backdrop of the development of telecommunications regulation elsewhere in the world, particularly the United Kingdom, Europe and the United States, over the past 20-30 years.

2. In Chapter 1 I explain that regulation is required to address three distinct challenges in telecommunications which can interact and overlap. The first challenge arose from the privatisation of telecommunications companies that had previously been operated in the public interest. Companies like Telecom New Zealand enjoyed a monopoly position which would enable them to exploit their customers unless regulation prevents them from doing so. Moreover, their market power, along with other features of telecommunications markets, made entry into the market for fixed telecommunications by new competitors difficult and vulnerable to efforts to exclude them. In this report I refer to the regulation that is intended to address these concerns as economic regulation.

3. The second challenge is that policymakers and citizens have expectations about the provision of telecommunications services which date back from the time when companies were in public ownership but which private companies in competitive markets would be unlikely to fulfil. One such expectation is that prices for fixed telecommunications services provided by the same company should generally be the same for everyone regardless of where they live (so-called consistent geographic pricing) rather than reflecting the differences that exist in the costs of supplying telecommunications services at different locations. Another is that everyone should be able to access a telecommunications service sufficient to enable them to participate in society, which requires firms to make available services at prices which users can afford but which may not cover the cost of providing them. Without regulation, firms operating in a competitive market would be highly unlikely to meet either of these expectations. A more recent and in my view very important aspect of what I describe as social regulation relates to expectations about the sort of technologies and technical capabilities which householders and businesses in higher cost to serve rural areas can expect to have access to in future.

4. The third challenge arises when consumers find it difficult to benefit fully from the choices presented to them by competitive markets. This may be because they find it difficult to compare the offers of different firms, difficult to evaluate certain aspects of the service, or they make poor decisions because firms exploit behavioural biases. None of these issues are unique to the telecommunications sector but they manifest themselves in different ways in different industries.

Economic regulation to promote more competition will not resolve and may in fact exacerbate them. In this report I refer to the regulation required to improve the position of consumers when they engage with providers of telecommunications services as consumer protection regulation.

5. The regulatory regime in New Zealand has tended to focus on economic regulation, initially on the promotion of competition to Telecom New Zealand until 2011 and thereafter on the protection of retail service providers (RSPs) and their end users who relied upon fibre services provided by Chorus. These functions were performed by Parts 2 and 6 of the 2001 Telecommunications Act ('the Act'), with the latter added in 2018. Social regulation has tended to be overseen by Ministers, using deeds which contain undertakings obtained from Telecom New Zealand and later Chorus and Spark. Consumer protection regulation was introduced in New Zealand in 2018 as part 7 of the Act.

6. I explain in Chapter 2 how after a period in the 1990s when there was an unsuccessful experiment in relying only upon the Commerce Act and the courts to regulate telecommunications, Part 2 of the Act was used by the Commission between 2001 and 2011 to promote competition in fixed telecommunications markets in much the same way as similar access regimes were used in the United Kingdom, Europe and, briefly, the United States. There were successes but also challenges, particularly in New Zealand when using the Part 2 regime to set access prices, and in every country in preventing a vertically integrated network monopolist from engaging in other forms of exclusionary conduct.

7. In my view the most significant development in New Zealand telecommunications history was the decision in 2011 to award Government contracts to firms that would deploy fibre networks but would not be allowed to retail fibre services to end users. This was a decision to abandon the efforts to promote competition of the previous decade and instead introduce a new set of fibre network monopolies into the market (whilst still allowing competition between retailer service providers or RSPs). It also removed the need for the Commission to worry about exclusionary conduct by vertically integrated firms since Telecom New Zealand was no longer allowed to own such retailers if it wished to contract with the Government to build a fibre network. The effect of this decision was therefore to substantially simplify economic regulation by removing concerns about discriminatory or exclusionary conduct and by moving to a network monopoly pricing model under which the Commission sets prices by reference to a Regulated Asset Base (RAB) rather than relying upon international benchmarks or more complex cost models.

8. The Government's 2011 decision set New Zealand on a different regulatory path to that of the United Kingdom, Europe or the United States, a path on which it remains today and will influence what happens in the future. The United Kingdom and Europe have continued to promote

competition in the provision of networks but have taken a different approach to fibre than they took to copper. This reflects a realisation that new entrants seeking to provide new fibre networks in competition with the owner of the copper network are at less of a disadvantage than if they were to try to replicate the copper network and may deploy fibre more quickly since they are not concerned with first recovering investments in existing copper assets. Economic regulation in Europe has therefore focussed on applying the same access regime to different assets, in this case the ducts, poles and other civil engineering infrastructure which represent the main barrier to entry in fibre network markets. The United States has instead been able to withdraw from economic regulation and rely instead upon the extensive cable or Hybrid Fibre Coax (HFC) networks which exist in that country and whose operators have been able to use DOCSIS[1] technology to deliver ultrafast broadband services in competition with the Bell companies.

9. The UFB programme which followed was successful in terms of deploying fibre to almost 85% of New Zealand households by 2022 but now leaves the Government and the Commission with a series of challenges so far as the future is concerned. I regard the most significant of these as being the question of whether and if so how far fibre networks should extend to households and businesses in rural New Zealand.

10. In Europe and the United States competition between network operators would go some way towards providing the answer, with public subsidies being left to address the rest. In New Zealand Chorus does not appear to be under the same or likely any competitive pressure to expand its fibre network, notwithstanding it has said it intends to make fibre services available to 95% of the population[2]. This means that regulation, or public subsidy, or a combination of two rather than competition, will determine whether and how quickly and how extensively fibre is deployed in rural areas.

11. The most important recommendation in this report is that the Government needs to decide, as a matter of some urgency, how much fibre network expansion they want to see. That is because the answer to this question will inform the answers to various other questions, including whether the Government and Commission should allow Chorus to differentiate its pricing for fibre services in different geographic areas, whether the existing anchor pricing arrangements under Part 6 of the

[1] Data Over Cable Service Interface Specification – a standard which allows the high speed transfer of data over existing cable television networks, thereby allowing cable operators to provide ultrafast broadband services
[2] In this report I refer only to Chorus because I consider it the only company likely to be willing and able to deploy fibre extensively throughout rural New Zealand. I recognise that in theory the Government could conduct a tender which might allow another firm rather than Chorus to build an extensive rural fibre network but I think this highly unlikely. I also recognise that some WISPs are deploying fibre networks in communities which they already serve using fixed wireless, but my understanding is that these are not expected to be very extensive.

Act are sufficient to replace the TSO obligation once it is withdrawn and the copper network no longer exists to fulfil it and what other measures, particularly in relation to 5G cellular fixed wireless networks, are required to address the needs of those households who will remain outside the scope of the fibre footprint.

12. I discuss each of these questions in Chapter 2. The issue of fibre network deployment in rural areas is important for social regulation or inclusion reasons if the Government concludes that rural households and business ought to have access to the same broadband services as are available in urban areas. But it is also important for economic regulation or competition reasons, because I think there is otherwise a material risk that Starlink would win the competition 'for the market' and become the dominant if not monopoly supplier of broadband services in rural areas. If this situation were to arise then I think it would be very difficult for the Commission to regulate Starlink or otherwise to ensure competition in the provision of rural broadband services.

13. If the Government were to accept this assessment then I think it has several options. One is to undertake a new UFB-type competitive procurement process for a fibre network in rural areas or to agree to provide public funds to Chorus in return for a commitment to extend fibre as it has said it will do. Alternatively, or in addition to providing public funding, the Government should consider allowing Chorus to proceed with copper decommissioning before 2030 in return for, and to the extent that, Chorus offer commitments to deploy fibre networks in rural areas on a commercial basis. I do not know what Chorus might be prepared to commit to in such circumstances but the intention is to introduce an incentive for Chorus, which I consider it otherwise does not have, to accelerate fibre deployment where it is commercially viable. This would reveal the commercial opportunity for rural fibre networks in New Zealand and the scale of any residual public funding requirement.

14. Chorus' capacity to expand its fibre network to rural areas on a commercial basis will depend upon how the Commission approaches requests for expansion capex under the Price/Quality or PQ regime and how the Government thinks about consistent geographic pricing obligations. As I explained in my earlier fibre report and in Chapter 2 of this report, if Chorus is required to maintain consistent geographic pricing then prices of urban fibre services will need to rise from present levels as the scope of the network extends into ever higher cost to deploy rural areas. At some point Chorus would determine that a limit has been reached, and this will determine the extent of the fibre network unless the Government wishes to contribute additional subsidies. On the other hand, the Government may decide that rural households should be expected to pay higher prices than urban households, or different groups of households should pay different

prices. These decisions will determine what Chorus will build with its own commercial resources and what, therefore, is left to be addressed by other means or by other technologies.

15. Before the copper network can be decommissioned Chorus will need to be relieved of its existing TSO obligations under its TSO deed and Part 3 of the Act. I discuss this aspect of social regulation in Chapter 4. If Chorus is expected to deploy fibre to a substantial part of the rural population then I recommend that the existing anchor service arrangements under Part 6 of the Act are relied upon to ensure that those households have access to an affordable fibre service. Other arrangements can be used to address the needs of the remaining 5% or so who do not have access to a fibre anchor service. If, instead, the Government does not envisage extensive fibre deployment in rural areas, or fibre will only be deployed long after the copper network has been decommissioned, then the fibre anchor service will be of more limited relevance and the arrangements I propose for the last 5% or so would need to be extended. I would also extend the copper withdrawal code under Section 2A of the Act to apply to copper decommissioning in rural areas because I think the risks of disruption during the process are, if anything, higher in rural areas than in urban areas.

16. If the Government concludes that it does not wish to pursue fibre deployment in rural areas or if, having done so, there still remain areas that will not be served by fibre networks, then I think the only other option to ensure competition for Starlink (other than hoping that Amazon's Kuiper service, about which I consider there is still considerable uncertainty, becomes an effective competitor) would be 5G cellular fixed wireless. That is in part because I do not expect that the Wireless Internet Service Providers (WISPs) that currently provide non-cellular fixed wireless services in rural areas to represent significant competitors in the future.

17. Some households in rural areas are already served by cellular fixed wireless operators, as the Government's Rural Broadband Initiative (RBI) programme intended them to be. However, cellular fixed wireless services command a comparatively low collective market share in rural areas, including in remote rural areas where copper services are not available. One reason for this may be that the fixed wireless operators charge higher prices for their services in at least some rural areas than they do in urban areas, whereas copper services prices are geographically consistent. Another reason may be that the cellular networks face capacity constraints in some locations, something which prompted the Government to introduce the Rural Capacity Upgrades Scheme in 2020. However, I think the main reason is that the RBI programme is now almost 15 years old and the technologies it relied upon – 3G and VDSL copper – are no longer competitive or particularly relevant for most households. Although the cellular operators have upgraded their rural networks to 4G in the meantime this is not a technology that will be capable of or is

designed to compete with technologies such as that developed by Starlink. In my view the cellular networks will need to be upgraded to at least 5G (non-standalone) technology for cellular fixed wireless to remain a relevant competitor in the provision of fixed broadband services in rural areas in the future.

18. I therefore recommend the Government consider how the provision of 5G (non-standalone) cellular fixed wireless services in rural areas might be supported. This would ensure terrestrial competition for Starlink (albeit, on the evidence from urban areas, less effective than that provided by fibre networks) and would contribute towards social regulation objectives to more closely align broadband services in rural areas with those in urban areas. It would also have other benefits for rural end users, including improving access to 5G mobile services and, if also deployed in areas which will eventually be served by fibre, allowing households that are faced with losing their copper connection to have better cellular fixed wireless options in the meantime.

19. That said, I recognise that the previous RBI programme had mixed results and there is no assurance that a Government-supported rural 5G infrastructure would be competitive with Starlink. Assuming the Government has neither the inclination nor funds to support both rural fibre deployment and rural 5G cellular fixed wireless, I think it faces a difficult choice as to which to choose. I recommend more work is undertaken by the Government (or the Commission), as a matter of urgency, to inform this choice.

20. Social regulation will be required to protect households in rural areas which do not have access to a regulated fibre anchor service. Experience from the application of Telecommunications Service Obligation or TSO regulation in New Zealand and universal service regulation elsewhere in the world shows that expectations about what is required and what is affordable change over time. I therefore recommend an approach in Chapter 3 which is intended to be more dynamic and flexible than the current approach.

21. I identify two options. One is to expand the Remote Users Scheme, likely through expanded Telecommunications Development Levy (TDL) funding. This would appear relatively straightforward to do and may be sufficient if the number of households likely to require support can be easily identified and is comparatively small. However, experience elsewhere of user subsidy schemes is mixed, to say the least. An alternative, which requires further elaboration before any decision is made, would be to conduct a reverse auction (with the Government paying the lowest price) of an obligation to supply broadband services of a specified kind at a specified price to any household requesting them in a specified geographic area. I would expect some if not all of the fixed cellular network operators to bid in such an auction (perhaps having first received some financial support from the Government to deploy 5G in rural areas). Rather than then retain

the same arrangements for 20 years, as occurred with the TSO, I would recommend this obligation is retendered every 5-10 years. One reason for this is that I would expect the geographic scope of the obligation to change as the fibre network expands, since the fibre anchor service regime would replace the fixed wireless arrangements once fibre becomes available in an area.

22. In Chapter 3 I consider the regulation of mobile markets, recognising that the distinction between mobile and fixed networks and services is not clear cut. The Government has not taken a decision on the structure of mobile telecommunications markets as it did in 2011 when redefining the way fixed telecommunications services would be provided in New Zealand. As a result, the structure of mobile markets and the regulatory approach taken over the past 20-30 years is similar to other countries, including Europe and the United States.

23. The Commission's main preoccupation when regulating in mobile telecommunications markets during this period has been to ensure and sustain the entry of 2degrees as a third operator by using the Part 2 access regime to address barriers to entry or exclusionary conduct in the markets for the provision of national roaming, co-location and mobile terminating access services. This appears to have been successful and 2degrees now appears to operate on a sustainable commercial footing. Since I do not consider that further entry by another vertically integrated mobile operator is feasible or likely, I recommend that the three mobile markets listed above should be deregulated and all access obligations withdrawn.[3]

24. The Commission's expectations in its 2019 Mobile Market Study about the commercial opportunity for and the competitive constraint offered by Mobile Virtual Network Operators or MVNOs do not appear to have been realised, at least to date. I am untroubled by this and do not recommend that the Commission considers actions to promote competition from MVNOs, particularly when regulators elsewhere in the world are not doing so.

25. I also discuss the role of spectrum policy or regulation in Chapter 3. The Government has consulted in the past on whether the technical, economic and social regulation aspects of spectrum licensing should remain separate or be consolidated under a single authority as they often are in other countries. There are also questions in my mind about the practical utility of the distinction between management rights and spectrum licences which is adopted in the Radiocommunications Act in New Zealand but not in other countries.

[3] I recognise that Cellular Telephone Number Portability is also currently a designated multinetwork service under Schedule 1 of the Act and so subject to the Part 2 regime but I do not recommend that number portability services are withdrawn – see paragraph 149

26. I consider that the New Zealand Government has in the past used coverage obligations, which I regard as a form of social regulation that is intended to ensure that rural residents obtain access to the same mobile services as their urban counterparts, in a relatively restrained manner. In my experience it is no easier to enforce coverage obligations through spectrum licences than to do so using other measures, since the threat of revoking the spectrum licence is not a credible one. I am also opposed to attempts to apply economic regulation, such as imposing obligations to provide network access to MVNOs, through conditions in spectrum licences, as has been done in Europe. I therefore favour the current demarcation of functions between technical, economic and social regulation in the New Zealand spectrum regime and consider they work better than many I have seen in Europe. That said, I recognise that the Commission must have a role in advising on the competitive implications of auction design or assignment decisions. I do not have strong opinions on how this should be done.

27. If the Part 2 access obligations for mobile services are to be withdrawn, as I recommend, and the Part 2 access obligations for copper services will end with the deregulation and subsequent decommissioning of the copper network, then I think it might reasonably be asked whether the Part 2 access regime should not be repealed altogether. This would leave only the Part 6 regime to regulate fibre networks, about which I make a number of recommendations in Chapter 2 (and in the fibre report) that are intended to simplify the way in which it is applied and ensure that it is extended to apply to the other Local Fibre Companies or LFCs as well as to Chorus.

28. My view is that the existing Part 2 regime is not fit for purpose, in part because Schedule 1 refers to technologies which will not exist in future, in part because I regard to two stage pricing principle approach as unnecessary and cumbersome, in part because I also regard the distinction between designated and specified services as being unnecessary, and in part because the regime does not contain an analytical filter to allow the Commission to decide what and who to regulate. This means the regime is inflexible and lacks analytical rigor. This is reflected in the fact that many regulated prices have been set by the Commission and then left unchanged or indexed to inflation for many years thereafter.

29. I try to show in this report how experience of telecommunications regulation over the past 20-30 year reveals that markets and technologies are always evolving and that regulators need flexible tools which they can apply to new circumstances as and when they arrive. In Chapter 2 I describe what I consider to be plausible future scenarios which could require the application of economic regulation akin to Part 2, such as an ability to introduce regulated access to Chorus' civil engineering assets to encourage Chorus to accelerate the deployment of its own fibre, an ability to regulate the terms on which TowerCos allow access to their facilities or the ability to regulate new

kinds of cellular network sharing arrangements or ensure access for MVNOs. My point is not that any of these are actions which the Commission should take today (assuming it could) but rather than a modern and adaptable telecommunications regulatory framework should be capable of addressing these kinds of issues (and many more) as and when they arise.

30. I therefore recommend that the Government and Commission take the opportunity now to replace the existing Part 2 regime with a more modern, rigorous and flexible access regime. In my opinion the economic regulation framework adopted by the European Commission in 2002 and applied ever since is the best model available. The reason for this is that it imports a robust analytical framework from competition law and economics, first by requiring the regulator to define relevant markets, then to identify firms within those markets that hold a position synonymous with dominance or, in Commerce Act terms, a substantial degree of market power and then to select appropriate remedies to address the conduct that is concerning, including not only exclusionary conduct (as Part 2 is currently limited to) but also exploitative conduct. In making this recommendation, I recognise that opponents may argue that the Commission would become unbounded in its regulatory powers and that the traditional restraints that have been employed in New Zealand telecommunications regulation, such as requirements to make recommendations for Ministers to approve or for changes to require the consent of the regulated firm, would be removed. In my view and experience the legal requirement to first prove that a firm has a substantial degree of market power is a better constraint than Ministerial oversight and whatever the merits of other restraints in the past in reassuring investors in Telecom New Zealand post-privatisation or investors in LFCs undertaking fibre network deployments, they serve little purpose today. Once the legal framework has been decided upon, I think economic regulation should be discharged by the Commission and not by Ministers or other elected politicians. However I recognise that the question of whether Commission decisions should then be subject to a merits review (rather than judicial review) in the courts would become a relevant issue to consider.

31. Social regulation is, in contrast, a matter that is best left to Ministers and elected politicians, with the role of the Commission being to apply regulations, such as by setting anchor service prices, approving network expansion plans or implementing reserve auctions for universal service obligations in remote rural areas, to achieve the objectives that Ministers have set. The ‘annual letter of expectations’ which Ministers send to the Commission or economic policy statements to which the Commission is required by the Act to have regard provide mechanisms for setting such objectives

32. I consider consumer protection regulation in Chapter 4. Compared to Europe and the United Kingdom, the Commission was relatively late in gaining powers under Part 7 of the Act to monitor and regulate the way in which telecommunications services providers deal with end users. This appears to have followed a realisation in the mid-2010s that self-regulation by the industry itself would not be sufficient, a conclusion which policymakers elsewhere in the world have also come to. I describe the actions the Commission has taken under Part 7 since 2018 in the chapter, all of which have also been pursued in other countries in one way or another. My key point is that consumer protection regulation is unlike economic regulation because firms in competitive markets ought to have incentives to treat their customers well, whereas firms with market power have no incentive (other than the risk of prosecution) to refrain from engaging in exclusionary conduct. This means that consumer protection measures are more susceptible to being developed in a collaborative or co-regulatory process than economic regulation measures. That has been the approach taken by the Commission since 2018, with some measures being adopted by the industry without the Commission having to exercise its formal powers and others requiring it to intervene more formally.

33. However, this introduces a risk that the burden of consumer protection regulation will accumulate over time, with potentially adverse consequences in terms of entry barriers and restrictions on innovation and differentiation. I therefore recommend that the Commission periodically undertake a deregulation review of consumer protection measures, in the same way as the current regime requires it to do for economic regulation under Part 2 of the Act.

34. Towards the end of this report I consider a number of other issues which have not featured much in debates about telecommunications regulation in New Zealand or at least not to the same extent as in other countries. One such issue is the use of so-called consumer data rights to enable users to share details of their consumption patterns with third parties to help them obtain tariffs that are more suited to their needs, but also potentially to support the provision of other complementary services and benefits. I recommend against the Commission pursuing this, in part because implementation of consumer data rights in other sectors, notably retail banking, and in other countries has revealed high costs and technical challenges. I also note that the telecommunications industry has recently launched a number of network application programming interface or API-related initiatives which may, if successful, enable third parties to provide data-related services to customers of telecommunications networks without the need for regulatory intervention. I recommend the Commission monitor these developments, as other regulators around the world are doing.

35. I also discuss actions which regulators like Ofcom and the FCC are taking in tackling scams and other illegal or anti-social activities that are perpetrated using telecommunications messages and, increasingly, digital platforms. New Zealand has retained a self-regulatory approach to date, but I recommend that it be included within the scope of Part 7 of the Act to allow the Commission to intervene if the actions taken by the industry prove insufficient.

36. Another topical debate elsewhere in the world over the past 20 years, which I discuss in Chapter 5, concerns relations between telecommunications operators and global digital content platforms. One aspect of this, which started in the United States in the mid-2000s, is popularly referred to as net neutrality. New Zealand briefly considered this issue in the mid-2010s but the Government took no action. Europe adopted regulations which it is currently considering whether to reinterpret, if not remove, because of concerns about their impact on incentives to invest and innovate. The United States withdrew the regulations in 2017. Another debate initiated in Europe concerns proposals that regulators should intervene in peering arrangements between certain large global digital content platforms and European network operators to ensure that the former make a financial contribution to the costs of the latter. I consider the arguments in support of this proposal are not well founded and I expect the European Commission's forthcoming Digital Networks Act to instead propose that both sides agree to a code of responsible network usage, which I expect them readily to do. I do not recommend that the Government or Commission consider either of these matters any further. I come to the same conclusion in relation to the interoperability of digital messaging services, which is an issue that is currently being addressed in Europe and which I consider the Commission could address under my proposed Part 2 regime should it ever prove necessary to do so.

37. Finally, I observe that Governments and regulators elsewhere in the world are increasingly concerned about resilience and sustainability, with the former being a much more significant concern in relations to telecommunications networks and services than the latter at this point in time. I suggest resilience regulation has similar characteristics to consumer protection insofar as firms operating in competitive markets ought to have incentives to avoid disruption for their customers but that competitive markets are likely to under-supply resilience for similar reasons that operators can sometimes treat customers poorly. This suggests a similarly collaborative or co-regulatory approach is required, which regulators like Ofcom are already pursuing (but would also require the Commission to have powers to intervene in the absence of agreement). I also suggest that the costs of fulfilling resilience objectives are likely to be more substantial than any costs arising from consumer protection regulation and that there will be challenges when improving resilience conflicts with other regulatory aims, such as promoting competition. These are issues

which regulators (and operators) in many countries are approaching cautiously, but where I suspect a more urgent response will be demanded by politicians and the public in future.

38. I provide a summary of my recommendations in Chapter 6.

Contents

Introduction

39. This report has been commissioned by the Commerce Commission. I have been asked to assess the regulatory regime for telecommunications networks and services in New Zealand and consider what might be changed or improved. It follows a previous report which I wrote and which the Commission published which focussed more narrowly on the regulation of fibre services and networks under Part 6 of the Act ('the fibre report'[4]). The views in both reports are personal to me and do not reflect the views of any organisation with whom I am affiliated.

40. It is almost 25 years since a regulatory regime for telecommunications was introduced in New Zealand and in the next few years the last elements of the copper network which it was intended to regulate will be retired. The regime has evolved over the years, with the most significant changes being made in 2018 with the addition of Parts 6 and 7 of the Act. The original elements of the 2001 Act - parts 2, 3 and 4 - have been adjusted but not fundamentally revisited over that period. In this report I focus on Part 2, which currently regulates access to the copper network; Part 3, which governs the administration of the Telecommunications Services Obligations or TSO; and Parts 6 and 7, which respectively address the regulation of fibre networks and services and consumer protection matters. Part 4 contains provisions which grant various legal rights (as well as obligations) to firms without which they would not be able to operate or maintain telecommunications networks and is not addressed in this report.

41. I start in Chapter 1 by discussing why regulation has been required in the telecommunications sector and what might be learned from experience of its application over the past 20-30 years, both in New Zealand and elsewhere in the world. Chapters 2 and 3 discuss how regulation has been applied to fixed and mobile telecommunications networks and services in New Zealand and how it differs from other countries I am familiar with. In my view by far the most significant development in telecommunications in New Zealand since 1989 was the Government's decision in 2011 to award exclusive contracts to build and operate fibre networks in specified geographic areas and the consequent structural separation of Telecom New Zealand. This represented a radical departure both from the previous approach in New Zealand of promoting competition across the entire supply chain and from the approach to fibre networks that was taken in the United States or in Europe. Telecommunications regulation is highly path dependent, which is to say that decisions like the decision to pursue structural separation and monopoly rights will influence policy options today and will shape regulation far into the future. This is relevant to

[4] https://comcom.govt.nz/__data/assets/pdf_file/0026/366326/Feasey-NZ-fibre-regime-final-report-20-February-2025.pdf

some of the challenges which New Zealand faces today, including how to further expand fibre network availability in rural areas and what to do for the remaining households who will not have access to fibre technology.

42. When preparing this report, I have been aware that the Ministry for Regulation is currently undertaking a review of telecommunications regulation in New Zealand[5] I have not attempted to anticipate the outcome of that review and this report is not a response to it. I have assumed that the Government's overall objective will continue to be for the telecommunications markets to operate in the long term interests of end users of telecommunications services in New Zealand and I note that the Ministry's review will not address the Radiocommunications Act, the vertical separation of wholesale and retail fibre services or the TDL, all of which I do address in this report.

[5] Terms of reference are at https://www.regulation.govt.nz/assets/Publication-Documents/Terms-of-Reference-for-the-regulatory-review-of-the-telecommunications-sector.pdf

Chapter 1: The rationale for regulating telecommunications markets

43. Regulation, in many different forms, has been a ubiquitous feature of telecommunications markets around the world for the past 30 years. The aim of this chapter is to explain why that is so, what the experience of applying regulation shows, and what this implies for thinking about the future of telecommunications regulation in New Zealand.

Origins of regulation

44. My starting point is to consider regulation as being a response to the challenge of privatised monopoly. The first regulator of telecommunications markets was the Federal Communications Commission (FCC) in the United States (US), established by the Communications Act of 1934. The telecommunications industry in the United States had from the outset consisted of a series of privately owned companies like AT&T and legislators in Congress recognised that without regulatory constraints these privatised monopolies would be unlikely to pursue the long term interests of end users and would be more likely to instead pursue the interests of their own management and shareholders.

45. Regulation of telecommunications networks and services in Europe and most of the rest of the world followed almost half a century later because, prior to the 1980s, telecommunications services outside the United States were supplied not by private monopolies but by publicly owned companies. Public ownership was supposed to ensure that the company would act in the public interest under the direction of Ministers and would be relieved of any incentive or need to maximise profits. Telecom New Zealand was held in public ownership until it was privatised in 1990.

46. Starting in the United Kingdom with British Telecommunications (BT) in 1982, most publicly held telecommunications companies around the world have now been privatised. The aim of privatisation was to improve the performance of these firms by introducing commercial management practices and access to private capital. Publicly held firms in other industries, such as energy, transport and water, were privatised for similar reasons.

47. It was well understood that that absent regulation, privatised monopolies would charge exploitative or excessive prices and provide poor quality service to end users, including by underinvesting in their operations. They are also likely to under-invest in capital projects and in new and innovative technologies. The British or other Governments could have waited until there had been competition in telecommunications markets before privatising but they chose instead to privatise first and hope that competition would arrive afterwards without much delay. They relied

on independent regulators, starting with Oftel in the United Kingdom in 1984, to constrain the conduct of the privatised monopolies, normally by imposing price caps on retail prices and scrutinising investment plans and operating costs. This was described at the time as 'holding the fort' until competition arrived. The expectation was that regulation could be withdrawn once that happened.

Economic regulation

48. It was widely accepted in the United Kingdom and elsewhere in the 1980s that regulatory oversight of a privatised monopolist was a second-best option and that, where feasible, competition would serve as a much more effective discipline on firms and a better guarantor of the interests of end users. There are various reasons for this but the most compelling is simply that the threat of losing customers to a rival is a far more powerful incentive than any threat of regulatory sanctions or fines. Competition also gives end users choices and autonomy in a way which regulated markets, which require regulators to act on behalf of end users, do not. As the New Zealand Government explained in its 2015 review of telecommunications regulation (under the heading 'Why do we regulate'):

> 'Regulation is a means to an end. We aspire to an economy with open, competitive markets, but in some markets competition is limited. Competition keeps markets in check and protects consumers by ensuring that no individual business has the ability to dictate prices or terms. In a competitive market, if a business raises prices too high, provides poor quality products, or fails to innovate, then it will lose market share.'[6]

49. The threat of losing customers to rivals is particularly important in telecommunications where – unlike other utility sectors – there are frequent advances in technology. These underpin most of the efficiency gains and much of the innovation in the industry. The mobile telecommunications industry has undergone a succession of technology cycles over the past 30 years, each driving down unit costs by an order of magnitude[7] and enabling the transition from analogue to digital and from narrowband to broadband services. The fixed telecommunications industry has seen technology drive improvements in the performance of existing copper connections, again moving

[6] p. 15 at https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001

[7] For example, the unit cost of delivering a megabyte of data over the 4G technology which wireless carriers have been deploying in the 2010s is less than 1% of the unit cost to deliver the same volume over the 2G GPRS technologies of the 1990s, p.10 at https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/wp-content/uploads/2014/12/European_mobile_network_operator_mergers-A_regulatory_assessment-WEB_FINAL.pdf

from analogue to digital and narrowband to broadband, and, recently, their wholesale replacement by fibre.

50. These technology transitions have created opportunities for new entry. Entry into mobile markets has generally occurred during the transition from analogue to 2G networks in the 1990s or, later, from 2G to 3G in the 2000s. Entry into fixed markets occurred during the transition from analogue to digital in the 1980s and 1990s and, in Europe, from copper to fibre in the 2010s and 2020s. It also occurred as a result of HFC networks adopting DOCSIS technology which allowed operators of those networks to deliver broadband services for the first time. Absent entry, existing or incumbent network operators have little incentive to incur the costs of replacing their existing infrastructure before it has reached the end of its economic life. This creates opportunities for new entrants that have no such legacy issues and who can deploy a modern and superior technology from the outset and so offer better services[8].

Barriers to entry

51. Although technological advances create opportunities for entry, the last 20-30 years have revealed that telecommunications markets exhibit substantial barriers to entry on both the supply side and the demand side. As the Government explained in the same 2015 review cited earlier:

> 'In some types of markets, there is a high risk of one business gaining market power that allows it to give less and charge more. This is particularly true for markets with 'natural monopoly' characteristics such as telecommunications networks, electricity networks and water. These markets have very high barriers to entry – they require significant sunk investments, meaning that the first businesses to enter these markets may gain a first mover advantage, and there are significant economies of scale. Even where a small number of firms have entered the market, competition may still be limited. Competitors may initially rely on wholesale access to the incumbent's network to supply services to consumers.[9]

52. On the supply side, telecommunications networks, and particularly local access networks that provide individual connections to households, exhibit economies of density and scale. They have high fixed costs, a large proportion of which relate to the costs of digging trenches or installing poles over which cables can be deployed. Any entrant will therefore need to expect to acquire a

[8] As a result, there is strong empirical evidence that copper network operators facing competition from HFC networks have invested faster than equivalent operators that do not face competition, see . https://www.ofcom.org.uk/siteassets/resources/documents/consultations/7854-dcr-discussion/annexes/competition_and_investment_fixed.pdf?v=334456

[9] p. 15 at https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001

substantial share of market to support these fixed costs (and to do so in the face of significant demand side barriers to entry which I discuss further below). However, household density varies by geographic location within countries as well as between countries, and so the significance of economies of density and opportunities for entry vary a great deal within countries as well as between them.

53. Once incurred, network costs are sunk and irrecoverable, which adds to the risks investors take. Once assets are in the ground, exits from telecommunications markets generally involve the original set of investors booking a loss and a refinancing by a new set of owners. Investments in retail operations involve lower fixed costs and are less challenging than investments in networks, although still subject to some economies of scale. Retail entrants may benefit from economies of scope if they already have an established brand or customer base in an adjacent market to whom they can market telecommunications services as part of a bundle. Establishing a retailer of telecommunications services will also be quicker than deploying a network[10].

54. Recognising this, Governments and regulators in Europe, the United States and New Zealand initially sought to promote entry and competition in retail markets with lower entry barriers at the outset in the expectation or hope that riskier investments in networks would follow once firms had acquired scale and reduced the demand side risk. This meant the vertically integrated privatised monopoly was obliged to provide retailers with access to their copper network assets and services which the entrant could retail in competition with the network owner's own affiliated retail provider. Initially this involved the resale of telephony calls and dial up internet services, and later the resale of broadband services using Digital Subscriber Line technology, which I describe further in Chapter 2.

55. Demand side barriers to entry in telecommunications markets have been at least as significant in my experience as supply side barriers. Network effects were a barrier in the telephony era as any user acquired by an entrant would wish to call users that remained on the much larger incumbent network. In the absence of regulatory obligations to enable interoperability or interconnection between the respective networks, the privatised monopolist would withhold access, as AT&T had demonstrated in the United States in the early twentieth century[11]. Much of the regulatory activity in Europe in the 1980s and 1990s was focussed on ensuring that operators interconnected their

[10] I ignore another important barrier to entry in the 1980s and 1990s, which was retail prices inherited from the era of public ownership which bore no relationship to costs. The effect of this was that some groups of users, normally those making international and national long distance calls, would subsidise line rental and local call prices paid by others. This compounded the challenge of replicating local access networks.
[11] This is a reference to the Kingsbury Commitment of 1913, under which AT&T agreed to interconnect its long distance network with competing local telephony companies to settle an anti-trust case brought by the Department of Justice.

networks on terms which allowed them to compete effectively and allowed end users to benefit from the network effects inherent in telephony networks.

56. Switching costs were also significant. An early issue for regulators in the United Kingdom and elsewhere was the cost of changing telephone number when changing supplier. Regulations to oblige the incumbent operators to transfer or port the existing telephone number to a new supplier at the request of the end user were required to overcome this barrier. These 'multi network operator' services were introduced in New Zealand under the Act. Other barriers to switching have proven to be more subtle and more enduring, such as the difficulties users face in assessing differences in the quality of service or prices of different suppliers, the strength of incumbent brands and risk aversion amongst users who regard telecommunications as an essential service and fear any disruption of it.

Interaction between regulation and competition law

57. Both Europe and New Zealand had initially relied upon competition law rather than regulation to promote competition in telecommunications markets. The European Commission first attempted to introduce competition in telecommunications markets during the 1980s using competition law powers under Article 90 of the Treaty rather than regulation. However, I caution against concluding that Europeans thought competition law would be sufficient for these purposes, as the New Zealand Government seems to have thought in the 1990s.

58. The European experience is instead explained by the distinctive institutional and legal features of the European Union. Competition law under the European Treaties is directly enforced by the Commission whereas a regulation requires a different legal basis – Article 100a of the Treaty concerning the harmonisation of measures across the Union – and is implemented by Member States. Legislation and regulation under Article 100a therefore require support from the Member States in a way that applying competition law in Europe does not. Many of these Member States were initially resistant to the Commission's proposals to liberalise telecommunications markets and so the Commission's use of competition law should be seen as a matter of political and legal expediency rather than evidence of a belief that competition tools were superior to regulation. The Commission used a series of Article 90 Directives[12] to dismantle special and exclusive rights which had hitherto prevented any form of entry into telecommunications markets in Europe. Once

[12] p.1122 at https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1478&context=ilj,

it had done so by 1998 the Commission moved to adopt a comprehensive regulatory framework in 2002[13].

59. The European regulatory framework is necessarily less prescriptive because it is motivated by harmonisation and internal market objectives, which means that the European legislators adopt a common set of rules and procedures which national regulators in Member States are required to apply in a consistent manner, whilst at the same time allowing them sufficient flexibility to apply the same rules to very different market conditions. In this way the European regime seeks to balance constraints that ensure that national regulators do not diverge from each other in terms of analytical approach whilst at the same time allowing them to arrive at conclusions appropriate to each set of national or local circumstances.

60. The primary means of regulating is through a market review procedure which is best understood as importing the analytical tools employed by competition authorities into an ex ante regulatory framework. Under this regime, national regulators were required to undertake periodic reviews of 'relevant markets' which are pre-defined by the European Commission (using conventional economic tools) as being markets which are more likely to require regulation, with one of the criteria for this being explicitly that 'competition law alone is insufficient to address identified market failures'[14]. As in competition law, defining the relevant market was the first step and identifying those firms with market power within that market is the second. The European regulatory framework uses the term 'Significant Market Power' (SMP) rather than dominance or a substantial degree of market power, but in analytical and legal terms these are synonymous. The advantage of this approach is, first, that it imports the analytical rigour and constraints of competition law into the regulatory regime and, second, that the existing European case law on dominance gave the new regulatory regime a degree of predictability and coherence from the outset. The other important feature is that it is technology agnostic and approaches questions in economic rather than technological terms. This has meant that the same regime has been used, without modification, to regulate access to ducts and poles alongside access to copper or fibre services and could be used to regulate peering arrangements or for other purposes in the future. In my view, these features of the market review process explain why it has now endured for over 20 years.

[13] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0021
[14] Art 67 of the current European telecommunications regulatory framework or European Electronic Communications Code (EECC) at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L1972

61. In contrast to the European approach - but similar to the approach adopted by the United States under the 1996 Telecommunications Act,[15] - the regulatory regime established in New Zealand under Part 2 of the Act did not require the Commission to undertake any prior assessment of whether that firm holds a position of monopoly or a substantial degree of market power. This is because Schedule 1 of the Act already listed the services that were to be regulated and the firms to which regulation was to apply. When the Commission has considered whether to add markets and associated services to Schedule 1 it has been required to assess whether a market exhibits 'limited competition' or is likely to do so in the foreseeable future. It is not clear to me whether or not 'limited competition' arises when a firm (or group of firms collectively) holds a substantial degree of market power as defined by Section 36 of the Commerce Act[16]. I assume that, in theory at least, the Commission could propose that fibre services are designated or specified in Schedule 1 of the Act and that the access regime under Part 2 could have been extended to fibre services had Part 6 not been introduced to perform this function instead.

Why regulation is more effective than competition law

62. There are many reasons to expect that competition law alone would not be effective in protecting users from exploitative conduct or promoting entry and competition in telecommunications markets. Most important in my view is that competition authorities prosecute infringements after they have occurred rather than pre-empting abusive conduct, as regulators are expected to do. It can take years for a competition authority or private party to prove an infringement and when they do the authority or the court will generally impose financial penalties rather than specifying a particular remedy. I suggested earlier that entry into telecoms markets can arise when a new firm has an opportunity to deploy a new and superior technology in advance of the incumbent operator. This means that the incumbent firm has a strong incentive to delay entry, whilst the prospective entrant faces significant risks because investments in network infrastructure, once committed, are sunk and irrecoverable. Any uncertainty about the conditions for entry or the terms on which an entrant will obtain access to essential inputs is likely both to delay or deter entry and, if it allows the incumbent operator to upgrade its own network in the meantime, to narrow the competitive opportunity for all entrants. This creates a risk of circularity if firms delay or defer entry until the regulatory regime has been clarified whilst competition authorities are unable to act in the absence of a dispute arising from entry.

[15] https://www.congress.gov/104/plaws/publ104/PLAW-104publ104.htm
[16] Robert Clarke and Sean Mosby, *Telecommunications Law in New Zealand,* Thomson Reuters, 2021 (Clarke and Mosby), p. 122 suggest it is the absence of workable or effective competition, but this does not take me very far.

63. Many of the early disputes in telecommunications, including in New Zealand, related to claims that the recently privatised monopolist was seeking to impose excessive or unfair prices upon rival operators. Regulators spent much of their time developing cost models to determine the levels at which interconnection rates should be set. As I explain in Chapter 2, in New Zealand the Commission was required to develop TSLRIC models in the mid-2010s to determine the costs and price of unbundled copper loops and bitstream services. It is not clear that the courts or a competition authority applying competition law would have been able to undertake these tasks. When faced with claims of excessive pricing, competition authorities have often struggled to establish appropriate competitive benchmarks to compare observed prices against. The 2001 Act introduced the concept of an initial pricing principle which used a similar benchmarking approach. This also proved difficult to apply when the Commission attempted to do so in 2013, as I explain in Chapter 2.

64. Competition authorities, at least in Europe and the United States, are generally given the task of preserving rather than expanding or actively promoting competition. They do so by scrutinising mergers and penalising conduct which seeks to restrict or inhibit competition. None of these tools enable an authority to dismantle entry barriers or otherwise extend competition further. The Office of Fair Trading in the United Kingdom (now the Competition and Markets Authority (CMA), for which I currently work) remains unusual in having market investigation powers which enable it to investigate markets and to propose a wide range of remedies aimed at improving rather than preserving competition[17], although I note that the Commission has similar powers under Part 3A of the Commerce Act.

65. Ofcom exercises its competition powers concurrently with the CMA and can enforce competition law against firms in the telecommunications sector. However, these powers have been exercised infrequently and sector specific regulation is invariably regarded as being more effective[18]. Since the adoption of the new regulatory framework in 2002 the European Commission has limited its use of competition law powers to address complaints of margin squeeze by vertically integrated incumbent operators[19]. This has not been effective and the Commission has had to repeatedly increase the size of the financial penalties it has imposed in an attempt to deter further offences[20]. In 2013 the Commission introduced the ex ante Economic Replicability Test or ERT into the

[17] The European Commission has sought a similar 'new competition tool' under former Commissioner Vestager but did not obtain it.
[18] See Annex 1 at https://assets.publishing.service.gov.uk/media/6763f6703229e84d9bbde881/Review_of_the_competition_concurrency_arrangements_.pdf. Ofcom has taken only one Competition Act case in telecommunications in the last 10 years.
[19] https://competition-cases.ec.europa.eu/cases/AT.38784,. There have also been a number of cartel cases.
[20] https://ec.europa.eu/commission/presscorner/detail/en/ip_14_1140

regulatory framework to ensure that such conduct would in future be detected and prevented before prices were implemented rather than requiring affected parties to bring proceedings under competition law[21]. No competition cases on margin squeeze in telecommunications markets have been brought to the European Commission since then.

66. Europe's attempts to regulate the conduct of global digital platforms with entrenched market positions has reinforced the lessons drawn from the experience of applying competition law and regulation in the telecommunications sector. Until the early 2020s, the European Commission had sought to promote competition in digital markets, such as those for search, browsers, e-commerce platforms and app stores, by applying competition law. This produced a number of high profile cases, including against Google in 2010[22] and 2016[23], Amazon in 2019[24] and Apple in 2020[25]. The Commission famously took 7 years to produce a decision (and a €2.4 billion fine) in the Google Shopping case. Other cases have been similarly lengthy. Studies for the European Commission and the British Government concluded that competition law was not effective in promoting competition in some digital markets, with one report concluding:

> 'Solely relying on merger and antitrust enforcement can create delays and uncertainty that can be bad for large incumbents and small entrants alike. Neither is well designed for the intensive and ongoing work that needs to be done to facilitate competition and entry through making it easier for consumers to move and control their data, and for new digital businesses to interoperate with established platforms. An approach that uses these pro-competition tools can make it easier for new businesses to enter digital markets, give more predictability to all companies about the rules and standards that apply, spur innovation and provide consumers with higher quality and greater choice'[26].

67. Before 2001 New Zealand had sought to introduce competition into telecommunications markets by relying upon the application of Section 36 of the Commerce Act. Critics of this approach identified many of the issues which I have referred to above: the application of the Commerce Act by the Courts produced uncertainty which deterred or delayed entry. Litigation under the Act was costly and lengthy. The infamous Telecom vs CLEAR interconnection dispute lasted more than 3

[21] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:251:0013:0032:En:PDF
[22] https://competition-cases.ec.europa.eu/cases/AT.39740
[23] https://ec.europa.eu/competition/antitrust/cases/dec_docs/40099/40099_9993_3.pdf
[24] https://competition-cases.ec.europa.eu/cases/AT.40703
[25] https://competition-cases.ec.europa.eu/cases/AT.40452 and https://ec.europa.eu/competition/antitrust/cases1/202419/AT_40437_10026012_3547_4.pdf
[26] p. 11 at https://assets.publishing.service.gov.uk/media/5c88150ee5274a230219c35f/unlocking_digital_competition_furman_review_web.pdf

years and involved actions in the High Court, the Appeal Court and, ultimately, the Privy Council[27]. CLEAR required 4 years to conclude an operative interconnection agreement with Telecom New Zealand.

68. After various reviews of this 'light touch' approach during the 1990s and, in particular, the Ministerial Review of Telecommunications in 2000 (the Fletcher Review), the Government adopted the Telecommunications Act in 2001. This established the Telecommunications Commissioner within the Commerce Commission to regulate telecommunications markets in the ways I have discussed above and consider elsewhere in this report.

Social regulation

69. Regulatory regimes in telecommunications have not only been concerned with promoting market entry and competition but also with ensuring that this is compatible with expectations about the continued provision and availability of telecommunications services following privatisation. These expectations were, in many cases, formed whilst services were supplied by a publicly owned monopoly provider which was directly overseen by Government Ministers responsive to political rather than commercial or competitive pressures. As the Commission said when responding the Government's consultation on the TSO in 2013:

> 'Its legacy extends beyond the introduction of the Telecommunications Act in 2001 (Act) back to a very different regulatory environment. In this sense it is a window on the social attributes New Zealanders valued in terms of telecommunications in the past'[28]

Telecommunications service obligations

70. Obvious examples of social objectives are a series of subsidy arrangements which were embedded in the structure of prices prevailing at the time of privatisation. One was the expectation which remains today in many countries – that users of telecommunications should pay the same price for the same service irrespective of differences in the underlying costs of providing them, which in

[27] Additionally, the Privy Council adopted the Baumol Willig or opportunity cost pricing rule to determine reasonable interconnection charges, which the New Zealand Government did not itself subsequently endorse. However, the Government had no powers to change the case law, p.10 at https://ciaotest.cc.columbia.edu/olj/ijclp/ijclp_2/ijclp_2g.pdf

[28] p.1 at https://comcom.govt.nz/__data/assets/pdf_file/0032/59486/1592021-Commerce-Commission-submission-on-TSO-review-discussion-document-20-August-2013.PDF. I gave a speech on these themes to the Commission's annual conference in 2017, see https://drive.google.com/file/d/181gTkcTU_8isnbejm84H0HzVHEo3Xhdc/view

fixed telecommunications networks vary substantially by geographic location. Another – which did not persist - was an expectation that the costs for households of connecting to the network should be subsidised by revenues obtained from the sale of long distance or international calls which were predominantly made by business users. As the FCC explained:

> 'the Commission sought to make local phone service available and affordable to residential customers, no matter where they lived, through tariff policies that created implicit subsidies, which allowed telephone companies operating as regulated monopolies to earn an acceptable return while simultaneously assisting with public policy goals'.[29]

71. One of the consequences of pricing distortions of this kind was that, whilst they remained, entrants focussed on those parts of the market where prices were sustained well above cost and avoided those in which prices were below cost. Once entry had occurred the excess profits from which the subsidies had previously been drawn were competed away. This was anticipated by policymakers and led to them to introduce funding arrangements to ensure that subsidised prices could be sustained by a privatised firm that would be obliged to offer them. Private firms would not otherwise volunteer to offer services at prices below cost and could not be expected to offer such services at a loss without being compensated in some way.

72. In the United States, UK and later Europe responsibility for ensuring that firms and markets fulfil various social obligations or perform functions which they would not otherwise undertake on a commercial basis was assigned to the regulator. Thus, Oftel's primary duty was 'to secure that there are provided throughout the United Kingdom, save in so far as the provision thereof is impracticable or not reasonably practicable, such telecommunication services as satisfy all reasonable demands for them including, in particular, emergency services, public call box services, directory information services, maritime services and services in rural areas'[30]. It did this by requiring BT to provide universal access to a defined minimum set of services to any household requesting access, as well as maintaining public call boxes and access to directory services and offering these services at the same price irrespective of geographic location. It also implemented arrangements to require other operators to contribute to the costs of such provision if BT could demonstrate that it was otherwise unprofitable for it to supply them. Similar objectives

[29] p.2 at https://docs.fcc.gov/public/attachments/FCC-22-67A1.pdf

[30] https://www.legislation.gov.uk/ukpga/1984/12/section/3/enacted. This echoes the 1934 Communications Act, which has as its objective 'to make available, so far as possible, to all the people of the United States, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges.'

and arrangements were introduced by European legislators as part of the new regulatory framework of 2002 by means of the USO Directive[31].

73. In New Zealand the 2001 Act did not allocate social regulation objectives to the Commission. Instead, Part 3 of the Act refers to direct contractual arrangements between the Crown and Telecom New Zealand which are referred to as TSO instruments. The first of these was adopted in 2001 to ensure that end users could continue to have access to basic telephony services at the same real terms prices as had been available in November 1989[32].

74. Although a concern of politicians at the time of privatisation, many European regulators have not considered it necessary or were not requested to activate a fund to support the fulfilment of universal service objectives. This is in part because the obligations imposed on operators in Europe (and in New Zealand) were limited to the provision of basic telephony services provided over copper networks which many households with affordability challenges found were better met by new technologies such as prepaid mobile subscriptions[33].

75. Governments have also been reluctant to raise the costs of fulfilling the universal service obligation by including anything which might require operators to extend the geographic scope of their networks to uneconomic areas and incur additional costs which would need to be funded. The New Zealand Government came to this view in 2015 when it concluded:

> 'It has been suggested that a minimum level of broadband capability could be achieved by introducing a broadband TSO service. However, the TSO construct requires private firms to commit to delivering these outcomes, and it is unlikely they would do so without seeking additional funding. The Government's preference is for open access broadband capability to be rolled out through initiatives like the RBI, which will result in improvements to the availability and affordability of broadband services.'[34]

76. Expansive universal service obligations also tend to be strongly opposed by entrants in competitive markets because they are viewed as subsidies from which only the incumbent operator benefits but which are paid for by its competitors. Policymakers who are concerned with promoting competition in telecommunications are wary that expanding the scope of the universal service regime may conflict with competition objectives.

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[31] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0022
[32] https://www.beehive.govt.nz/release/government-announces-updated-kiwi-share-obligation
[33] 2degrees' 4G fixed wireless service 'Skinny Jump' appears to be a good example of such a service, see https://www.skinny.co.nz/jump/home
[34] p. 106 at https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001

Consistent geographic pricing

77. Governments and regulators in the United Kingdom and Europe have also required the privatised operator to maintain consistent prices for most or all telecommunications services irrespective of geography, as had been the practice pre-privatisation. The Commission in New Zealand was unusual amongst regulators in not setting prices of regulated services such as unbundled copper loops on a consistent geographical basis until 2011 but instead distinguishing between prices for urban and prices for rural areas. The Commission's reasoning was:

> 'Cost-based de-averaged prices will therefore ensure that the appropriate signals for use of the UCLL service and investment in associated infrastructure such as equipment in the exchanges are provided, compared to an averaged price. The Commission considers that de-averaged UCLL pricing is likely to best give effect to section 18 of the Act. 252. In its submission to the Ministry of Economic Development (MED) on the review of the Telecommunications Service Obligation (TSO), the Commission recognised that the TSO was an instrument that was designed to achieve social objectives. However, the Commission also noted that competition would be enhanced, as would incentives to invest in rural areas, if rural customers were faced with the true cost of providing telecommunications services in those areas. This would give appropriate signals for both the consumption of telecommunications services, and investment in the provision of those services. Where subsidies are considered to be important, they should be introduced and funded in the least distorting manner.[35]

78. However, in the 2015 review of the Telecommunications Act, the Government took a markedly different position to prices for fibre services:

> 'In our view, having geographically-averaged wholesale prices across the country continues to be desirable. Having the same price for the same service means that, for example, rural users are not disadvantaged and that obligations imposed through the TSO can continue to be sustained. However, we note that under any cost-oriented regulatory regime involving different suppliers (for example, Chorus and LFCs) it would be challenging to achieve total geographic consistency in pricing[36].

[35] p. 62 at https://comcom.govt.nz/__data/assets/pdf_file/0034/88765/Final-UCLL-Standard-Terms-Determination-Decision-609.pdf
[36] p. 65 at https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001

79. Allowing firms to vary their prices to better reflect differences in costs, competitive conditions or willingness to pay can have significant, albeit uncertain, consequences for the way in which telecommunications markets function. Operators in Europe that have been subject to consistent geographic pricing rules have generally not resisted them with much force. Such a move would be likely to be unpopular with customers in rural areas who incur higher costs to supply, even if users in urban areas might see prices fall. Operators have also found ways to discriminate through so-called 'under the counter' offers and other marketing tactics without the need to vary their headline or published prices.

80. Another reason why regulators in Europe have been reluctant to remove consistent geographic pricing obligations is that it has served to guard against exclusionary conduct and to promote entry. Entrants have been able to deploy local networks in lower cost urban areas and to avoid higher cost rural areas. Absent regulation, an entrant might anticipate that the incumbent network operator would respond by lowering its prices in areas where it faces competition but not elsewhere. However, if the operator is subject to a consistent geographic pricing rule it will need to lower prices at all locations and so incur greater costs. The consistent geographic pricing rule was therefore regarded by regulators as providing competitors with a degree of extra pricing headroom which would encourage them to enter[37].

81. I have said that in Europe and in New Zealand the universal service regime has been employed to preserve affordable access to existing services over existing technologies rather than being used to extend or accelerate the deployment of new technologies. Until the 2000s European Governments tended to assume that competitive markets should determine the rate and extent to which new network technologies would be deployed, responding to pricing signals and end user preferences. In some cases spectrum licences awarded to mobile network operators contained coverage obligations which the licensee was required to achieve, but these were generally calibrated at levels which were expected to be achieved anyway (not least to ensure that they did not unduly depress the value of bids which operators would be prepared to make to acquire the spectrum from the Government). Operators of fixed networks were under no regulatory or other obligations to deploy new technologies[38].

82. This position changed in Europe and elsewhere in the world, particularly after the global financial crisis of 2008. Investment in new telecommunications infrastructure has come to be viewed by

[37] Related to this was an expectation that prices in non-competitive geographic areas would be constrained by competition in other areas, allowing for price regulation to be withdrawn across the board. This would not be possible if firms were allowed to discriminate between competitive and non-competitive areas.
[38] An exception was cable TV network licences in the United Kingdom, which did have coverage obligations expressed in terms of the number of homes passed by the network at a given date.

politicians both as making a direct fiscal contribution to economic recovery and as an enabler of growth across the wider economy. Since 2010 the European Commission has adopted a series of 5 yearly targets for the deployment of new fixed broadband and later 5G technologies and has encouraged Member States to do the same. The United States adopted a National Broadband Plan in 2010. New Zealand adopted the UFB and RBI programmes. This means that telecommunications now has an industrial policy as well as a social regulation dimension.

Consumer protection regulation

83. A third rationale for regulation is related to the other two but I address it separately, and it arises when end users are vulnerable to exploitation. As already noted, this is clearly the case when end users have no option but to obtain their telecommunications services from a privatised monopolist.

84. However, even in competitive markets consumers may be apt to make poor choices or be vulnerable to exploitation if they lack information, agency or are otherwise unable to engage effectively with the market or the firms within it. This not only has adverse consequences for consumers in the short term but may also prevent firms that offer superior services from winning in the market and so may inhibit the proper functioning of competitive markets.

85. An example of this is the risk aversion on the part of consumers of telecommunications services. Without adequate information about or understanding of the alternative options available, many end users are reluctant to undertake what they perceive as the risk of changing to an unfamiliar telecommunications supplier and so will default to the status quo. This raises demand side barriers for entrants to overcome and may deprive those end users of better services.

86. It is also increasingly clear that whilst competitive markets may serve the long term interests of end users more effectively that regulated privatised monopoly, firms in competitive markets can and do still act in ways which are manifestly against the consumer interest, particularly when there are significant switching costs and information asymmetries between users and suppliers. Economic theory would assume that an end user will avoid harmful conduct by firms by switching to another and that the threat that they would do so will be sufficient to ensure that harmful practices do not arise in the first place. Sadly, commercial reality in the telecommunications industry – and in many other industries - does not always support this. As the

Cabinet paper discussing the 2018 amendments to the Act noted: 'Relying on competition has not been as effective as hoped for in delivering high quality retail service'[39].

87. Ofcom has been applying consumer protection regulation of one form or another in the United Kingdom for almost 40 years. A recent example responds to the introduction by telecommunications operators of multi-year contracts which allow for annual price increases, the size of which is determined by reference to the prevailing rate of inflation, referred to in the contract of RPI or CPI, at the time. Ofcom found that most UK customers do not understand concepts such as RPI or CPI and, even if they did, were unable to assess what that might mean for the costs they would incur over the duration of the contract. Ofcom has therefore intervened to require that operators in future specify the price increase for each year in pounds and pence rather than by reference to RPI or CPI[40].

88. Similarly, a report for the Commission undertaken in 2020 found that a significant percentage of mobile customers in New Zealand exceeded their usage quota in most months of the year and were paying more than they would if they had selected a more appropriate tariff[41], whilst customers below the quota could also save by moving to a more suitable tariff[42]. The industry responded by adopting a self-regulatory code in 2021 to better inform users of their consumption patterns and tariff options[43]. This code was closely modelled on similar actions which Ofcom had taken in 2020[44] .

89. Each example is different but regulators around the world have become increasingly aware that despite the advance of competition in telecommunications markets over the past 30 years it does not automatically follow that the long-term interests of consumers will always be well served. Some consumers may be able to engage effectively with the competitive market but there is now a substantial body of evidence to suggest that many consumers - not just those who might be classified as vulnerable in a conventional sense[45] - may not always act in their own best

[39] p.12 at https://www.mbie.govt.nz/dmsdocument/1310-telco-review-cabinet-paper-may-2017-pdf
[40] https://www.ofcom.org.uk/phones-and-broadband/bills-and-charges/ofcom-bans-mid-contract-price-rises-linked-to-inflation
[41] p.12 at https://comcom.govt.nz/__data/assets/pdf_file/0023/251825/Report-for-the-Commerce-Commission-Analysis-of-Mobile-Bills-Final-report-29-January-2021.pdf
[42] Ibid p.11
[43] https://comcom.govt.nz/__data/assets/pdf_file/0027/278361/Improving-Retail-Service-Quality-for-Consumers-2022-Update-4-March-2022.pdf
[44] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-2-6-weeks/130197-helping-consumers-get-better-deals-on-their-broadband/ecn-consultation-and-statement/statement-helping-consumers-get-better-deals.pdf?v=323929
[45] Vulnerable consumers have attracted a great deal of regulatory attention in the UK in recent years, see https://www.fca.org.uk/publication/occasional-papers/occasional-paper-8.pdf and https://www.gov.uk/government/publications/consumer-vulnerability-challenges-and-potential-solutions/consumer-vulnerability-challenges-and-potential-solutions

interests.[46] Telecommunications services are complex, multi-faceted services, and end users have widely varying needs. Non-price characteristics such as differences on network speeds or bandwidth which are difficult for end users to understand or to assess prior to committing to a purchase. Competition ensures that the industry is dynamic, that new and unfamiliar propositions appear on the market and that firms are always seeking to improve the margins they earn. These conditions mean that ensuring that consumers can engage effectively with a market is likely to be an ongoing challenge rather than something to be resolved by at a particular point in time.

90. As noted previously, the 2001 Act was primary concerned with promoting competition. Protecting consumers is a relatively new purpose under New Zealand telecommunications regulation. A framework for self-regulation was introduced by amendments in 2006 but was judged by the 2015 review not to have been effective. Part 7 of the Act was introduced in 2018. This still places considerable emphasis on self- or co-regulation by allowing the Commission or the industry to develop codes which are enforceable against all licensed operators in the market. However, it also allows the Commission to adopt and enforce codes at its own initiative. I note that the Government is consulting on changes to the Commerce Act which, if adopted, might include giving the Commission code making powers under that Act which I think would serve a similar purpose to the provisions of Part 7 of the Act[47].

91. A notable development in the United Kingdom is the recent emergence of private litigation and/or class actions seeking damages against telecommunications operators who are alleged to have engaged in unfair conduct. Two such cases have been initiated in recent years[48]. Class actions have been a feature of the United States legal system for many years. The deterrent effect of class actions in disciplining the conduct of telecommunications operators is not a topic on which I have seen any research, and the UK regime is still evolving. I understand New Zealand does not have an established class action regime at this point in time.

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[46] See https://www.regulation.org.uk/library/2016-CCP-Demand_Side_Remedies.pdf

[47] p. 32 https://www.mbie.govt.nz/dmsdocument/29866-discussion-document-promoting-competition-in-new-zealand-a-targeted-review-of-the-commerce-act-1986-pdf

[48] One claimant (acting on behalf of a class of 2.3 million customers) brought a claim for damages of up to £1.3 billion against BT on the grounds that it had abused its dominant position and imposed unfair or exploitative prices on purchasers of voice telephony services between 2015 and 2018. The significance of the 2018 date is that Ofcom, the regulator, accepted commitments from BT to limit the pricing of one of the services at that time but Ofcom had otherwise withdrawn regulation from these services in 2006. The Competition Appeals Tribunal found in December 2024 that the prices were not unfair or exploitative and so dismissed the claim. Another claim on behalf of a class of up to 28 million customers and seeking damages up to £3.3 billion, has been made against each of the mobile operators in the UK, claiming overcharging for airtime services following the expiry of their post-pay contracts and repayment of the handset subsidy that is implicit in the charge. This is currently under consideration by the CAT, see https://www.catribunal.org.uk/cases/13817721-justin-le-patourel and https://www.catribunal.org.uk/cases/16247723-mr-justin-gutmann

Lessons on regulation

92. In this Chapter I have explained how telecommunications regulation has been employed to protect end users from exploitation by privatised monopolies and to help them engage more effectively with competitive markets. It has also been used to promote competition by allowing entrants to obtain regulated access to network assets which they cannot otherwise replicate and by protecting them from exclusionary conduct by vertically integrated firms. And regulation has been required to ensure that private firms and competitive markets function in ways which fulfil important social policy objectives.

93. New Zealand first introduced regulation in 2001 to allow entrants to access and resell Telecom New Zealand's copper network after it had become apparent during the 1990s that competition law was not well suited to this task. Consumer protection and social policy objectives were initially pursued through private contracts between the Government and Telecom New Zealand rather than regulation. Provision was made in 2006 for industry self-regulation to protect consumers but the Commission was later given powers in 2018 to intervene directly in consumer protection matters. I would say that policymakers in the United Kingdom and Europe have generally been quicker to move to regulation and more sceptical about the capacity of competition law or self-regulation to discipline firms or deliver good outcomes for end users than policymakers in New Zealand. In the United States the legislative system has meant that only one substantive revision of the Communications Act (with the primary aim of extending competition into local broadband services) has been attempted since 1934. Policymakers in New Zealand may have been slower to introduce regulation to constrain the behaviour of telecommunications firms than in other countries, but they were quicker to implement structural changes in 2011.

94. Overall, telecommunications regulation in New Zealand has evolved in response to lessons and occasional set-backs in the same way that regulation in Europe, the United Kingdom and the United States has. Competition in mobile telecommunications markets has advanced further than many initially expected whereas entry barriers in fixed telecommunications markets proved more formidable than expected in the 1990s. In the United States and Europe this was partly mitigated by the development of DOCSIS technology which enabled HFC network operators to enter broadband markets in ways that had not previously been anticipated. GPON technology had the same disruptive effect in Europe 10 years later.

95. After 20 years of advocating the benefits of private capital and allowing markets to determine outcomes, Governments around the world pivoted back towards public financing of

telecommunications infrastructure after 2010. This is often accompanied by a reversion back to monopoly infrastructure, as has occurred with the UFB networks in New Zealand.

96. The lessons I draw from this are twofold. First, technologies and markets in the telecommunications sector have evolved continuously over the past 20-30 years and there is no reason to think they will not continue to do so in the future. This means there is no reason to think that today's market structures will endure forever and no regulatory regime should be designed in the expectation that they will. This is illustrated, for example, by the discussion in Chapter 2 of the current phase of 'competition for the market' and the uncertain longer-term outlook for the market for fixed broadband services in rural New Zealand.

97. Second, popular expectations about and Government objectives for the telecommunications sector can also change quickly and in unexpected ways. In Europe today, as I explain in Chapter 4, policymakers are increasingly concerned about the energy consumption and environmental sustainability of telecommunications networks. Neither topic was on the regulatory agenda for telecommunications a few years ago. Other topics will probably be on the agenda 10 years from now.

Chapter 2: Economic regulation of fixed networks

98. This chapter provides a brief account of the development of the market for, and the regulation of fixed telecommunications networks and services in New Zealand over the past 20-30 years and comments on various aspects. Chapter 3 does the same for mobile telecommunications networks and services. I follow the structure of Chapter 1 by focussing on economic regulation to promote competition, which is governed by Part 2 of the Act and the regulation of fibre networks and services, which is governed by Part 6 of the Act. Chapter 4 will consider social regulation, including TSO obligations under Part 3 of the Act, which is currently used to maintain affordable access to certain fixed telecommunications services and consumer protection regulation under Part 7 of the Act, which applies to both fixed and mobile services.

99. This report is not intended to offer a comprehensive history of telecommunications markets, fixed or mobile, in New Zealand but to highlight key points and use them to illustrate aspects of the regulatory regime, either to show how it differs from the approach taken in other parts of the world, to explain why New Zealand has arrived at the position it has and/or to recommend changes that could be made in the future.

100. The fixed telecommunications market in New Zealand of the 1990s and 2000s is now far in the past and was well summarised in the Government's 2015 review of telecommunications regulation[49]. The initial period was referred to as the 'light handed' era during which TelstraClear and other entrants sought interconnection services from the recently privatised Telecom New Zealand by litigating under the Commerce Act. For the reasons explained in Chapter 2 this was not effective, prompting the Government to introduce the Telecommunications Act in 2001 and a period of what the 2015 review refers to as 'limited regulation'. As explained in Chapter 1, entry into the New Zealand market focussed on those activities for which entry barriers were lower. This included the resale of narrowband voice and internet dial up services over the Telecom New Zealand copper local access network, the conveyance of long distance and international calls over competing network facilities and the deployment of a number of urban fibre networks to serve business users (and limited HFC networks in Wellington and Christchurch).

101. The most significant development in fixed telecommunications markets during this period was the introduction of Digital Subscriber Line technology to enable existing local copper networks to support broadband services. This technology meant that regulators could promote

[49] https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001

competition in the provision of copper broadband services either by requiring the copper network owner to allow the resale of a copper broadband service (via amendments to Schedule 1 of the Act in 2004) or the location of a competitor's own DSL equipment in local telephone exchanges and the provision of unbundled copper loops which a competitor could purchase on a household by household basis (via amendments in 2006). The United States and Europe had introduced a copper network unbundling requirement in 1996 and 2000 respectively[50].

102. This was significant for several reasons. First, Digital Subscriber Line technologies altered the performance characteristics of copper lines, allowing competitors to differentiate their services from those of the copper network owner in ways which had not been possible when competitors were reselling voice services. Thus, if competitors purchased unbundled copper loops but relied upon their own backhaul facilities from the local exchange, they could offer lower contention ratios (i.e. a lower number of individual lines using a shared backhaul facility) and better performance than was offered by the copper network owner. In addition, in many countries copper network owners had been reluctant to introduce symmetric DSL services (as opposed to asymmetric DSL services (ADSL) which were favoured by households for internet access) because they could be used by business users to substitute for more profitable leased line services. Competitors had no such reservations, and so competition in the provision of DSL services was expected to (and did in fact) accelerate the deployment of new broadband technologies and services. This is an example of where competition accelerates the deployment of new technology.

103. Second, the introduction of unbundling was accompanied by the pursuit of the 'ladder of investment' or stepping stones strategy which is attributed to Martin Cave[51]. As explained in Chapter 1, competitors were expected to enter the market where entry barriers were lower and first acquire a base of end users by reselling copper broadband services to them at a reasonable margin. Over time, it was anticipated that, having acquired a substantial base of users in certain geographic locations, the competitor would then selectively target particular telephone exchanges to 'unbundle' them and substitute its own DSL equipment and backhaul facilities. This would enable the entrant to be confident of recovering its fixed and sunk costs from the users which it had already acquired, rather than incurring the cost of investing in a network before acquiring customers. The strategy was succinctly summarised by the European Commission:

> 'In order to achieve the aim of increased consumer choice the economic incentives created by the policy framework, in particular the pricing methodology, must encourage all operators to make appropriate investments. Thus when priced at a level that does not

[50] Section 251 of the Telecommunications Act 1996 at https://www.fcc.gov/general/telecommunications-act-1996 and http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32000R2887
[51] https://www.sciencedirect.com/science/article/abs/pii/S0308596106000164

distort the 'make or buy' decision of an entrant, local loop unbundling can encourage long term infrastructure competition by allowing entrants to test out the market before building their own infrastructure, and can encourage a more competitive and innovative market for simple voice telephony and the roll-out of local broadband (high-speed) services'[52]

104. To further incentivise this migration, regulators were expected to adjust the pricing differential between the resale of bitstream services and unbundled loops to encourage competitors to substitute lower margin resale services for higher retail margins that would be accessible if they substituted their own DSL equipment.

Operational separation

105. Implementing this strategy proved challenging for several reasons. First, it required close co-ordination between the access provider and the access seeker, including in relation to the installation of a competitor's equipment inside the physical premises of the access provider and ordering and provisioning processes to ensure that the service was delivered to an end user without disruption or delay. Vertically integrated copper network owners like BT or Telecom New Zealand had the incentive but also greater opportunity to inhibit access by competitors to their facilities than had been the case when they had been supplying voice services for resale without any need to co-ordinate at a technical or network level. Moreover, the provisioning of unbundled copper loops was a fundamentally new industrial process and not one which operators like Telecom New Zealand had previously used to support its own services. It therefore took time for these new processes to scale and stabilise.

106. During this period regulators around the world wrestled with the many practical challenges of ensuring that access providers would supply unbundled copper loops in a way which would allow access seekers to compete effectively. In the United States, Section 271 of the Telecommunications Act 1996 had been intended to give the Bell operating companies an incentive to comply by making their entry into the long distance telephony market conditional upon their implementing an effective copper access regime but the incentive to sustain the local network monopoly had nonetheless proved more compelling. In Europe, most regulatory regimes already included general obligations that were intended to ensure that the vertically integrated firm did not discriminate in favour of its own affiliate retail operations by, for example, provisioning or restoring services more quickly for their affiliate than when requested to do so by

[52] para 3.1 at https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A32000Y0923%2802%29

a competitor. However, it was often difficult to monitor performance, detect non-compliance, or to determine whether responsibility lay with the access provider or the access seeker. Ofcom, for example, lamented in 2005:

> '… twenty years of telecoms regulation had yet to overcome the problems of enduring economic bottlenecks combined with unequal access to these parts of the network. In parts of the network where it is uneconomic for new entrants to build their own infrastructure, competitors are reliant on BT to provide wholesale access to its network. Yet those who have relied on BT to provide such access have to date experienced slow product development, inferior quality wholesale products, poor transactional processes, and a general lack of transparency.'[53]

107. As noted in Chapter 1, operators like BT had been privatised as vertically integrated entities and regulators in Europe had not been given powers to require that these businesses divest assets or otherwise be restructured. The alternative response, starting with Ofcom in the United Kingdom in 2005[54] was to require the vertically integrated firm to 'functionally separate' itself without any fundamental change in legal ownership or control. The aim of these provisions was to separate the operational aspects of the business by, for example, restricting the extent to which staff involved in provisioning network services for access seekers could share information (and offices) with staff elsewhere in the business, requiring those staff to have incentive plans which reflected their performance in supplying services to access seekers rather than the performance of the business as a whole and, most importantly, requiring that the ordering and provisioning processes for new services were designed in a way which disguised the identity of the customer and ensured that the affiliate and third party customers were supplied in exactly the same way (so-called Equivalence of Input or EoI provisions). Following the UK, similar arrangements were implemented in Italy and Poland in 2009[55] and powers to impose functional separation - as a last resort if other measures had proven ineffective - were incorporated as amendments into the European regulatory framework in 2009[56].

108. New Zealand adopted similar requirements in 2006 under Part 2A of the Act, including accounting separation, equivalence of supply commitments, and an independent oversight board.

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[53] p.19 at https://www.ofcom.org.uk/siteassets/resources/documents/consultations/uncategorised/8691-statement_tsr/statement/statement.pdf?v=331906

[54] https://www.ofcom.org.uk/siteassets/resources/documents/phones-telecoms-and-internet/information-for-industry/bt/consolidated_undertakings24.pdf?v=332693

[55] https://www.berec.europa.eu/sites/default/files/files/documents/bor_10_44Rev1b.pdf

[56] https://ec.europa.eu/commission/presscorner/detail/en/memo_09_491, now Article 77 of the EECC

An operational separation plan was adopted by way of a determination by the Minister under Section 69G of the Act[57] and undertakings from Telecom given in March 2008[58].

109. The aim of operational separation was to improve compliance with and enforcement of non-discrimination and equivalence obligations. By 2018 Ofcom had concluded that the existing measures were insufficient and required BT to implement the legal separation of its network operations, which meant that Openreach became a separate company with its own Board whilst still remaining a wholly owned subsidiary of BT[59]. In New Zealand the undertakings were only in force for 3 years until superseded by the Separation deed in September 2011 and so I think it would be difficult to draw firm conclusions about their effectiveness[60]. I do not know the extent to which the Government's decision to require Telecom New Zealand to structurally separate as a condition of participation in the UFB programme was informed by any perceived shortcomings in the operational separation arrangements, but it seems likely it had some bearing.

110. The separation of Telecom New Zealand in 2011 does not appear to be an action which the company would otherwise have taken. The benefits of structural separation are often contested and the logic for doing so may change as technology changes. Mobile operators had been vertically integrated for many years but have in recent years divested passive tower infrastructure on a voluntary basis (including in New Zealand) whilst retaining ownership of the remainder of their network assets. It is argued that separation allows different classes of investors to hold different types of assets rather than asking them to invest in company which is a hybrid of a monopolistic infrastructure business and a competitive retailer. It also allows the management of the respective businesses to focus on their core activities. On the other hand, separation requires the introduction of new interfaces between the infrastructure company and the retailing company, which may be costly to implement, difficult to contract for and may mean that interests diverge or conflict in the longer term. There have been examples of 'voluntary' structural separation by vertically integrated fixed telecommunications firms similar to Telecom New Zealand in Europe, but not many[61]. Since 2018, European regulation has sought to encourage entry by fibre network

[57] https://gazette.govt.nz/notice/id/2007-go6716
[58] https://www.beehive.govt.nz/sites/default/files/Telecom%20Separation%20Undertakings_0.pdf
[59] https://www.ofcom.org.uk/phones-and-broadband/telecoms-infrastructure/strengthening-openreachs-independence
[60] Telecom was found by the Independent Oversight Group (IOG) in August 2009 to have breached its separation undertakings with its wholesale loyalty offer designed to dissuade resale customers from taking up unbundled copper loops from Chorus instead
[61] I use the term 'voluntary' because the separation of Telecom Italia in 2024 followed years of manoeuvring by different shareholder interests and the Italian Government, see https://www.gruppotim.it/en/press-archive/corporate/2024/PR-Closing-NetCo-1-luglio.html#:~:text=As%20the%20first%20European%20mover,Corporate . The other example is the Czech mobile operator, acquired by PPF in 2014 and separated into a privately held network business (CETIN) and a

operators that do not participate in the retail market but there is no prohibition on their doing so and many do.

111. Structural separation removes the challenge for any potential entrant of having to compete with a vertically integrated incumbent firm. However, it does not remove the incentive or ability of the monopoly infrastructure business to exploit its customers or to delay investments in new technologies, as the Government Review of 2015 rightly recognised:

> 'While fixed network owners now have fewer incentives to discriminate, they may still be able to charge monopoly prices to the disadvantage of consumers. There are unlikely to be strong incentives to keep increasing the quality of their wholesale service offerings, without some regulatory stimulus (such as requiring unbundling)'[62].

Price setting

112. The other major regulatory challenge during this period related to the calibration of prices to provide competitors with the appropriate entry or investment signals whilst at the same time ensuring that the owner of the copper network could maintain and invest in its network. Cave's original intention had been that the price of resale services should rise over time to reduce the margins which retailers could earn and induce them to invest in their own network facilities instead. Retailers resisted this and claimed that economies of density limited the number of local exchanges which they could feasibly unbundle.

113. In Europe, these challenges played out in debates about the appropriate costing methodology to employ when setting the prices of different access services. If the objective was to ensure that the owner of the copper network was able to recover the actual costs that it had incurred then the main question was how to allocate costs that could be derived from the financial statements to different network services in order to obtain prices. Post-privatisation Oftel had initially set interconnection rates on the basis of allocating costs derived from historic cost accounting records between BT's services and then applied an RPI-X factor to incentivise BT to improve the efficiency of its network (which was assumed to be relatively inefficient immediately post-privatisation).

114. However, when the objective was to set prices which allowed access seekers to make their own build or buy decisions using modern technologies at current prices, then a much more

publicly listed retail business (O2), see https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/can-telcos-create-more-value-by-breaking-up

[62] p.14 at https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001

complex modelling methodology, known in New Zealand as TSLRIC (Total Service Long Run Incremental Cost), as LRAIC (Long Run Average Incremental Cost) in Europe and as Total Element Long Run Incremental Cost models or TELRIC in the United States, was adopted[63].

115. It is not necessary for this report to have a detailed account of how regulators in the United States, Europe and New Zealand implemented TSLRIC models during the 2000s. The key point is that the complexity of the model and the degree of abstraction from actual costs incurred as recorded in the financial statements gave regulators a far greater degree of discretion in setting prices than had been the case when other methodologies were employed. This was desirable insofar as the aim of setting access prices was to induce a particular set of market outcomes in which entrants migrated from resale of bitstream services to purchasing unbundled copper loops. It was undesirable if uncertainty about regulated access pricing deterred further investment in DSL technologies or fibre by network owners, as it was claimed was the case in Europe during the late 2000s. It was the adverse effect on network investment incentives for copper network owners investing in VDSL technology and fibre that ultimately led the European Commission and national regulators to abandon this approach[64].

116. The variations associated with different methodological approaches in Europe were very large. Traditional 'bottom up' models derived from the accounting records of the regulated firm produced figures that could be twice those produced by the TSLRIC exercise[65]. There were also large variances between Member States, some of which could not obviously be explained by differences in labour costs, geography or other factors. In an attempt to introduce greater consistency of approach and output, the European Commission published a series of recommendations (of which national regulators are required to take utmost account). In 2003 the European Commission commissioned a study into how rates for unbundled copper loops had been set by national regulators, reflecting concerns about substantial variations between outputs even when the same costing methodology was purportedly being applied. This was followed by a Recommendation from the European Commission in 2005 that national regulators value assets on a current cost rather than historic accounting basis and that they employ a bottom up LRAIC model to identify inefficient costs that should be excluded from consideration. The Commission's aim in doing this was to lower the regulated rates for unbundled loops. Monthly rental rates for unbundled loops duly fell by 30-60% in the major European countries between 2003 and 2007[66].

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[63] There are subtle differences between these methodologies, but they are not relevant to this report

[64] http://www.ictregulationtoolkit.org/action/document/download?document_id=4032

[65] p.66 at https://ec.europa.eu/competition/sectors/telecommunications/archive/inquiries/local_loop/pricing_open_loop.pdf.

[66] see https:/ueaeco.github.io/working-papers/papers/ccp/CCP-12-08.pdf, table 3 p.16 for 2003, https://competition-policy.ec.europa.eu/system/files/2021- for 2007

In 2010 the Commission published a further recommendation in which it specified a range for the price of copper loops which all national regulators were expected to stay within[67].

117. The recommendation of 2010 was short lived and suggested that regulators introduce incentives for existing copper network owners to invest in new VDSL and fibre technologies by making adjustments to (i.e. increasing) the cost of capital that was applied to those assets, reflecting the higher risks of investing in new technologies for which demand was still uncertain. However, calibrating prices in this way was even more challenging and the approach was quickly abandoned in 2013, when the Commission published a further recommendation which retained LRAIC for setting prices for unbundled copper loops but departed from it in relation to setting prices for VDSL and other fibre-based services.

118. Instead regulators in Europe turned to copper 'anchor products' or anchor services for which a regulated price could be set with greater confidence and which were supposed to constrain the unregulated prices of new fibre-based services. The use of anchor products to constrain fibre service pricing had first been adopted by Ofcom in the United Kingdom in 2010[68] and was incorporated into the European regime in 2013[69].

Price setting in New Zealand

119. I think it is important to consider how the process of setting regulated prices in New Zealand has developed over time.

120. The Act envisaged that individual access seekers would seek a determination from the Commission (under Sections 20 and 35) to resolve a particular commercial dispute. This mirrored the approach originally adopted in the United Kingdom in the 1980s and early 1990s, under which disputes about interconnection (between BT and Mercury) were referred to the Director General for resolution. It also reflected the approach taken under competition or commercial law, where proceedings are initiated by affected parties rather than by the regulator or the courts. However, it was soon clear that individual or bi-lateral dispute resolution would be increasingly inefficient as the number of participants in the market increased. Both Oftel and the Government in New Zealand soon introduced a new process which allowed the regulator to set standard terms which would be applicable to all (under Sections 30C and 31AA, which were added in December

[67] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010H0572
[68] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/37935/wla_statement.pdf
[69] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:251:0013:0032:En:PDF

2006[70]). The bi-lateral determination provisions still apply in New Zealand but I understand that they have not been used by the Commission since 2006.

121. The standard terms process allows the Commission, on its own initiative rather than in response to a specific request, to establish the terms under which an access provider is obliged to offer a specified or designated service to any licensed firm that requests it. This distinction between specified services, for which the Commission can only determine non-price terms, and designated services, for which the Commission can determine both price and non-price terms, has never been a feature of the European or British regulatory framework, although something similar was adopted by the ACCC in Australia between 1997 and 2002[71]. Under the European framework, national regulators can impose whatever regulatory obligations they consider necessary and appropriate to promote competition in the relevant markets. No distinction is made between price and non-price terms[72].

122. I am not convinced that the distinction between specified and designated service is well founded and I note that after 2002 the ACCC has continued to allow carriers to negotiate wholesale rates on commercial terms but has published the rates that it would expect to apply, based on the relevant pricing principles, in the event of any appeal[73] . I do not see why a firm lacking the incentive to agree to the non-price terms that promote competition would be expected to agree to prices that would. I could conceive of a theoretical case in which two firms might tacitly collude on non-price terms but be unable to collude on price terms, but in my experience the converse (tacit collusion on price terms but inability to collude on non-price) is more likely and the most likely scenario is that they would be able to collude on both or neither. I therefore consider the distinction between designated and specified services to achieve little other than to delay the resolution of pricing issues, either through a Commission Schedule 3 investigation which results in a specified service being designated or through an access provider responding to the threat of such a designation by offering prices for a specified service that are accepted by an access seeker.

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[70] Clarke and Mosby p.105

[71] During which time the ACCC would declare that a particular service ought to be supplied by the access provider but expected pricing terms to be agreed in accordance with a set of 'pricing principles' which it had specified. Only if agreement could not be reached could the access seeker approach the ACCC for a determination, see https://www.accc.gov.au/system/files/Fn%2042%20-%20ACCC%20Access%20Pricing%20Principles.pdf,

[72] In the current EECC, Article 74 ('Price control and cost accounting obligation') is one a number of measures which the regulator can apply to a firm that has been found to have SMP. Others include transparency and accounting separation obligations and obligations to provide access to specific network elements and facilities.

[73] https://www.accc.gov.au/system/files/3%20ACCC%282003%29%2C%20Final%20Determination%20for%20model%20price%20terms%20and%20conditions%20of%20the%20PSTN%2C%20ULLS%20and%20LCS%20services.pdf

123. I note that the question of whether to designate a specified service has arisen only once - in relation to mobile co-location and national roaming services in 2008, when the Commission recommended (and the Minister agreed) not to reclassify[74]. It has subsequently become clear that Vodafone entered into a national roaming agreement with 2degrees in 2007 in an attempt to pre-empt the Schedule 3 investigation[75] and I think it is unlikely Vodafone would have done so had the Commission not threatened to designate.

124. The Act in New Zealand also includes provisions in Schedule 3A allowing the access provider to propose undertakings in lieu of a Commission decision, which is an approach often employed to settle competition cases. As discussed in Chapter 1, this is vulnerable to strategic behaviour which will delay resolution and inhibit competition. I note that it has only been used on one occasion in New Zealand[76]. There have been occasions when regulators in Europe have relied upon voluntary undertakings to conclude that regulation is no longer required[77] and Article 79 introduced a formal commitments procedure into the European regulatory framework in 2018.

125. The designation process in New Zealand also distinguished between initial pricing principles and final pricing principles[78]. The assumption when the Act was introduced in 2001 appears to have been that the Commission would engage in an initial benchmarking exercise against prices in comparable countries and that this would be faster and less burdensome for both the Commission and the regulated firms than developing a TSLRIC model or using some other costing methodology. It may also have drawn upon the tendency in competition law to seek 'competitive benchmarks' to assess whether a particular price is exploitative. If access seekers or providers considered that the resulting prices did not reflect the costs which they were actually incurring or expected to incur, then they could request a 'pricing review' in which the Commission would then undertake a more substantial piece of work to set a price using a cost model.

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[74] Clarke and Mosby p.149

[75] In 2017 the Commission investigated the agreement and found ' provisions [that] enabled Vodafone to invoke sanction against 2Degrees should the Commission commence an investigation into national roaming, and also allowed Vodafone to apply retrospective sanctions if the Commission initiated such an investigation because of some action taken by 2Degrees', see https://comcom.govt.nz/__data/assets/pdf_file/0020/60581/Summary-of-findings-of-investigation-of-the-national-roaming-agreement-between-2Degrees-and-Vodafone-October-2017.PDF

[76] Clarke and Mosby p.133

[77] The Austrian regulator withdrew regulation from the wholesale fixed broadband market in October 2022 after it approved commercial supply agreements which the incumbent operator had entered into with a number of access seekers. The Dutch regulator did the same in 2022, see https://www.acm.nl/en/publications/acm-meaningful-proposals-made-kpn-and-glaspoort-regarding-lower-tariffs-fiber-optic-network-access

[78] Given that, most of the prices for designated services that apply today are unlikely to be revisited by the Commission before those services are withdrawn from the Schedule, the process may be of only retrospective interest.

126. I understand there have only been two occasions on which a pricing review has been requested. One relates to a request by Chorus and a number of other parties in February 2013 to apply the final pricing principle to determine the price of unbundled copper loops and the other in January 2015 for a similar review of copper bitstream services. The Commission had applied a 'retail minus' initial pricing principle to set rates ($44.98/month) for copper bitstream services in 2007[79]. However, the Government amended the Act in 2011 to require the Commission to set prices by reference to international benchmarks. The Commission had already used international benchmarks to set the price of unbundled copper loops in 2007 and, at its own initiative, did so again in 2012[80].

127. The process of revisiting prices of copper services, which took 3 years to complete, proved highly controversial at the time and problematic for the Commission. It involved a number of different moving parts, including a decision to move away from deaveraged pricing in which separate rates for broadband services applied in urban and rural areas[81] (which varied considerably given differences in line density) and challenges in finding suitable international price benchmarks at a time when regulators in the United States, in particular, were abandoning network unbundling as a measure to promote competition.

128. The recently separated network business, Chorus, claimed that the rates obtained from the application of the initial pricing principle would undermine its capacity to invest in the UFB programme to which both it and the Government had committed and that its business had been left 'uninvestible'[82]. In response, the Government intervened and in its 2015 review consultation paper indicated that it would itself set price for copper bitstream services in the $37.50-42.50 range[83]. The Commission's December 2015 final determination for copper bitstream services, in which prices were set by reference to a TSLRIC model which the Commission had developed resulted in a UBA rate of $41.19 in year 1[84]. This compared to the 2012 Initial Pricing Principle bitstream rate of $34.44[85]. Announcing the Commission's decision, Stephen Gale said:

[79] https://comcom.govt.nz/__data/assets/pdf_file/0039/88788/UBA-STD-Decision-611-Public-Version.pdf
[80] https://comcom.govt.nz/__data/assets/pdf_file/0032/88763/Final-determination-on-the-benchmarking-review-for-the-unbundled-copper-local-loop-service-3-December-2012.PDF
[81] TSO obligations to consistent geographic prices continued to apply for standalone voice services.
[82] https://business.scoop.co.nz/2013/10/30/chorus-lumped-with-regulatory-risk-premium-sheldon-says/
[83] p. 18 at https://media.nzherald.co.nz/webcontent/document/pdf/201332/AmyAdams.pdf
[84] I note that the bitstream rate (minus the local loop) at $11.44 in year 1 was similar to the $10.92 derived from benchmarking in the IPP (which Chorus had previously unsuccessfully challenged in the High Court).
[85] https://comcom.govt.nz/news-and-media/media-releases/2015/commission-releases-final-decision-on-wholesale-broadband-prices

"This is the most complex and extensive economic model the Commission has ever been tasked with creating, evidenced by the 240 submissions – totalling more than 6000 pages – we have received during our consultation process'[86].

129. The Government's 2015 review had asked whether the price setting was too cumbersome[87]. In the event, the 2001 Act was amended in 2018 to allow the Commission to do away with the distinction between initial and final pricing principles and instead use a single step process when setting prices for mobile services. Prices for copper services were removed from the Schedule 3 price setting process altogether and instead existing rates were indexed to CPI from January 2020[88]. Prices for fibre services were not addressed by the Part 2 regime, but by a new RAB-based approach which was incorporated into Part 6 of the Act and which I discuss further below.

130. I draw several lessons from the experience of copper pricing reviews in New Zealand. The first is that the application of the 'ladder of investment' strategy in New Zealand was not obviously very successful. Unbundling of the copper network started later in New Zealand (in 2007) than in Europe or the United States and by 2011 it was already clear that the copper network would be replaced by the UFB fibre networks in all the urban locations where unbundling was likely to be a viable proposition. Furthermore, only two years later Telecom New Zealand committed to deploying VDSL equipment in cabinets as part of its negotiations with the Government regarding EOI obligations under the operational separation plan[89]. Sub-loop unbundling being economically viable at only a very small proportion of cabinets is likely to have contributed to the comparatively slow uptake of unbundled copper loops in New Zealand[90].

131. By 2015 around 85-95% of competitor broadband connections in Europe were provided over unbundled copper loops[91] whereas in New Zealand, in the same year, only around 10% were[92]. Demand for unbundled loops in New Zealand had already plateaued at around 125,000 by 2013. The implications can be debated, but it meant New Zealand operators did not have a significant sunk investment in DSL technology or, apparently, aspirations to climb the ladder of investment

[86] https://comcom.govt.nz/news-and-media/media-releases/2015/commission-releases-final-decision-on-wholesale-broadband-prices
[87] p.104 at https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001
[88] p. 11 at https://www.mbie.govt.nz/dmsdocument/1310-telco-review-cabinet-paper-may-2017-pdf
[89] https://www.beehive.govt.nz/sites/default/files/Telecom%20Operational%20Separation%20Backgrounder%2031%20March%202008_0.pdf
[90] A 2007 study for the Irish regulator found the NPV of costs per subscriber for sub-loop unbundling to be almost double those for unbundled loops, see p.3 at https://www.comreg.ie/media/dlm_uploads/2015/12/ComReg0810a.pdf
[91] Fig 3 at http://www.dotecon.com/assets/images/160823_ief_procompaccreg_01.pdf,
[92] p. 6 at https://www.annualreports.com/HostedData/AnnualReportArchive/c/ASX_CNU_2015.pdf

and operate their own network infrastructure. For most of the copper network era to that point, these operators had been acting as retailers or resellers of the monopoly network. This aligned well with the New Zealand Government's approach to fibre networks, which envisaged the continuation of the monopoly network model, ignored the possibility competitive network entry which the ladder of investment model had been seeking to promote, and confined operators other than LFCs to the role of retailers of fibre services in much the same way as they had been retailers of copper services.

132. The second lesson is that the multi-stage process for setting prices contributed to complexity, uncertainty (for both access seekers and access providers) and delay without many obvious benefits. International benchmarking was not a sustainable basis for setting regulated prices in a world in which New Zealand had no control over the approach being pursued by regulators in other countries and in which these approaches diverged, as they did in relation to the promotion of competition in fixed telecommunications markets after the mid-2000s and particularly the 2010s, and where few countries are comparable to New Zealand in any event. The resource commitments that are required to develop more sophisticated regulatory regimes, as alluded to by Stephen Gale's comments, are only justified if the Government is committed to sustaining such a regime over an extended period of time. In this case, the investment in the TSRLIC modelling capability was written off by the Government when it decided to index copper prices to CPI after 2020. This restored a degree of predictability and simplicity to copper network service pricing which had been lost between 2012 and 2015 but also ended any attempt to set prices in a way which would incentivise access seekers to advance up the ladder of investment.

133. Although the European application of TSLRIC models to set prices lasted longer and may have been less controversial than the Commission's experience, similar lessons were drawn. The Commission's 2013 Recommendation continued to recommend TSLRIC models to set copper network prices, but proposed using RAB models to value non-replicable civil engineering assets such as ducts and poles at the lower of net book value or replacement value and to index the resulting regulatory cost base to an RPI or CPI measure, as the Government in New Zealand decided to do after 2018. The conclusion was that TSRLIC models were too volatile to provide the predictability which investors in infrastructure markets require, as well as being inappropriate when setting prices for assets which are not expected to be replicated.

Adjusting the scope of regulation

134. In addition to taking a different approach to the setting of prices, Part 2 of the Act also differs from the European approach in the way that regulated services are defined and regulated firms are

identified. The process of introducing or withdrawing regulation is governed by the Act. Schedule 1 originally included 13 services, including interconnection and local access services to Telecom's network, number portability (which is described as a multi-network service because the obligation to supply falls on multiple network operators), national roaming and co-location. All were to be regulated for 5 years and then subject to review. The initial list was hard coded into the statute rather than being left as a matter for the Commission to decide upon. The Act gives the Commission powers to undertake a so-called Schedule 3 review to assess whether new services should be added to the list or whether existing services should be redefined or withdrawn. The Commission reviewed the entire list in 2006 and determined that regulation should continue for 10 of the services for a further 2 years[93]. Subsequently the Commission designated a bitstream copper service in 2004, altered the terms of the national roaming service in 2008, changed the designation of fixed resale services before removing them in 2019, and designated Mobile Termination Access services (MTAs) in 2010[94].

135. Other services, such as unbundled copper loops and associated co-location and backhaul were inserted into the Schedule by legislators in 2006. The Commission just completed an assessment of whether it has reasonable grounds to review copper broadband services in rural areas and has recommended to the Minister that there are. At the time of writing this report Schedule 1 contains 7 designated services, 2 specified (mobile) services and 2 designated multi-network services, or 11 services in total.

136. This compares to Europe, where the number of markets on the List of Relevant Markets (susceptible to ex ante regulation) has fallen from 18 in 2003 to just 2 today[95]. It may superficially appear that the scope of regulation in New Zealand has not diminished to the same extent as in Europe but I think this would be the wrong conclusion to draw. The designated multi-network services in Schedule 1 relate to number portability services which are not considered to be 'relevant markets' in Europe. Call termination services on fixed and mobile networks are still regulated in Europe but are now subject to pan-European price caps under Article 75 of the EECC rather than being a matter for national regulators to review or consider. National roaming or mobile co-location services are not and never have been included in the European List of Relevant Markets, but that does not mean that obligations to allow roaming or to share towers have not been introduced in Europe by other means. Overall, I would judge that the scope of the

[93] https://comcom.govt.nz/__data/assets/pdf_file/0035/59777/Review-of-Regulated-Services-Final-Report.pdf
[94] Clarke and Mosby p.148-9
[95] https://digital-strategy.ec.europa.eu/en/news/commission-updated-recommendation-relevant-markets#:~:text=The%20new%20list%20includes%20two,market%20trends%20in%20the%20Union. The Commission has recently launched a consultation on the next recommendation, see https://digital-strategy.ec.europa.eu/en/news/commission-launches-consultation-revision-recommendation-relevant-markets

Part 2 obligations in New Zealand is no more or less extensive than that in Europe today. The more fundamental difference between Europe and New Zealand relates to the approach to regulating fibre networks, which I discuss further below.

137. The Commission is required to make a recommendation to the Minister if it considers that changes to the list of regulated services are necessary. It is not clear to me why the Minister is well placed to decide on these matters, or why it is necessary for him to do so. One practical effect is that changes to Schedule 1 are not capable of being challenged in the Courts, other than on judicial review grounds[96]. In my view the better approach is for the Commission to take the decision (as it does in relation to the terms under which the obligation is to be fulfilled).

Conclusions on Part 2 of the Act

138. In this chapter so far I have discussed the development and operation of the Part 2 access regime which was introduced in 2001 and modified in various ways subsequently. It may be thought that all this is of largely historical interest given that copper broadband services in urban areas have already been removed from the scope of the Part 2 regime and the Commission has recently completed a review to assess whether those in rural areas should also be removed. I discuss the application of the Part 2 regime to mobile services in Chapter 3, but it has not been very extensive.

139. One response might be to recommend that the Part 2 regime is repealed altogether. However, to do so would remove Section 18 of the Act and deprive the Commission of its primary tool for economic regulation and promoting competition. Given the views I presented in Chapter 1 about the importance of competition in telecommunications markets, I do not think this is advisable.

140. One of the lessons of the past 20-30 years is that technologies and markets in telecommunications continue to evolve, often in ways that are unexpected. There may be no need for access obligations outside of the Part 6 regime in the next few years but that does not mean that access obligations may not be required in the future. It is possible, for example, that the Government concludes that the market for fibre networks and services requires more competition and that other technologies will not induce Chorus or the other LFCs to upgrade or otherwise invest in their networks as they would under more competitive conditions. Experience from Europe suggests that, were that to be the case, the Commission would need tools to enable

[96] Clarke and Mosby claim (p.102) that the Minister performs a role akin to that played by the European Commission in reviewing (and having powers to veto) proposals to regulate particular firms and services that are notified to them by national regulators. I do not agree with the comparison. The European Commission's role is to ensure the harmonised application of regulation across Member States and to veto outliers. The Minister has no such harmonisation function.

competitive fibre network operators to access civil engineering assets of the LFCs. Importantly, in my view, the threat that the Commission could use the Part 2 regime to introduce more competition into the market may influence the conduct of Chorus and the other LFCs in a way which ensures that further regulatory action is not actually necessary. If the Part 2 regime were removed, no credible threat would exist under the regulatory regime and I would expect the Government to find it more difficult to bargain with the industry as a result.

141. Similarly, the Government may conclude that Chorus should no longer be required to maintain its copper network in rural areas given the ever increasing costs of doing so,even if there are insufficient alternatives to ensure that the market remains workably competitive. In these circumstances the Commission might consider, for example, whether regulated access to fixed wireless services is required in order to promote competition. In mobile, as I discuss in Chapter 3, issues may arise if the mobile operators were to pursue new forms of network sharing, or if the TowerCo industry consolidates such that operators find themselves dependent upon a single supplier for an essential input. The Commission might in future conclude that MVNOs require regulated access to mobile network services or may consider that the ability to regulate and the threat of doing so is sufficient to ensure that MVNOs can obtain reasonable commercial terms. Other access disputes are also conceivable – in Europe there is currently a debate about whether the scope of the telecommunications regulatory framework should be extended to address peering disputes between network operators and large digital platforms. Although these arrangements generally work well on a commercial basis, it would be unwise to assume that they will always do so. I am not a lawyer, but it seems to me that all of these examples could be subject to a regime concerned with the regulation of 'telecommunications services' as defined by Section 5 of the Act.

142. I recognise that these and other issues could be addressed by the Government with new legislation as and when they arise, and that access undertakings could also be secured as a condition of merger approvals. However, I have noted above that having a regulatory access regime in place may reduce the likelihood of having to apply it. Once the Government feels it must legislate, matters may already be out of hand and the risk of poor outcomes will be higher. I also consider that merger remedies are, like contracts, ill-suited to the task of regulating access terms (although I recognise that they have also been used for this purpose in mobile mergers in Europe in the past). In my opinion a more flexible and more dynamic regulatory framework is the better approach.

143. I do not think the existing Part 2 regime fulfils this requirement for several reasons. First, for the reasons explained above I think the distinction between specified and designated services serves little practical purpose other than to delay the effective application of price regulation.

Second, the distinction between initial and final pricing principles adds complexity and uncertainty to a process of setting prices for assets where predictability and stability should contribute to lowering the cost of capital. In my view, the Act should not prescribe what methodology the Commission employs to set prices.

144. Third, the identification of the services to be supplied and the firms that are obliged to supply them ought not to be prescribed in the Act either, given uncertainty about the technologies and market conditions which will prevail at the time the access regime is to be applied. Again, the Commission should be entrusted to determine what should be supplied to promote competition and who should be obliged to supply it.

145. The identification of the firms to be regulated requires some objective criteria. This is an aspect of regulation where I think competition law is instructive. As noted in Chapter 1, in determining whether to regulate a market the Commission currently considers whether there is 'limited competition' or the prospect of limited competition in that market. I do not know whether or not this is synonymous with the presence of firm exercising 'a substantial degree of market power' as defined by Section 36 of the Commerce Act. In my view, there are strong arguments for explicitly aligning the threshold test such that the Commission would be required to find that a firm holds a substantial degree of market power to apply the provisions of the Part 2 access regime to it. I note that the Commission's guidelines on Section 36 state that more than one firm can have a substantial degree of power in a market[97], which I assume anticipates what in Europe would be referred to as joint dominance or tacit co-ordination.

146. The arguments for alignment are, first, that if the Commission is to have discretion as to who and what to regulate instead of the answer appearing on the face of the statute, then investors and firms need some predictability as to how the regime will work. Competition law, including I assume in New Zealand, has extensive precedent as well as Commission guidelines on the factors which the Commission will take into account when assessing whether or not any particular firm holds a substantial degree of market power. Second, alignment with competition law ensures that the constraints from regulation in the telecommunications sector do not exceed the scope of the constraints which competition law imposes on firms in other parts of the economy. This is important if the telecommunications sector is to obtain its appropriate allocation of capital and other resources.

[97] para 40 at https://comcom.govt.nz/__data/assets/pdf_file/0014/311360/Misuse-of-Market-Power-Guidelines-March-2023.pdf

147. It might be objected that applying the same threshold as applied by Section 36 of the Commerce Act simply duplicates competition law or raises concerns about 'double jeopardy'. These objections were raised in Europe before the adoption of the new regulatory framework in 2002 but have proven unfounded in practice. As I explained in Chapter 1, the rationale for economic regulation is simply that it is more effective in promoting competition, given the particular features of telecommunications markets, than competition law.

148. Another aspect of the existing Part 2 regime which I recommend be changed is the review process. Currently the Commission is required to consider whether there are reasonable grounds to withdraw a service from Schedule 1 every 5 years but, assuming it determines that there are no grounds to withdraw regulation, the Commission is not required to consider whether the terms of which services are supplied should be amended. This is at odds with the position in Part 6, where the Commission adjusts the value of the RAB, and hence the prices which the LFCs can charge for fibre services, every 5 years. One consequence of this is that regulated prices (for services other than fibre) in New Zealand have tended to remain unchanged (in real terms) for long periods of time. I understand, for example, that the price for MTAs has not been reviewed since rates were set in 2011 for a period which only extended until 2015[98]. The benchmarks adopted included those from a number of European countries that have since replaced their national rates with a single pan-European rate that has been set at 0.2 eurocents since 2024, or about one fifth of the rate used by the Commission in 2011[99].

149. Finally, I do not regard multi-operator service regulation as involving the same issues or requiring the same approach as an access regime based on assessments of market power. Number portability obligations, which are now well established, should be addressed alongside other aspects of switching that are addressed by provisions under Part 7 of the Act. At some point in the future (but not yet) I think it is likely that telephone numbers will no longer provide the identity of a household or user and will cease to be a feature of the industry.

The copper legacy

150. Part 2AA of the Act follows Part 2, which I have discussed above, and concerns the process for the 'deregulation' of copper networks and services. It was introduced in 2018 in anticipation of the completion of the UFB fibre network programme, at which point Chorus was expected to

[98] https://comcom.govt.nz/__data/assets/pdf_file/0038/87968/Final-MTAS-STD-Decision-Document-5-May-2011-Public-version.pdf
[99] https://digital-strategy.ec.europa.eu/en/news/commission-adopted-delegated-regulation-eu-wide-voice-call-termination-rates and p.71 https://comcom.govt.nz/__data/assets/pdf_file/0038/87968/Final-MTAS-STD-Decision-Document-5-May-2011-Public-version.pdf

decommission its copper network[100]. The Commission was required, from 2020, to annually identify 'specified fibre areas'[101] from which Chorus could withdraw copper services in accordance with a copper withdrawal code which the Commission was to approve[102]. The initial assessment in 2019 specified areas representing a total of 1.5 million households and subsequent annual assessments have increased this figure to around 1.85 million households[103].

151. The contents of the copper withdrawal code are detailed in Schedule 2A of the Act and include a requirement that a new fibre connection should replace the copper connection with no additional cost to the end user, the end user should be given information about battery back up and the end user, as well as their retail service provider, should be informed 6 months, 3 months and then 20 working days in advance about the withdrawal of the copper service and be sent a confirmation notice before the service is withdrawn[104]. Although the Commission could have asked the industry to develop the code, it decided to undertake this role itself[105].

152. In 2023 the Commission undertook a review of the code and made revisions which were adopted in February 2024[106]. These appear to have drawn on lessons learned from the initial implementation period. They included that the labelling of the various notices had been confusing to some customers, changed the circumstances in which Chorus was required to provide confirmation notices, and made changes to the timelines for providing notices and the means of communication. The Commission rejected Chorus' request that it remove obligations to retain copper services when the installation of a fibre connection was being prevented by a third party and other alternatives (FWA, satellite) were available[107].

153. In legal terms Chorus has been released from its TSO obligations to provide copper services to end users in UFB areas and is instead subject to the requirement to provide a fibre anchor product at regulated prices under Part 6. Chorus is similarly released from its obligations under

[100] https://www.legislation.govt.nz/act/public/2018/0048/latest/LMS111301.html#LMS111299
[101] Section 69AB of the Act
[102] I understand that Chorus could withdraw unbundled copper loop services from January 2020 irrespective of whether they are within an specified fibre area, see p. 27 at https://comcom.govt.nz/__data/assets/pdf_file/0020/216920/Copper-withdrawal-code-Draft-decisions-and-reasons-paper-20-May-2020.pdf
[103] https://comcom.govt.nz/regulated-industries/telecommunications/regulated-services/consumer-protections-for-copper-withdrawal/map-of-specified-fibre-areas#:~:text=Specified%20fibre%20areas%20(SFAs)%20are,services%2C%20because%20fibre%20is%20available.
[104] Similar procedures are envisaged in Europe by Article 81 of the EECC
[105] https://comcom.govt.nz/__data/assets/pdf_file/0020/216920/Copper-withdrawal-code-Draft-decisions-and-reasons-paper-20-May-2020.pdf
[106] https://comcom.govt.nz/__data/assets/pdf_file/0022/342283/Copper-Withdrawal-Code-2024-Decisions-and-Reasons-paper-5-February-2024.pdf
[107] p. 34 ibid

Part 2 of the Act to provide copper services to RSPs. I understand this to mean that the Commission is thereafter not able to regulate the price which Chorus may charge RSPs for copper broadband services. Ofcom has taken a similar approach in the United Kingdom by withdrawing wholesale price regulation in the expectation that BT would increase copper prices in areas where fibre alternatives are available and thereby encourage end users to switch to fibre services (the price of which remain constrained by regulation)[108].

154. As regards rural areas, the Commission has been undertaking what it refers to as its Copper Services Investigation to fulfil a requirement that it report to the Minister by the end of 2025 on whether there are grounds to remove Part 2 regulation from copper services in rural areas. In making this determination the Commission is required to determine whether copper regulation is still required to promote competition in telecommunications markets for the long-term benefit of end-users. The Commission issued a draft report in March 2025[109] and a final report in August 2025[110]. The Commission concluded that there is sufficient competition between fixed wireless access and satellite technologies and recommend that Part 2 regulation of copper services can therefore be withdrawn.

155. The Minister may not accept the Commission's recommendations but I assume for the purposes of this report that they will and in my view they should. The removal of Part 2 regulation does not in itself allow Chorus to decommission the copper network in rural areas (at least in respect of connections in place in or before 2001) since it would remain subject to its commitments under the TSO deed which it entered into with the Government in 2011. However, I find it difficult to envisage a Minister accepting the Commission's recommendation to remove copper services from the Part 2 regime whilst at the same time insisting that Chorus remains obliged to supply copper services to rural households under the terms of the TSO deed. I therefore assume that the Commission's recommendation will also result in the voiding of the TSO obligations and so enable to decommissioning of copper services to begin (recognising also that the future of the TSO arrangements are currently under consideration as part of the review being undertaken by the Department for Regulation which I referred to at the beginning of this report). Since Chorus has already announced that it intends to decommission its copper network by 2030,

[108] p.20 at https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/185028-promoting-investment-and-competition-in-fibre-networks--wholesale-fixed-telecoms-market-review-2021-26/associated-documents/wftmr-statement-volume-1-overview.pdf?v=326138
[109] https://comcom.govt.nz/__data/assets/pdf_file/0036/364788/Copper-Services-Investigation-Draft-recommendation-report-12-March-2025.pdf
[110] https://comcom.govt.nz/__data/assets/pdf_file/0028/368452/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf

including in rural areas, it seems that Chorus is similarly assuming that it will be released from its existing TSO obligations in the near future[111] .

156. I note that if Chorus is allowed to proceed with the decommissioning of its copper network in rural areas then it has said it will provide undertakings to the Commission that it will comply with the terms of the existing copper withdrawal code when doing so[112]. This is because the Act does not make provision for Chorus to be obliged to comply with the copper withdrawal code outside of UFB areas or for the Commission to be able to enforce it[113].

157. I understand Chorus have suggested that it would be disproportionate and unnecessary for the Government to legislate to give the Commission powers to enforce compliance, given the relatively small number (likely less than 50,000) of households that will be affected. My consideration of this issue would start with the incentives which Chorus has to minimise disruption or adverse effects for rural households and the risks of such disruption arising from copper decommissioning. In my view, both are more acute in rural areas than in urban areas.

158. First, I think Chorus will have weaker incentives to ensure a smooth migration if it does not own the network to which users will switch and so has no expectation of earning revenues from those households in future. This would be the case if Chorus has no plans to deploy fibre in those rural areas. Second, I also consider that the risks of households being left without any form of fixed broadband service will be more acute if the Government and Commission decide to rely upon LEO satellite or cellular fixed wireless services as the successor technologies. This is because both technologies could be subject to localised capacity constraints (and the latter may also have coverage gaps) which mean that some households risk being left with no alternative to their existing copper connection at least for a period of time. I would expect the Government to want to be able to ensure that Chorus will continue to supply a copper connection to those households until these constraints are overcome. It may be possible to obtain such assurances through the undertakings which Chorus has indicated it is willing to give to the Commission, but they will be difficult to enforce. If a voluntary arrangement is unsatisfactory then I would recommend that the application of Schedule 2A of the Act is extended to copper decommissioning in rural areas.

[111] Slide 12 at https://assets.ctfassets.net/7urik9yedtqc/nzx-doc-438119/fa29cc7b386c5bb3001ec234765b7a59/2_Investor_Presentation.pdf
[112] p. 3 at https://comcom.govt.nz/__data/assets/pdf_file/0028/367273/Chorus-Cross-submission-on-Copper-Services-Investigation-draft-recommendation-report-5-May-2025.pdf
[113] Para 33 at https://comcom.govt.nz/__data/assets/pdf_file/0021/353622/5BChorus5D-to-Commerce-Commission-Submission-on-Copper-Services-Investigation-approach-paper-22-May-2024.pdf

159. Chorus has begun the decommissioning of copper lines in UFB areas and by June 2024 had withdrawn around 52,000 connections[114] and in June 2025 had only 13,000 remaining[115]. It will complete decommissioning within the UFB areas by mid- 2026. Telefonica began deploying fibre at scale in Spain from 2009 and concluded the decommissioning of its copper network earlier this year[116], having started in 2014. Other European countries such as Portugal and France are targeting 2030, but others such as Germany have no deadlines at this stage[117]. AT&T in the United States is targeting 2029[118]. Chorus' target of 2030 for the remainder of its copper network appears reasonable to me.

The future of fixed networks in rural areas

160. In my view, the most significant question for the New Zealand Government (and, by extension the Commission) to address with regards to telecommunications policy is 'What network services and technologies will or should rural households and businesses expect to have available to them in future?'. I consider the regulatory issues in this report and discuss ways to incentivise rural fibre deployment in the next section. However, the question of whether rural households should have access to the same broadband services as urban households or, if not, what broadband services and suppliers should be available to them and how they should be funded are political questions which are given effect through what I described as social regulation in Chapter 1. I discuss other aspects of social and consumer protection regulation in Chapter 4 but it is appropriate to address the future for rural broadband services here. Before considering the social regulation considerations I discuss the competitive outlook for rural broadband services.

The competitive outlook for rural broadband services

161. The Commission's assessment on whether to recommend the deregulation of copper services in rural areas is framed in terms of whether there are sufficient competitive constraints upon, and alternatives to, copper services to fulfil the purposes of Section 18 of the Act without the need to

[114] p.27 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf. I
[115] Slide 14 at https://assets.ctfassets.net/7urik9yedtqc/nzx-doc-450317/13dcf8c3807c9d93d5d68934b93855c8/2_Chorus_FY25_Investor_Presentation.pdf
[116] https://www.datacenterdynamics.com/en/news/telef%C3%B3nica-completes-switch-off-of-copper-network-in-spain/
[117] https://www.berec.europa.eu/system/files/2024-12/BoR%20%2824%29%20181_Draft%20BEREC%20Report%20on%20copper%20switch-off_0.pdf
[118] p.51 at https://investors.att.com/~/media/Files/A/ATT-IR-V2/reports-and-presentations/2024-analyst-day-with-notes.pdf

retain the Part 2 access obligations[119]. The objective of the Commission's review is therefore to determine whether regulation of copper services is still necessary or whether it can be withdrawn. I agree with the Commission's conclusions on this and do not expect copper services to play a meaningful role in the market rural broadband services in years to come. Chorus appears to share that assessment and has said it plans to decommission the copper network by 2030.

162. Whilst the withdrawal of regulation and then of copper services altogether may not have adverse consequences for the long term interests of rural end users, it does not follow that competition between the technologies that remain will be satisfactory. In my view there are good grounds for thinking that it will not be.

163. The first concern arises from my expectation that Chorus will decommission its copper network in rural areas irrespective of whether it replaces it with fibre. Even if Chorus does intend to extend its fibre network in rural areas, a topic I consider in the next section, I expect that in many areas it will decommission the copper network before fibre has been deployed. Rural households will therefore be left with fewer choices.

164. Aside from Chorus deploying fibre and Amazon's Kuiper service I am not aware of any significant potential entry into the market for broadband services in rural New Zealand. Fibre network provision by WISPs is negligible, serving less than 0.5% of rural households[120]. It may expand but I do not expect it to represent a significant competitor in the foreseeable future. Entry by other fixed wireless or satellite network operators seems unlikely, given high entry barriers. In my view, there also remains considerable uncertainty about the competition to be provided either by a Chorus fibre network (which I discuss below) or by Amazon's Kuiper service, which I understand is due to launch services in New Zealand in late 2025. The Commission expects Amazon to obtain a significant (up to 15%) fixed broadband market share by 2027[121] but I think there remains considerable uncertainty about Kuiper's prospects.[122].

165. This leaves the existing fixed wireless networks and Starlink. A feature of both is that, to a greater extent than fixed networks, they may encounter capacity constraints in future. In Europe,

[119] The approach taken is explained in para 2.27- at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf
[120] p.36 at https://comcom.govt.nz/__data/assets/pdf_file/0028/368452/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf
[121] p.281 at https://www.comcom.govt.nz/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[122] I note that LEO network deployments are more risky than terrestrial network deployments as they involve rocket launches which can fail (Amazon cancelled its second launch of Kuiper satellites) and technologies which are immature. I also understand Amazon is subject to deployment targets which it must meet to retain its FCC licences, the first of which comes due in mid-2026, see https://www.eoportal.org/satellite-missions/projectkuiper#launch

Starlink has previously faced capacity constraints that have led to it pausing the sale of fixed broadband services in some countries. A recent study by Aetha Consulting is the first I have seen to investigate this issue rigorously. Aetha conclude that a constellation of 42,000 Starlink v3 satellites could support a 100 Mb/s service to the entire population in extreme rural areas, which they define as areas with a density of fewer than 35 households per km^2 and 40% of households in rural areas with a density of 100 households per km^2[123]. However, the 42,000 satellites target remains an aspirational one at this point. Starlink currently has around 7,500 satellites in orbit. The original plan was for 12,000 satellites which, assuming this is met, Aetha estimates will allow Starlink to serve the demand of around 34% of households in the same extreme rural areas and 12% of households in rural areas. I understand that the majority of rural areas which are not currently served by the LFC would be considered extreme rural under the Aetha categorisation[124] and so it would appear that a significant proportion of such households could be served by Starlink even if the number of satellites were to remain below the 42,000 satellites target. The Commission may therefore be right to consider that 'a sufficient level of LEO network capacity should be available in New Zealand' in the future[125].

166. I am also aware that the cellular fixed wireless networks have paused or ceased sales of fixed wireless connections at locations where capacity is constrained, and, as discussed below, there is some evidence in terms of rural price premiums and the Government's efforts to alleviate constraints using the Rural Capacity Upgrade Fund to indicate that capacity constraints may explain the relatively low share of connections achieved by cellular fixed wireless operators in rural areas to date. I recognise that the Commission has received data from the operators about 4G capacity constraints which I have not seen and that it considers that whilst an individual operator may face capacity constraints at a particular location it is likely that the other cellular fixed wireless operators will not[126]. This may be the case at current cellular fixed wireless market shares of around 35% of households but I continue to have concerns about the capacity of 4G networks to absorb significant additional demand (and, thereby, represent a meaningful competitive constraint on other technologies) as well as the willingness of the cellular fixed operators to allocate capital to further expanding rural network capacity to meet demand for fixed wireless services.

[123] https://www.aethaconsulting.com/leo-satellites-and-terrestrial-networks-competitors-or-complements/
[124] p.19 at https://www.stats.govt.nz/assets/Reports/Housing-in-Aotearoa-New-Zealand-2025/Housing-in-aotearoa-new-zealand-2025.docx
[125] p.39 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf
[126] p. 37 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf

167. In my view these limitations will only be alleviated by the extensive deployment of 5G networks in rural areas. It is possible that the prospect of copper decommissioning or the deregulation of copper wholesale prices will induce the cellular network operators to invest in capacity in rural areas, including by deploying 5G (which, in addition to providing capacity would introduce a cellular fixed wireless service that could compete effectively with Starlink in a way which 4G is unlikely to do in the future[127]), without the need for Government intervention[128]. Even if that were the case, which I have serious doubts about, there would need to be sufficient capacity in the cellular fixed wireless networks before Chorus withdrew the copper connections, otherwise the copper decommissioning process will simply accelerate the migration of the entire rural customer base to Starlink.

168. These considerations lead me to conclude that the outlook for competition in fixed broadband services in rural New Zealand remains uncertain and could be quite problematic[129]. If wireless networks continue to encounter capacity constraints or have the performance limitations of 4G, Kuiper is slow to develop or fails and/or Chorus does not extend its fibre network to any degree then it is likely that Starlink will dominate the market for the provision of fixed broadband services in rural New Zealand. The copper decommissioning process would likely accelerate this.

169. I think the Commission would find itself in a challenging position in these circumstances. Given the extra-territorial nature of Starlink's operations and the resources and mercurial personality of its controlling shareholder, I think it would be extremely difficult if not impossible for the Commission to apply the Part 2 regime to Starlink. There may also be wider geopolitical issue for the Government to consider if telecommunications services in rural New Zealand were to depend exclusively upon an American satellite operator. This would give rise to concerns not only about the risk of prices increasing in the presence of a near monopoly supplier, but also about the security and resilience of the service itself.

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[127] According to the Commission, 5G connections average 350 Mb/s, or 7x the performance of 4G connections and better than Starlink (which averages ~200 Mb/s), see p.46 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[128] 'the price cap is unlikely to reflect the costs of a rural copper network, and may be distorting incentives to invest by other network operators (such as non-LEO network operators)' p.53 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf

[129] The Commission has noted that the three large RSPs have a lower collective market share in rural areas than urban areas and yet charge higher prices for both fixed cellular wireless and copper services in rural areas, despite Chorus' input price for the latter being the same as for urban areas. That suggests the three large RSPs may be subsidising higher cost fixed wireless services in rural areas which, if true, would reinforce my concerns about the prospects for competition in rural areas, p. 9 and 10 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf].

170. If my assessment of the risks of Starlink gaining a dominant position in the provision of rural broadband services are accepted then I think Government and the Commission will need to take action to promote alternative sources of competition before it occurs rather than seek to remedy the situation afterwards. This could be done in a number of ways. I discuss later the possibility of the Government providing additional funding to encourage operators to deploy or accelerate the deployment of 5G cellular networks in rural areas but I start with the deployment of fibre networks in rural areas, which I consider already have a proven ability to compete effectively with Starlink's LEO services.

171. I discuss the implications of copper deregulation and potential Starlink dominance for pricing in Chapter 4. However, the point to note here is that I consider the pricing behaviour that is being observed today as an example of 'competition 'for the market' in the midst of a major technological transition. Chorus' fibre pricing reflects, in my view, a short term objective to maximise fibre uptake in the knowledge that, once connected to fibre, households are unlikely to switch to alternative technologies. Starlink's entry level Lite product and discounted installation fees are similarly intended to maximise users whilst fibre takes much longer to deploy. Prices are generally low and competition intense at this stage of a market's development but are likely to stabilise or increase once a winner emerges. I therefore do not attach weight to current pricing behaviour in New Zealand as being evidence of longer term market performance.

Fibre expansion for social purposes

172. Aside from or in addition to the concerns about the competitive outlook for broadband services in rural areas, the Government may conclude rural households, or some proportion of rural households, should be able to obtain fibre broadband connections in the same way that households in urban areas are able, on social regulation or economic inclusion grounds. Most European Governments have universal or near universal objectives for fibre network coverage for this reason[130] and the Australian Government has recently invested a further $3 billion in NBNCo to extend fibre to 95% of households by 2030[131].

[130] For example, the United Kingdom Government expects 99% of households to have access to fibre networks by 2032 (see https://www.gov.uk/guidance/project-gigabit-uk-gigabit-programme) and the European Commission aims to all households to have access to gigabit capable networks (i.e. fibre or HFC) by 2030 (see https://commission.europa.eu/document/download/9fc32029-7af3-4ea2-8b7a-4cd283e8e89e_en?filename=cellar_12e835e2-81af-11eb-9ac9-01aa75ed71a1.0001.02_DOC_1.pdf)
[131] https://www.nbnco.com.au/corporate-information/media-centre/media-statements/upgrades-for-remaining-homes-businesses-on-fttn#:~:text=The%20investment%20is%20expected%20to%20benefit%20around,fibre%20via%20nbn%20Fibre%20to%20the%20Premises.

173. In the copper deregulation review the Commission appears to have assumed that fibre networks will not extend much beyond the very limited (0.2% of households) network coverage already available in rural areas[132]. However, Chorus has already proposed a target of 95% of New Zealand households having access to a fibre network[133].

174. Fibre network coverage in New Zealand, at 87% since the UFB programme completed in 2022[134], already compares favourably with European averages (70% in 2024[135]) and the United States (56% in 2024)[136]. However, Romania, France, Spain, Portugal and Sweden already have fibre coverage of 85%-95% of premises and Ofcom in the United Kingdom expects to fibre coverage to exceed 95% by 2027[137]. This would suggest to me that at least some expansion of the UFB footprint in New Zealand ought to be feasible, even if not to 95% of households as Chorus claims.

175. That said, I think it extremely unlikely that Chorus would be able to deploy fibre in rural areas to reach anything close to 95% of households by 2030, the date at which it expects to have decommissioned the entire copper network. This suggests that Chorus currently anticipates decommissioning copper networks in at least some rural areas before it has deployed fibre and likely a long time before in some cases. These end users will therefore be forced to migrate to fixed wireless or LEO networks. Chorus may expect that it could recapture some of these connections when it deploys fibre at a later date, but in my view this is will be a much riskier commercial proposition than migrating connections directly from copper to fibre without users being exposed to any other technology in the intervening period, as Chorus has been able to do in urban areas.

176. It is not yet clear, at least to me, how Chorus would intend to finance the extension of the fibre network into higher cost rural areas. Chorus net debt/EBITA ratio is 4.5x[138], which is considerably higher than the 2.7x median ratio for European telecommunications operators[139] or

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[132] p.25 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf
[133] https://www.deloitte.com/content/dam/assets-zone1/nz/en/docs/services/financial-advisory/2024/deloitte-unleashing-fibre-future-of-digital-fibre-infrastructure.pdf
[134] UFB networks represent about 85% of this, other fibre networks the remaining 2%.
[135] https://www.ftthcouncil.eu/committees/market-intelligence/2358/european-ftth-b-market-panorama-2025
[136] Slide 8 at https://fiberbroadband.org/wp-content/uploads/2025/01/24.rva_.fba_.FiberDeployment250114.pdf
[137] https://www.ofcom.org.uk/phones-and-broadband/telecoms-infrastructure/ofcom-propels-full-fibre-rollout-revolution-into-final-phase#:~:text=Ofcom%20has%20collated%20the%20latest,the%20right%20regulation%20and%20support.
[138] Slide 23 at https://assets.ctfassets.net/7urik9yedtqc/nzx-doc-450317/13dcf8c3807c9d93d5d68934b93855c8/2_Chorus_FY25_Investor_Presentation.pdf
[139] https://www.fitchratings.com/research/corporate-finance/european-telecom-incumbents-debt-capacity-aided-by-strong-market-positions-business-diversification-05-02-2024

US operators[140]. I recognise that its monopoly market position may help Chorus sustain higher leverage but investors do not appear to be expecting higher debt levels or equity raises at this point and it is difficult to predict how they would react to them. One of the key questions, as I discussed in the fibre report[141], would be how and from whom the additional costs of deploying fibre extensively in rural areas would be recovered. This will depend upon the Government and Commission's appetite for allowing Chorus to raise geographically averaged prices currently being paid by urban users and, if it were allowed, Chorus' ability to do so in the face of competition from other technologies[142]. Alternatively, it would depend upon the willingness of rural users to meet the higher costs of providing them with a fibre connection.

177. The most recent presentation of Chorus' own thinking on rural fibre deployment at the time of finalising this report are contained in the August press release accompanying the 2025 financial results, in which the CEO Mark Aue says:

> 'We were, therefore, pleased when the government's Infrastructure Priorities Programme recently endorsed our proposal to expand fibre to 95% of New Zealanders. The only private sector proposal among 17 endorsed projects, it has a benefit-cost ratio of 6.3, based on an expected $17 billion in economic benefits for a cost of less than $3 billion. We're ready to start, with the ability to flex the rollout for funding and regional needs… However, expansion benefits the communities where fibre reaches, rather than going to the network builder. Some form of public investment is needed but government endorsement doesn't guarantee any government funding.'[143]

178. I interpret these comments with caution because I expect that Chorus is engaged in a dialogue with the Government and perhaps the Commission at the time I write this but which I am not privy to[144]. It seems clear from the quote that Chorus does not see a commercial case for extending fibre to 95% of households but I do not know what proportion of the 8% of households, if any, it thinks could be served without 'government funding'[145]. Chorus has previously estimated

[140] https://www.spglobal.com/ratings/en/research/articles/250113-u-s-telecom-and-cable-2025-outlook-convergence-consolidation-and-disruption-13377186
[141] I discuss these issues at paragraphs 47 to 58 of the fibre report.
[142] I explain in the fibre report why I think the pricing constraints upon Chorus from cellular fixed wireless operators in urban areas are less significant than is often claimed at paragraphs 30 to 36 of the fibre report
[143] p.2 at https://assets.ctfassets.net/7urik9yedtqc/nzx-doc-450332/4247173dd0df21115cdbeebe4612ffb5/1_Chorus_FY25_media_release.pdf
[144] The entry in the pipeline of projects monitored by the National Infrastructure Commission, referred to by Mark Aue in the quote above, suggests the rural fibre project will start in Q1 2026 but that all other details remain to be determined, see https://insights.tewaihanga.govt.nz/insights/all/d3b0f978?initiative-id=IP015285.
[145] In its external communications Chorus has emphasised the externality benefits of fibre (which cannot be captured by the prices end user will pay) to make the case for public funding, including in a report from Deloitte

that extending fibre to 95% of households would represent an additional cost of $2-2.5bn[146] but has not disclosed how much of that it could or would be willing to finance.

179. The primary challenge for policymakers is that neither the regulatory regime nor the market structure provides much if any incentive for Chorus to expand the geographic scope of its fibre network or to do so with any urgency. The company's conduct since the completion of the UFB programme in 2022, which I interpret as having been primarily a public campaign to persuade politicians to finance any further investments in fibre, is consistent with this. Without regulated access to Chorus' civil engineering assets in rural areas, which the Part 2 and Part 6 regimes do not envisage, it seems highly unlikely that any other operator would be able to deploy a fibre network in rural areas in advance of Chorus, or to do so on any scale[147]. The Commission reports that 40% of rural households leaving the copper network are moving to fixed cellular wireless and 40% to LEO satellite, with the remainder moving to WISPs[148]. The cellular fixed wireless and LEO networks are already fully deployed in rural areas in coverage terms (recognising that fixed cellular networks could upgrade to 5G and there will be further densification of the Starlink network) and I would expect them to already have incentivised Chorus to extend fibre deployment to rural areas if they were going to perform that function. In the absence of such credible competitive threats or any competitive tension, there is no obvious catalyst to induce Chorus to move ahead with fibre deployment in rural areas.

180. This means I think there must be considerable uncertainty about when and how far Chorus will actually extend the scope of its fibre network in rural areas, notwithstanding its public intentions to do so. As rural households continue to migrate from Chorus' copper network to alternative technologies which may be sufficient for their needs even if inferior to fibre, the market opportunity for fibre services in rural areas may narrow further. As already noted, this

(see https://www.deloitte.com/content/dam/assets-zone1/nz/en/docs/services/financial-advisory/2024/deloitte-unleashing-fibre-future-of-digital-fibre-infrastructure.pdf).

[146] p.9 at https://comcom.govt.nz/__data/assets/pdf_file/0012/350130/Chorus-revised-Fibre-Frontier-chapter-5-February-2024.pdf. More recent data from the Commission shows the (incremental) cost per premises passed by fibre rises from around $2500/premises at 87% to over $6000/premises at 90% and over $25000/premises at 95%, see p.26 at https://comcom.govt.nz/__data/assets/pdf_file/0027/367344/Fibre-IM-Review-2027-Issues-paper-Tranche-1-10-July-2025.pdf

[147] I am aware that some WISPs have invested in fibre networks although I have limited information about this. I do not expect that they will be able to deploy fibre at any scale and the Commission's assessment in the copper deregulation review suggests it does not expect them to either.

[148] p.15 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf. This is consistent with the data in fig 3.10 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf [which shows 30% of households remaining with copper connections and the other 70% switching 31/30/7 to cellular fixed wireless, LEO and WISP respectively. Those switching to fibre is likely less than 1%.

process will only be accelerated if and when the Minister allows Chorus to start decommissioning the copper network in these areas.

Public funding

181. I think the Government has a number of options to explore if it were to decide that the extension of fibre networks into rural areas is required, whether on social regulation or competition grounds or both. One option, which appears to be that currently being sought by Chorus, is for the Government to provide further public funding to Chorus that would be conditional upon the achievement of certain network deployment targets. The main challenge with this approach, in my experience, will arise from the asymmetries in information and potentially in bargaining position as between Chorus and the Government. Chorus is likely to have a better understanding of the costs, risks and commercial feasibility of any fibre investments, which it is likely to be incentivised to overstate. This risks the taxpayer ending up assuming more of the financial risk of the project than it might otherwise need to.[149] In addition, Chorus may be the only credible builder of rural fibre networks at the scale the Government requires and the only firm with the civil engineering assets required to do so cost effectively or within a reasonable time period. This self-evidently gives Chorus a strong bargaining position and limited commercial risk if it decides to reject the terms on offer.

182. I realise that the Government faced similar challenges when the original UFB contracts were awarded 15 years ago. Most European Governments seeking to award public funds to support fibre deployments in rural areas also confront similar issues. The response, as in the UFB case, is generally to seek to introduce some kind of competitive tension into the process by means of tender or similar procurement exercise. This involves inviting qualified bidders to submit funding applications in a form of Dutch auction and allocating the funds to the bidder with the lowest public funding requirement. In 2011 this allowed the Government to award relatively small contracts to the other LFCs. As I discussed in the fibre report, I do not know whether the Government or Chorus would regard these same LFCs, or others, as credible potential bidders in a new procurement process for fibre networks in rural areas, but I have my doubts.

183. The European approach to allocating public funds for fibre deployment is different to that employed in New Zealand in the past but may nonetheless offer some insights. As already

[149] This point is distinct from the challenge which the Commission faces in assessing requests for network expansion capex from Chorus under the Part 6 regime, which also present information asymmetries. In that case the cost of error rests with RSPs and their end users who may pay higher prices than they would otherwise need to rather than with taxpayers.

explained - and in contrast with New Zealand since 2011 - Europe has been pursuing a regulatory approach which has sought to promote fibre network competition. The competitive tension driving fibre network expansion in Europe has therefore been provided by the threat of a rival gaining first mover advantage and the challenges of switching users away from an incumbent network supplier once they have connected to another fibre network. State Aid rules in Europe prevent national Governments from distorting competition by allocating public funds to firms that are operating in a competitive market environment and so public subsidies are limited to supporting fibre deployment in areas where competition would not otherwise induce a firm or firms to invest. It therefore requires public administrations to identify those geographic areas – often referred to as 'white areas' – where deployment of fibre is not viable on a commercial or privately financed basis[150]. This is attempted by requiring all potential fibre network suppliers in the market to provide confidential forecasts of their network deployments for, typically, the next 3 years[151]. Public funds are then targeted to support deployments in those geographic areas where no commercial fibre network provision is expected, with funds being assigned through a competitive tender process[152].

184. The New Zealand Government is not constrained by State Aid rules and my understanding is that the UFB funding arrangements did not attempt to distinguish between geographic areas which might be served by an LFC on a commercial basis and those which could not in the way that the European legal regime requires. There may be little point in doing so when the LFCs are subject to limited incentives to deploy fibre on a commercial basis and do not have access to the regulatory inputs necessary to enable them to do so on a competitive basis. In the absence of such competitive drivers it may be worth considering other ways in which incentives to extend fibre deployment into rural areas might be introduced.

Tying copper decommissioning to fibre deployment

185. One potential approach which I explain here would be for the Government to tie Chorus' ability to decommission copper networks in rural areas to commitments to deploy fibre. This would be quite different from the position in urban areas where the Government decided that the decommissioning process should commence after the Commission had begun designating specified fibre areas in 2020. By that time, there was already sufficient deployment and take up of

[150] For details, see https://cerre.eu/wp-content/uploads/2018/11/CERRE_StateAidBroadband_FinalReport.pdf
[151] European regulators are required and given powers to require such forecasts under Article 22 of the EECC, see https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L1972. For a practical example, see https://www.ofcom.org.uk/phones-and-broadband/coverage-and-speeds/connected-nations-planned-network-deployment/connected-nations-2025
[152] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52023XC0131(01)

fibre services to mean that copper connections became a residual matter, with only 2% of urban households (37,000) still connected to copper in June 2024[153] and only 13,000 by June 2025[154].

186. The copper network is available to around 225,000 premises in rural areas and there are a further 140,000 premises that do not have access to a copper network[155]. Around 40% of households in rural areas where copper connections are available still retained one in June 2024[156] and 30% still did in June 2025[157]. At this rate it is possible that the percentage of rural households retaining copper connections will have fallen to low single digits by the time Chorus starts to decommission the copper network in rural areas, but I think it more likely to be in high single or low double digits.

187. If obligations to provide copper services were removed and the decommissioning of the copper network in rural areas were to be completed by 2030, as Chorus envisages, then copper services will be withdrawn in most areas before any fibre network was deployed. Tying the two together would allow Chorus to decommission the copper network before 2030 on condition that it commits to subsequently deploy fibre in rural areas which it considers to be commercially viable. The commitment could set a specific date by which fibre will be available or it could be establish a period from when the decommissioning of the copper network is completed. This allows Chorus to avoid the costs of maintaining the copper network if and when it wishes, but only after committing to replace copper networks with fibre. The effect of this approach will be to require Chorus to take the gains from decommissioning the copper network into account when deciding whether and when to deploy fibre in rural areas. Otherwise I would expect Chorus to assess these decisions independently of the other, which means that any benefits from decommissioning the copper network in rural areas will not necessarily accrue to end users in those same areas. They may accrue to shareholders or to end users in urban areas instead.

188. I recognise there are a number of challenges with this approach (and there may be others which I have not anticipated). The aim is not to oblige Chorus to deploy fibre when it is not commercially viable for it to do so, nor to oblige it to maintain a copper network when it is not

[153] p.49 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[154] Slide 35 at https://assets.ctfassets.net/7urik9yedtqc/nzx-doc-450317/13dcf8c3807c9d93d5d68934b93855c8/2_Chorus_FY25_Investor_Presentation.pdf
[155] p.27 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf
[156] p.35 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf
[157] p. 7 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf 68,000 connections out of 223,000 households to whom copper is available.

efficient to do so. I assume that the information required to assess whether and where it is commercially viable to deploy fibre in rural areas is likely to be held by Chorus itself and so it should be for Chorus, not the Government or Commission, to decide what it wishes to commit to. The Government could allow Chorus to immediately decommission copper networks in areas where Chorus is prepared to commit to deploying fibre but require that it delay decommissioning of copper until after 2030 in areas where it was not prepared to commit to deploying fibre.

189. The effectiveness of this approach will depend in part on the Government and Commission providing Chorus with clarity on related regulatory matters, such as consistent geographic pricing regulations for fibre and the treatment of the additional capex in the RAB. It may also depend upon the credibility of the Government's bargaining position. If Chorus believe the Government can be persuaded to provide public funds to support rural fibre deployment, including in areas which are commercially viable, then it may be reluctant to reveal its willingness or ability to fund fibre deployment in the meantime. It may prefer to wait until 2030 before decommissioning any copper or assume that a UFB-type funding arrangement will be agreed in the meantime. On the other hand, if it were clear no public funds would be available from the Government before 2030 then Chorus may conclude that it is better to commit to fund and deploy fibre in at least some rural areas than sustain the costs of maintaining the copper network until 2030[158].

190. This approach is intended to incentivise Chorus to reveal in which rural areas it can deploy fibre commercially and to commit to doing so in the absence of any competitive pressure for it to do so. What remains would be areas where there would be no reason to expect Chorus to deploy in the foreseeable future without some form of public funding. The process would allow Chorus to start deploying fibre in those areas it had committed to and to decommission its copper network to a corresponding degree. This could occur whilst the Government considered whether, and to what extent, it wished to see fibre deployment extended beyond whatever scope Chorus had committed to. It would also ensure that fibre deployment in areas where it was commercially viable would not be delayed by protracted negotiations over public funding arrangements.

191. It is of course for the Government of New Zealand to decide whether and how it wishes to advance the deployment of fibre networks in rural areas. I have explained why I think that decisions made in 2011 mean there is currently an absence of the competitive tension required to induce Chorus into doing so. That catalyst could be provided by a competitive tender process

[158] There is no reason to think the greatest benefits for Chorus from early copper decommissioning will be obtained in rural areas or locations where the commercial case for fibre network deployment is strongest. This potential mismatch could be addressed by relating the total number households for whom copper network coverage is withdrawn to the total number of households to which Chorus would be required to deploy fibre irrespective of their location.

similar to that undertaken for the original UFB project or could simply result from a bi-lateral negotiation between the Government and Chorus about the amount of public funds available and the purposes to which they would be applied. If, however, Government funds were not available, or not available in the near term, I recommend an alternative approach which might catalyse Chorus to deploy fibre earlier in areas where it is commercially viable to do so. If this approach of tying copper decommissioning to fibre deployment were to be pursued by the Government, it is desirable that it is done alongside the Minister's consideration of the recent recommendation from the Commission to deregulate copper services and before the Minister decides whether the existing TSO obligations upon Chorus (and Spark) should be withdrawn.

5G fixed wireless

192. There still remain around 140,000 premises that are not currently served by the Chorus copper network and which would not be served by a fibre network, assuming that Chorus was in future otherwise to deploy fibre extensively in rural areas. In these remote rural areas about 35% of connections are currently non-cellular fixed wireless, 33% LEO satellite and 20% cellular fixed wireless[159]. Thus, WISPs and LEO satellite index higher in these remote rural areas compared to rural areas as a whole and cellular fixed wireless index lower. This may reflect the non-availability of cellular fixed wireless services in some remote rural areas and loyalty to local WISP providers in communities where cellular fixed wireless may also be available. It may also reflect the 'rural' pricing premium which the cellular fixed wireless operators charge and which I think (but do not know) is more likely to apply in areas where there is no copper network.

193. I also suspect that 3G and 4G cellular networks in rural areas may be subject to capacity and performance constraints which limit the ability of RSPs to substitute fixed wireless for copper connections, or to offer fixed wireless services in competition with each other or with WISP or LEO satellite services. I note that the RBI agreement between the Government and Vodafone originally stated 'The number of End users who may sign up for the Enhanced Broadband Service is limited to 15 at each cell site. Vodafone reserves the right to apply a fair use policy to the Enhanced Broadband Service.'[160] I do not know to what extent this restricted the capacity of the RBI network to fulfil end user demand for broadband services in rural areas at that time. In any event, data demand from end users has increased very significantly since then (by 4x since 2018), in part driven by structural changes (such as working from home) following the Covid 19

[159] Footnote 51 at https://comcom.govt.nz/__data/assets/pdf_file/0036/364788/Copper-Services-Investigation-Draft-recommendation-report-12-March-2025.pdf. It is not clear to me what the remaining connections are.
[160] Appendix 1, p.18 at https://www.mbie.govt.nz/assets/2adc60dc8e/med-vodafone-rural-broadband-agreement.pdf

pandemic[161]. This is likely to include increased demand from rural households which investments in capacity by cellular operators may not have been sufficient to accommodate and which do not appear to have been alleviated by the $90 million of public funds which have been allocated under the Rural Capacity Upgrades Programme[162].

194. The low adoption rates of cellular fixed wireless are notable in view of the RBI programme, which involved the use of public funds to contract with Vodafone to use a fixed wireless network to provide broadband services into rural areas which would not otherwise be able to obtain them via the copper network or any other means. I note that One NZ's share of the cellular operator market share in rural areas is 38% and its share in urban areas is 25%[163], which suggests that Vodafone (now One NZ) did obtain some advantage over the other cellular network operators as a result of its participation in the RBI programme.

195. In my view, however, the key point is that the RBI programme is now almost 15 years old and involved the deployment of a 3G technology which will be retired this year. The cellular operators have subsequently upgraded their rural networks to 4G, which offers comparable performance to the copper network which Chorus plans to retire by 2030, but which still performs poorly in comparison with the LEO technologies developed and deployed by Starlink or with GPON. If the Government's original intention for the RBI programme was to ensure that rural households and businesses would obtain access to modern competitive broadband technologies then what is left of the RBI network will, alongside the rest of the cellular networks, need to be upgraded to 5G (non-standalone) infrastructure.

196. The Commission reports that around 95% of rural households can access a fixed 4G wireless network of at least one network[164]. There appears to be a high degree of overlap between the 4G wireless networks and the copper network, with 96% of premises being able to access both[165]. This suggests to me that the original Vodafone RBI fixed wireless network had a significant degree of geographic overlap with the Chorus RBI copper network cabinetisation programme, but that the fixed wireless element of the RBI programme may have extended into some areas in which no copper network was available. I note that in 2017, after RBI1 had ended, CIP found that

[161] https://www.chorus.co.nz/get-better-internet/chomping-through-data
[162] https://nationalinfrastructure.govt.nz/rural-capacity-upgrades-programme/. I note that some of these funds were used to upgrade the Chorus copper network to VDSL (for 3400 households) rather than expanding fixed wireless capacity
[163] p.39 and 125 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf. The urban figure is 19/76 and the rural figure is 21/55.
[164] p.111 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[165] p.36 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf

90,000 rural households remained unable to access broadband connections of 20Mb/s or higher[166]. The Commission states that the RBI2 programme has provided fixed wireless coverage to around 85,000 premises[167] and reports 4G mobile coverage as being 98.5% of the population[168].

197. The obvious and perhaps only option for the Government to improve broadband services competition outside of the copper or fibre network is to invest more in fixed wireless services, which in practice means 5G. The obvious way to do this would be to require or provide public funding to the cellular network operators, or more likely the Rural Connectivity Group consortium of operators, to deploy 5G technology in rural areas. In the United States, for example, the FCC is currently proposing to allocate up to $9 billion to a 5G Fund to extend mobile (rather than fixed wireless) 5G services to around 14 million households[169]. The Spanish Government has allocated €680 million to support 5G deployment in rural areas[170].

198. The arguments against doing this would be that only 35% of rural households and only 20% in remote rural areas currently utilise a cellular fixed wireless network. I recognise that if Chorus proceeds with copper decommissioning the share of rural households using fixed wireless networks may increase, and 5G may increase it further. I would expect RSPs who are reselling both copper and fixed wireless services to be able to migrate end users from copper to fixed wireless rather than lose them to Starlink, although the evidence on switching by rural households suggests that this is not obviously the case today, with those disconnecting from copper dividing between Starlink and cellular fixed wireless in similar proportions.

199. It may be difficult for the Government to fund an investment which benefits only half of rural households, at least in the short term, although – importantly - more users, including urban residents, will also obtain benefits from 5G mobile services that can be provided over the same networks[171]. It is also possible that the mobile operators might be expected to deploy 5G for mobile services in rural areas in the longer term on a commercial basis without needing Government funds. 5G rural coverage increased from 3% to 11% of households in 2024[172].

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[166] p.93 at https://comcom.govt.nz/__data/assets/pdf_file/0033/361959/2023-Telecommunications-Monitoring-Report-15-August-2024.pdf
[167] Ibid p.93
[168] p.194 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[169] https://docs.fcc.gov/public/attachments/FCC-24-89A1.pdf
[170] https://ec.europa.eu/newsroom/comp/items/791544
[171] I recognise that improvements in the fixed wireless networks may induce a competitive response from WISPs or Starlink which would benefit their customers, although I think that unlikely in the case of the latter for the reasons explained below.
[172] p. 50 at https://comcom.govt.nz/__data/assets/pdf_file/0028/368452/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf

However, I assume there will be little or no prospect of 5G extending much beyond rural towns without Government support[173].

200. I also recognise that there is a risk that even with Government support 5G cellular fixed wireless would end up being an ineffective competitor to Starlink or to LEO technologies in general, as the 3G and 4G RBI infrastructure has arguably proven to be. This would be an argument in favour of directing any public funds towards expanding fibre deployment into rural areas, at least until the costs became prohibitive. A detailed comparison of the comparative benefits, costs and risks of fibre deployment relative to 5G fixed wireless deployments in rural areas is beyond the scope of this report, but I strongly recommend it is something the Government or Commission undertakes before making any decisions on this topic.

WISP non-cellular fixed wireless

201. I understand there are some 30 WISPs or wireless internet service providers in rural New Zealand. Many are very small and have been embedded in their local communities for many years. The Commission reports that WISPs are losing customers to Starlink and investing in fibre networks in response[174]. I assume that is because, in comparison with cellular operators, there is no upgrade path for WISP wireless technology and because they have limited access to spectrum (which I discuss further below). WISP networks were available to 69% of households in rural areas in June 2024[175] but fibre deployments were limited to only 2000 connections at this point in time[176]. Non-cellular fixed networks had an approximate 13% share of the rural broadband market in June 2024[177] and appear to have been falling. Some households (18%) do switch from copper connections to WISP networks rather than to cellular fixed wireless or LEO satellite, but at that rate I expect the aggregate broadband market share for WISPs in rural areas to continue to fall in the coming years[178].

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[173] The Commission refers to operator plans to expand 5G rural coverage in the next few years in part by refarming 3G spectrum but it is difficult for me to assess how extensive this will be. I see no reason why the historic 5G deployment trend in New Zealand should change (absent intervention), see p.111 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[174] p.10 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[175] p.115 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[176] p.117 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[177] p.35 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf I note that the 2025 Monitoring Report has WISP rural market share at 16% (p.136) implying WISPs have actually increased their share since June 2023, when the 2024 Monitoring Report reported 15% (p.109), so I attach some caution to these figures

[178] p. 48 at https://comcom.govt.nz/__data/assets/pdf_file/0028/368452/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf

202. Although WISPs themselves claim 'the service quality is indistinguishable from the fibre-to-the-premises offered in big cities'[179] the Commission reports average download speeds below 50 Mb/s and comparable to 4G[180]. Most WISPs are long established and I suspect are likely to be using relatively old fixed wireless technology. It is possible that WISPs could invest in upgrading their networks to modern higher performance fixed wireless technologies[181] but I am uncertain as to their capacity or willingness to do so.

203. I note that WISPs were allocated additional spectrum by the Government in the 3.3 GHz band (3.30-3.34 GHz) from mid-2024, to assigned as regional licences on a first come first served basis[182]. This was in response to claims that WISPs, which have otherwise used shared (Wi-Fi) spectrum in the 2.4-2.6 GHz bands, face capacity constraints[183]. In comparison with the dedicated spectrum holdings of the cellular fixed wireless and satellite operators I would not expect WISPs to represent effective broadband competitors in technology terms, recognising that their local presence and other aspects of their services may nonetheless appeal to some rural householders.

204. The Government may have reasons for supporting WISPs, either through the allocation and assignment of further spectrum (notwithstanding that some WISPs appear to be migrating customers to fibre networks) or other measures, such as their participation in the Rural Connectivity Group and other existing rural coverage initiatives. However, on the basis of the limited evidence available to me, I would not recommend that the Government or Commission invest significant effort or resources in promoting non-cellular fixed wireless networks as a means of meeting the future broadband needs of rural households. In my view the operators and the technology are sub-scale relative to 5G cellular and likely to be uncompetitive relative to LEO satellite. This is an instance where I expect developments in technology to lead to a restructuring in the market and, ultimately, to the exit of WISPs from the market or their evolution into small scale LFCs.

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[179] p.4 at https://www.rsm.govt.nz/assets/Uploads/documents/consultations/2021-3-3ghz/wispa-nz-3.3-ghz-use-in-new-zealand-discussion-document-submission.pdf

[180] p.43 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf. These figures are not OpenSignal data and should be approached with some caution.

[181] In their submissions to Government, WISPs have referred to the Cambrian PMP450 technology which is claimed to achieve 500Mb/s on a 20 MHz carrier, see https://www.cambiumnetworks.com/products/pmp-450/

[182] https://www.rsm.govt.nz/licensing/licences-you-must-pay-for/regional-broadband-licences#:~:text=Wireless%20internet%20service%20providers%20(WISPs,other%20parts%20of%20the%20band.

[183] p. 3 at https://www.rsm.govt.nz/assets/Uploads/documents/consultations/2021-3-3ghz/3-3-ghz-consultation-document.pdf. The 2.6 GHz shared spectrum represents only 40 MHz. and https://www.linkedin.com/posts/mike-smith-30328628_spectrumequity-radargate-wisps-activity-7337603139124043776-fD0R/

Satellite networks

205. Before turning to summarise my views on the future regulation of fibre networks, there is a question to be addressed about the regulation of LEO satellite networks such as Starlink. I consider that LEO satellite services represent an important competitor in the rural market for fixed broadband services and are likely to continue to be so in the future, including to the point of dominating the market under certain circumstances. Satellite services are not currently within the scope of economic regulation or Part 2 of the regulatory regime.

206. Starlink is currently the only LEO operator to offer fixed broadband services and does so using a vertically integrated model in which it owns and operates both the satellite network and the (online) retail sales of user terminals (which it designs and manufactures itself). Amazon Kuiper is employing a similar business model.[184] These firms should be thought of as having more in common with global digital platforms like Amazon, Google or Meta, each of whom operate global infrastructures which are controlled extra-territorially whilst they sell services to users within national markets, rather than being like traditional domestic telecommunications operators such as Chorus, OneNZ or Spark. The challenges of applying access regulation to these firms are likely to resemble the challenges which the European Commission, CMA, ACCC and other bodies confront when seeking to impose access obligations on digital platforms under the Digital Markets Act or similar legislation rather than the more familiar issues arising from telecommunications regulation. They are formidable. Neither Starlink nor Kuiper have been designed in a way which anticipates their being subject to regulatory obligations to supply services to other RSPs and I am not aware of any Government or regulator suggesting that they should. Although I referred to a risk that Starlink might come to dominate the provision of fixed broadband services to rural households in New Zealand, I did not and do not envisage that the Part 2 regime which I have also recommended should be applied to Starlink. I have already explained that I think the better approach is to promote competition in rural areas, either by incentivising Chorus to deploy fibre and/or by enabling the cellular fixed network operators to expand 5G deployment. I note that the Government has made recent changes to bring extra-territorial firms within the scope of the Act[185] and the Commission has recently determined that

[184] https://www.aboutamazon.com/news/innovation-at-amazon/heres-your-first-look-at-project-kuipers-low-cost-customer-terminals

[185] https://www.mbie.govt.nz/dmsdocument/30533-regulatory-impact-statement-improving-telecommunications-regulatory-and-funding-frameworks-proactiverelease-pdf#:~:text=MBIE's%20preferred%20option%20is%20to%20amend%20the%20Telecommunications%20Act%20so,the%20TDL%20amount%20is%20set.

Starlink should contribute for the first time to the TDL[186]. Starlink will also in future be required to participate in the telecommunications dispute resolution scheme[187].

207. Operators like Starlink are also working with mobile operators to introduce direct to device (D2D) voice and text satellite services. These have been launched on a demonstration basis in the US (T-Mobile/Starlink), Europe (Vodafone/AST SpaceMobile), with expectations that services will scale on commercial basis in 2026 and beyond. In New Zealand, One NZ has launched a direct to device text service with Starlink[188], which will presumably extend to voice calling in future. 2degrees and Spark have partnerships with Lynk and 2degrees also with AST SpaceMobile[189].

208. It is difficult at this stage to anticipate what impact D2D services will have upon telecommunications markets in the future. The cellular network operators are currently seeking partnerships with satellite service providers and network operators to avoid the risk that they otherwise become direct competitors in the provision of mobile services. In many cases this involves the cellular network operators - including One NZ in New Zealand - obtaining authorisations to use the spectrum they have allocated for terrestrial mobile services for D2D satellite services[190]

209. However, Starlink has already demonstrated that it can launch mass market fixed broadband consumer products[191]. Recently, Starlink has paid $17 billion (USD) to acquire spectrum from EchoStar to provide D2D services without having to rely upon cellular operator spectrum,[192] although my understanding is that it would need to acquire significantly more satellite spectrum to offer a D2D service that was a substitute to terrestrial cellular mobile services to any significant degree (as opposed to being a complement). Firms like Apple or Google have similar capabilities to Starlink, with Apple already providing D2D services to iPhone users in partnership with

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[186] https://comcom.govt.nz/news-and-media/media-releases/2024/starlink-to-contribute-to-telecommunications-development-levy-for-the-first-time#:~:text=the%20first%20time-,Starlink%20to%20contribute%20to%20Telecommunications%20Development%20Levy%20for%20the%20first,provider's%20share%20of%20the%20TDL.

[187] There are also requirements to comply with call interception obligations. Starlink's contribution is less than $200,000, so of no material consequence to the company at this stage.

[188] https://one.nz/why-choose-us/satellite/?srsltid=AfmBOooWQXHQeU5sgJe40ApMCspGg7pLnpS6lI8i06cm7cQMpXNvPKGw

[189] [p.121 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[190] https://www.linkedin.com/posts/richardhaas99_new-new-zealand-mobile-operator-one-has-activity-7358493392294580225-NVsr/

[191] Starlink has a fully integrated supply chain, including the manufacture of its own terminals. Elon Musk has recently suggested he may produce mobile devices in future, see https://www.washingtonpost.com/technology/2025/09/13/starlink-mobile-network-elon-musk-echostar/

[192] https://ir.echostar.com/news-releases/news-release-details/echostar-announces-spectrum-sale-and-commercial-agreement-spacex

Globalstar and without the involvement of the cellular network operators. However, I expect that any D2D services will remain complements rather than substitutes for terrestrial cellular services, not least because D2D services will not be available inside buildings, which is where the majority of mobile device usage occurs. This is in contrast with Starlink's fixed broadband services which, as discussed in Chapter 2, are clearly offered as substitutes to other terrestrial broadband services. If mobile operators continue to integrate D2D services into their terrestrial offers, as I expect they will, then this may weaken their incentives to further expand terrestrial mobile network coverage. I do not think this is significant because I consider their incentives to expand cellular coverage to have already been largely exhausted in any event.

210. Regulators such as the FCC in the United States[193] and Ofcom in the United Kingdom[194] are developing spectrum licensing frameworks for the use of terrestrial frequencies for direct to device satellite services. I note that the MBIE has also provided some guidance on these matters and that it appears the arrangements can be accommodated within the existing regulatory regime for spectrum, which I discuss further in Chapter 3[195]. These are still at an early stage and I am not aware of any issues that would lead me to recommend regulation at this stage[196].

Fibre network regulation

211. I provided my views on the regulation of fibre networks and services in the fibre report and so summarise them here. I regard the UFB programme as being the most significant decision in telecommunications policy to be taken by the New Zealand Government over the past 20-30 years. It represented a major departure from the policy of promoting competition in as many parts of the supply chain as possible through the 'ladder of investment', which the Commission had, in common with regulators in the UK, Europe and the United States, been pursuing since the late 1990s. I discussed how the Part 2 access regime had been applied by the Commission earlier in this chapter.

212. The decision had important consequences for the functioning of markets today and into the future. The decision to finance a number of monopoly fibre network providers will govern the

[193] https://docs.fcc.gov/public/attachments/FCC-24-28A1.pdf
[194] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/consultation-enabling-satellite-direct-to-device-services-in-mobile-spectrum-bands/main-documents/statement-and-further-consultation-enabling-satellite-direct-to-device-services-in-mobile-spectrum-bands.pdf?v=402573
[195] https://www.rsm.govt.nz/licensing/direct-to-device-licensing
[196] I am aware the Commission took legal action against OneNZ in late 2024 in relation to its advertising of direct to device services, see https://comcom.govt.nz/news-and-media/media-releases/2024/comcom-takes-legal-action-over-one-nzs-100-coverage-claims-for-spacex-service

incentives, or lack of incentives, which Chorus and the other UFB network operators may have to expand or to further invest in their networks. I argued in Chapter 1 that a privatised monopoly is likely to have relatively weaker incentives to upgrade or replace infrastructure or to further expand the geographic scope of its network than an operator that faces the risk of being pre-empted by a competitor. This is one reason why, earlier in this chapter, I suggested that the Government consider tying the decommissioning of the copper network to Chorus giving commitments in order to better incentivise it to deploy fibre in relevant areas where it is commercially viable to do so.

213. In the fibre report I considered whether the Government Commission should pursue measures to introduce greater competition into the provision of fibre networks and services with existing UFB or urban areas. This might be achieved if the Part 2 access regime were to be revised in the way I recommended earlier in this chapter and access obligations were then imposed upon Chorus or the other LFCs to provide access to their civil engineering infrastructure in the way that most incumbent fixed network operators are required to do in Europe[197]. However, I concluded that the prospects for network competition under this approach were likely to be limited in New Zealand, primarily because the majority of urban households already have a fibre connection supplied by Chorus and switching to another fibre network would involve significant costs, including the installation of another network termination point inside the premises.

214. I also considered in the fibre report whether the Commission should take steps to promote the adoption of a Layer 1 point to multipoint service, known as PONFAS, which would enable RSPs or others to install their own optical equipment rather than rely upon a Layer 2 or bitstream fibre service provided by Chorus[198]. This could represent a partial return to the 'ladder of investment' strategy which the Government had otherwise abandoned in 2011. Although Chorus has been obliged to offer a PONFAS service since 2020 on terms which formed part of the UFB agreement with the Government, I understand that take up has been very limited indeed[199]. I explained in the fibre report that the existing pricing structure for PONFAS would mean that I would expect RSPs to only be able to use PONFAS at locations where they had a sufficient concentration of end users to support the fixed costs involved. To serve end users in other areas, RSPs would need to continue to purchase fibre bitstream services from Chorus, which would mean they would need to operate both sets of arrangements and accept some operational complexity in doing so. I was also

[197] The analysis summarised here appears at paragraphs 59 to 74 of the fibre report.
[198] The analysis summarised here appears at paragraphs 100 to 111 of the fibre report.
[199] Chorus has told the Commission it only has one customer for PONFAS and 'is under the impression there will not be any material future uptake', para 3.203 at https://comcom.govt.nz/__data/assets/pdf_file/0029/363872/Fibre-fixed-line-access-service-deregulation-final-decision-19-December-2024.pdf

uncertain about the competitive benefits, in terms of retail product differentiation or otherwise, which an RSP might obtain from using PONFAS instead of existing bitstream services. I concluded that the absence of alternative measures to promote competition ought to lead the Commission to further investigate the opportunity to promote competition using PONFAS, including by making changes to the technical specification of the service. I also noted that it was possible – and in my view quite likely – that the opportunity would be insufficient to merit the time and effort required to allow it to be realised, in which case the regulatory obligation to supply PONFAS should be withdrawn. I emphasised that it was possible to come to this conclusion without alleging any anti-competitive conduct or intent on the part of Chorus.

215. I also considered whether cellular fixed wireless provided a significant competitive constraint, such that the PQ regulation under Part 6 of the Act might be withdrawn following a deregulation review[200]. I agreed with the Commission's conclusion in its deregulation review[201] that Chorus' fibre prices were unlikely to be constrained by cellular fixed wireless competition (or competition from any other source) in the foreseeable future, although the analysis I used to come to this conclusion differed from that relied on by the Commission in its review. In my view the most relevant feature of the market for this assessment is that the three largest urban RSPs (Spark, One NZ and 2degrees) each operate their own cellular network over which they can self-supply fixed wireless services, as well as supplying fibre services using inputs which they purchase from Chorus and the other LFCs. I recognise that some users will have strong preferences for fibre or fixed wireless technologies, but I expect many will not and that the RSPs will be able to channel users to the network connection that is most profitable for the RSP. I argued that if the RSP has unutilised capacity on its cellular network, then the incremental cost of providing a fixed wireless connection over its own network will be close to zero. If it does not have unutilised capacity, then the incremental cost will be very high, and likely much higher than the price of a fibre connection purchased from an LFC. I therefore suggested that demand for fibre would not be a function of the relative prices of fibre and fixed wireless connections but rather a function of the availability of cellular network capacity, which I expect will differ significantly between locations. I considered that the conduct of the cellular RSPs appeared consistent with this analysis and that Chorus' conduct, including its decision to introduce a lower price 50 Mb/s fibre service, could be explained by reference to factors other than any competitive constraint from fixed wireless.

[200] The analysis summarised here appears at paragraphs 21 to 37 of the fibre report.

[201] https://comcom.govt.nz/__data/assets/pdf_file/0029/363872/Fibre-fixed-line-access-service-deregulation-final-decision-19-December-2024.pdf

216. I concluded that I would not expect the pricing of UFB fibre services to be subject to effective competitive constraints in the foreseeable future and that continued regulation of fibre prices will be required. I noted that the other LFCs were not currently subject to price regulation of their fibre services and recommended that they should be, notwithstanding that their prices did not appear to diverge significantly from the regulated prices charged by Chorus at this point in time. I explained that once the copper network had been decommissioned by Chorus in 2026, the other LFCs would in my view have the incentive and, given consistent national pricing by the RSPs, the ability to introduce price increases which would likely be profitable[202]. I should note here that I would come to the same conclusions in relation to fibre services deployed in rural areas, the prospects of which I discussed earlier in this Chapter.

217. As I explained in Chapter 1, the Part 2 regime in the Act had sought to promote competition rather than prevent exploitative conduct by monopoly fibre network providers. A set of contractual arrangements, in the form of a series of agreements between the firms and the Government and a series of undertakings or deeds which were accepted by Ministers, were put in place in 2011 to regulate the conduct of Chorus and the other LFCs. In 2018, ahead of their expiration, the Government introduced a new Part 6 into the Act to provide the regulatory regime for fibre networks after the various existing contractual arrangements expired. I noted above that the regime applied only to Chorus and does not currently extend to the other LFCs, except in relation to information disclosure[203]. In the fibre report I refer to the primary mechanism through which the prices and quality of Chorus' fibre services are regulated as the PQ regime.

218. Earlier in this Chapter I discussed how the Commission had used benchmarking and, in one instance, TSLRIC models to set prices for copper services such as copper bitstream and copper loops as part of a regime which was intended to promote network investment and duplication. There is no such intention behind the PQ regime, for which the primary objective (in my view) is to reassure investors that they will be able to recover and earn a reasonable return on their investments and to allow Chorus a high degree of pricing flexibility within this constraint to enable it to set a range of prices which respond to changing user demands for fibre services and which promote rapid take up. This is achieved by using the RAB approach which the Commission

[202] The analysis summarised here appears at paragraphs 75 to 80 of the fibre report.
[203] I considered the Information Disclosure requirements at paragraphs 189 to 194 of the fibre report, noting that they are still be implemented. I do not consider that they are particularly burdensome or impose unreasonable costs on regulated firms, costs which are in any event now largely sunk. I also think it is important that regulators like the Commission are well informed about market behaviour and outcomes and note that the Commission has been making efforts in recent to improve the quality and extent of the information at its disposal. I did not recommend any changes to the existing arrangements and would be generally supportive of the Commission's efforts in this area.

has used to regulate prices in other utility sectors and which has also been employed by telecommunications regulators in Europe to set prices for access to monopoly assets[204].

219. I discuss in the fibre report how the Commission applied the PQ regime to set the revenue allowance for the first regulatory period between 2022 and 2025 and the second period between 2025 and 2028[205]. An important feature of the Part 6 regime is that many aspects of the methodology which the Commission employs to calculate the revenue allowance are, following the approach adopted in regulating other utility sectors in New Zealand, specified in input methodologies (IMs) which are reviewed relatively infrequently (every 7 years). This is another way in which investors and regulated firms obtain a degree of predictability and assurance about how the firm will be regulated, but it also narrows the number of issues over which the Commission is required to exercise its regulatory judgement.

220. In summary, the price setting process involves Chorus proposing a capital and operating budget for the regulatory period which the Commission (with the assistance of an Independent Verifier) will then scrutinise. The closing value of the RAB from the prior regulatory period provides the starting point for the subsequent period, but Chorus may propose additional expenditure on new assets or may expect to withdraw or have fully depreciated other assets. In the fibre report, I concluded that the most significant issue in relation to capital expenditure was uncertainty about how the Commission would assess Chorus' proposals for investments in new fibre deployment. For the 2025-28 period, Chorus had initially proposed additional capex of around $200 million to expand the fibre network, but this ultimately reduced to $13 million for reasons that are not altogether clear to me[206]. In my view the IMs do not provide the Commission with satisfactory guidance on how it should assess proposals for additional expenditure to extend the geographic footprint of the fibre network. The key issue is not whether any costs are incurred efficiently, but how and from whom those costs can be recovered. Chorus is currently subject to a consistent geographic pricing constraint. This means that if Chorus extends the fibre network into areas which involve substantially higher average costs per household to serve, the average costs per households across the network as a whole will rise. There is therefore a political or social regulation question about how much more existing end users in urban areas should be required to pay in order to fund the costs of extending the fibre network in rural areas (assuming Chorus would be able to raise fibre prices if allowed to do so, as I expect they could for the reasons explained above) and, therefore, how far Chorus should be allowed to extend its network. I have already made it clear that I consider this is a matter for the Government and not the Commission

[204] Para 52-54 at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202400539
[205] The analysis summarised here appears at paragraphs 121 to 145 of the fibre report
[206] The analysis summarised here appears at paragraphs 48 to 58 in the fibre report

to decide. One possible outcome is that Government concludes that urban users should not contribute at all to the costs of expanding the fibre network. In such a case, the geographic scope of the network (absent public subsidy) will be determined by the willingness and ability of rural households to meet the costs of their fibre connections. However these costs will also vary significantly within the rural area (I noted in the fibre report that Chorus' own analysis showed the cost to serve of the 95th percentile household being 5x the cost to serve of the 90th percentile[207]), leaving questions about whether prices with the rural area as a whole should be consistent or whether Chorus should be able to charge different prices at different rural locations.

221. Earlier in this chapter I described the extension of fibre networks and services into rural areas as the most important policy issue for the Government (and by extension Commission) to address. The outcome will be determined by a combination of decisions about both economic and social regulation, as well as by financial and other considerations which will determine Chorus' capacity to invest. The immediate decisions for the Commission are, how the PQ regime should assess requests for network expansion capex and how Chorus would be allowed to recover those costs. If the Government decides to pursue my tying proposal, then I envisage a role for the Commission in overseeing that process too.

222. Having determined the value of the RAB the Commission computes the WACC in order to derive the allowable return on assets which is to be recovered through the revenue allowance. Many of the parameter values to be employed in the WACC calculation are hard coded into the IMs. My preference would be for the Commission to undertake its own calculations at the beginning of each regulatory period using the latest data but adopting the methodologies which could be specified in the Input Methodologies (IMs) and which could be consistent with those used when regulating other utility sectors[208].

223. The Commission also assesses Chorus' projections for operating expenses and in both reviews to date has reduced these by around 5%. This suggests to me that the Commission has not identified substantial inefficiencies in the way in which Chorus operates its business, as was the concern for regulators in the United Kingdom and Europe when setting regulatory price controls for monopoly network operators in the 1980s and 1990s.

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[207] Fig 15.1, p.9 at https://comcom.govt.nz/__data/assets/pdf_file/0012/350130/Chorus-revised-Fibre-Frontier-chapter-5-February-2024.pdf

[208] I note that the Commission has, since I wrote my fibre report, started a review of the Input Methodologies, including the treatment of network expansion capex and WACC parameters, which will complete in 2027, see https://comcom.govt.nz/__data/assets/pdf_file/0027/367344/Fibre-IM-Review-2027-Issues-paper-Tranche-1-10-July-2025.pdf

224. Having determined the overall revenue allowance, the Commission also has the ability to alter depreciation profiles and reallocate costs between years and between periods in order to avoid price shocks, either for RSPs and their users or for Chorus itself. For reasons which I explain in the fibre report Chorus did not fully recover the revenue allowance in the first regulatory period to December 2024, at which point it had a wash up allowance of $167 million. [209] I agree with the Commission that this is not necessarily evidence that Chorus' prices for fibre services are constrained by competition and, as explained above, I consider that the PQ regime will continue to be required to constrain fibre prices for the foreseeable future.

225. With this in mind, I made a number of recommendations that were intended to simplify the way in which the pricing element of PQ regime would be implemented after the expiry of the current regulatory period in 2028. One involved extending the review period from the requirement in the Act that it be between 3 to 5 years[210] to between 5 and 10 years. This would reduce the overall costs of applying the regime and, arguably, further increase predictability for investors. A longer review period is justified when costs are expected to be relatively stable, which I consider is likely to be case now that Chorus has completed the construction phase of the UFB programme (recognising that further network expansion may reintroduce new challenges, as discussed above). I also recommended that instead of taking a zero-based budgeting approach to assessing all capital and operating expenses, the Commission could index the outturn values for maintenance capex and operating costs from the prior period and project them forward over the next period. I recommend this on the basis that Chorus' maintenance capex and operating costs appear relatively stable and the Commission has now undertaken detailed reviews to determine whether costs are efficiently incurred (and has concluded that, at current levels, they broadly are). I recommend that the Commission should be able to disapply the indexation approach and Chorus should be able to request that the Commission disapply it if there is evidence that a particular item of costs is likely to change substantially between one regulatory period and another, or to change within the next regulatory period. These changes are, in my view, relatively modest and involve limited risk for either the Commission or Chorus. They are intended to allow all parties to focus their time and resources on the more substantive and difficult issues, which in my view include the calculation of the WACC and the network expansion capex issue which I have already highlighted.

226. I also considered how the PQ regime should be applied to the other LFCs, all of whom are much smaller than Chorus and who have yet to incur the compliance costs which, for Chorus, are now largely sunk. I recommend that an even simpler approach is taken with the Chorus budget being used as the benchmark and applied on a pro rata basis (i.e. adjusted for differences in size)

[209] See paragraph 137 of the fibre report
[210] Section 207

to each of the other LFCs. Again, it would be open to the other LFCs to request that the Commission disapply this approach to a particular cost item because there were justifiable differences between the costs they incur and the costs which Chorus expected to incur[211].

227. The PQ regime also regulates the quality of fibre services supplied by Chorus, although to a relatively limited extent in comparison with Europe[212]. The structural separation requirements mean that the concern in New Zealand is not with non-price discrimination being used to exclude competitors in the retail market (as was the case when the Government imposed operational separation obligations on Telecom New Zealand between 2008 and 2011, discussed earlier in this chapter) but with a concern that absent regulation Chorus could have incentives to under-invest in its network and processes[213]. The Commission considered whether to add a new standard for rescheduling missed appointments for the 2025-28 period but ultimately decided against it after concluding that a period of poor performance was explained by exceptional factors which Chorus had since rectified. Generally, the targets set by the Commission appear intended to ensure that existing performance is maintained, rather than to address any perceived current shortfall. I do not have any recommendations for additional quality standards, although I consider that the Commission should be able to introduce whatever standards it considers are required rather than, as at present, being constrained by a list of quality standards which is contained in the IMs.

228. I also considered whether the review period for quality standards should be aligned with the pricing review period which, as discussed above, I recommend be extended from 3 to 5 years to 5 to 10 years. My conclusion is that whilst there are arguments for decisions about pricing and decisions about quality to be taken together, they are not compelling. My experience is that concerns about quality or non-price issues may arise unexpectedly and at any time and that it would not be appropriate for the Commission to have to wait several years until the next PQ review period to take action to address them. I therefore recommend that the review cycle for pricing decisions and that for quality be decoupled in future, and that decisions on quality can be taken much more frequently. Indeed, I think there is a case for not specifying any review period for quality issues and instead allowing the Commission to intervene as and when there appear to good grounds for doing so or, if there is reason to think regulation is no longer needed, at the request of the regulated firm. My recommendation that the PQ regime apply to all LFCs and not only Chorus relates to quality as well as price regulation.

[211] The analysis summarised here appears at paragraphs 145 to 147 of the fibre report.
[212] See, for example, the list of KPIs in Annex 1 of the Gigabit Recommendation at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202400539
[213] The analysis summarised here appears at paragraphs 149 to 159 of the fibre report

229. Another important feature of the New Zealand fibre regime and Part 6 is the use of anchor services[214], an approach which has been imported from New Zealand into Europe (by way of Ofcom in the United Kingdom). Anchor services serve both an economic and a social regulation purpose. The social purpose arises from a concern that end users migrating from copper to fibre services should not face a price shock, particularly if they are being forced to migrate having been served a notice as part of a copper decommissioning process. Thus, the Act allows the Minister to define an anchor service and set its price, which must at the level specified in the 2011 contract between Chorus and the Government until 2022 but which can be varied thereafter. I concluded in the fibre report that the specification of a 100 Mb/s service at a price of around $50/month (the same as the equivalent copper service) appeared to have successfully encouraged many households to switch from copper to fibre services even prior to the start of copper decommissioning by Chorus. In 2021, around 70% of all fibre households had purchased the anchor service. However, I also think Chorus would in any event have had incentives to introduce fibre services at prices which encourage migration to the fibre network and so enable to elimination of costs associated with retaining the copper network. I view the more recent introduction of an entry level 50 Mb/s fibre service and its subsequent upgrade to 100 Mb/s from June 2025 [215], neither of which was required by regulation, as being an example of this and a service which is intended to appeal to households who may not have been persuaded to migrate to the higher cost 100 Mb/s (now 300 Mb/s) service[216].

230. My conclusion was that the anchor service has now served its social purpose or will have done so once copper decommissioning in the urban areas is completed by Chorus in 2026. There may in future be a need for the Commission to specify a different service and a different price to address Government concerns about social inclusion and affordability of telecommunications services in New Zealand. I explained in Chapter 1 that such social regulation is a legitimate and enduring feature of telecommunications regulation throughout the world and it may prove to be important in New Zealand, even if the current anchor service has served its purpose for the time being. To emphasise the social regulation purpose of such a measure, I recommended in the fibre report that it be referred to in the Act as a 'social tariff'. In Chapter 4 I discuss whether there is a need to introduce such a social tariff in remote rural areas which I doubt will ever be served by

[214] This summarises analysis which appears at paragraphs 161 to 184 of the fibre report.

[215] https://sp.chorus.co.nz/product-offer/home-fibre-starter-50

[216] I recognise that the Telecommunications Monitoring Report 2024 there is some evidence of the 50 Mb/s service cannibalising higher speed fibre services:73% of users switched from another fibre service whereas only 6% switched from a copper service (and only 12% from a fixed wireless service), see p.101 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

fibre networks. I explain in that chapter that this would require imposing regulatory obligations upon other network providers, most likely one of the cellular fixed wireless operators.

231. The other purpose of an anchor service is an economic rather than social one and involves the assumption that a regulated anchor service will constrain the prices of other fibre services which Chorus supplies and which are otherwise constrained only by the overall revenue allowance. In the fibre report I considered whether it would be possible to design an anchor service regime in a way which would enable the pricing element of the PQ regime to be withdrawn altogether[217]. I concluded that it would not be possible to do so with any confidence and recommend that the PQ regime is retained for the foreseeable future. The Commission has recently decided not to undertake a review of the anchor service regime and I consider that it was right to decide this[218]. I have not seen evidence that the existing arrangements impose unreasonable costs upon Chorus and so I would recommend retaining existing arrangements until copper decommissioning is completed in urban areas and until everyone is clear about the future expansion of the fibre network into rural areas where the copper network is still present. At that point it may be appropriate to withdraw the current 100 Mb/s specification and price cap but to retain the powers to introduce a social tariff for fibre services in future should the Government or Commission determine that circumstances require it.

Institutional arrangements

232. An important theme to emerge from my consideration of both the Part 2 and the Part 6 regime concerns the division of decision-making responsibilities between the Minister or Cabinet on the one hand and the Commission on the other. I think this has two aspects.

233. As illustrated by the discussion of anchor services, some regulatory issues or measures may have both economic and social dimensions. How much network expansion capex Chorus should be allowed and what rural households should expect in terms of broadband services are complex questions which have social as well as economic regulation aspects. I think it important that democratically elected politicians and not appointed Commissioners or officials make decisions about social objectives, particularly if they will result in one group in society incurring costs to meet the needs of another group. Moreover, Government has control over public funds, which are sometimes deployed in support of social and economic objectives. In my experience many of the most difficult issues in telecommunications regulation sit at the intersection between economic

[217] This summarises the analysis which appears at paragraphs 169 to 181 of the fibre report.
[218] Para 5.27 at https://comcom.govt.nz/__data/assets/pdf_file/0028/358912/Chorus27-price-quality-path-for-the-second-regulatory-period-2025-2028-draft-decision-Reasons-paper.pdf

and social regulation and public finance and many of the difficulties and much of the public criticism which economic regulators have encountered in recent years have arisen either because of a lack of clarity about objectives, or a failure on the part of legislators to provide guidance to economic regulators as to how competing objectives should be reconciled.

234. Today's Telecommunications Act in New Zealand, like many such Acts around the world, is the product of a series of amendments over the past 25 years. Nonetheless in many respects it remains admirably clear and concise in confining the purpose of Part 2 to the promotion of competition (as a means to an end), the purpose of Part 6 to the replication of competitive outcomes and the purpose of Part 7 to protecting end users or meeting their expectations around service quality. This, and the administration of the TSO regime which I discuss in Chapter 4, define the tasks which the Commission is expected to perform in regulating the telecommunications sector.

235. In the past, Governments in New Zealand appears to have defined regulatory objectives in an informal and rather ad hoc manner, such as when the Government decided to adopt the UFB programme in 2010 or undertake a review of the regulatory regime in 2015[219]. This has often involved Government intervening directly to restructure or reshape the market through bi-lateral negotiations with firms in the industry, rather than relying upon the Commission to apply the regulatory regimes in support of the Government's objectives. This is not the approach generally taken in Europe. The Government may consider its approach to be more effective and easier to implement but in my view it also introduces a number of risks. These include introducing political risk and unpredictability into an industry for which regulatory predictability and commitment are important attributes but also risks of regulatory capture by commercial interests and an overall lack of transparency in the decision-making process. In some cases, such as with the Fibre Deeds which I discussed in the fibre report, it introduces problematic features such as requirement that the consent of the regulated firm is required before any changes can be made to the obligations imposed upon them[220]. It is not obvious to me that Ministers (whether in New Zealand or elsewhere) are best qualified or placed to make decisions about economic regulation.

236. A consequence of the approach that has been taken in New Zealand is that the Act (or other documents such as the IMs) either contain what to my mind are very prescriptive provisions –

[219] It is not clear to me whether the current review by the Ministry for Regulation will consider what the overall objectives of the telecommunications regulatory regime should be.
[220] I discussed the Fibre Deeds in paragraphs 113 to 120 of the fibre report. I do not think it necessary to address them further in this report since I concluded that they serve little practical purpose in the absence of efforts by the Commission to promote competition through PONFAS. In the absence of that, I think they could be withdrawn since Chorus currently has no incentive to discriminate between RSPs in the provision of Layer 2 fibre bitstream services.

such as the copper and fibre services which Chorus is required to supply, the anchor service to be adopted or the prices of individual services – or important aspects of regulation are addressed by Deeds or other contractual arrangements which have been concluded between a firm and the Government and which sit outside of the Act altogether. In many cases, the Commission is confined to making recommendations to the Minister, rather than taking decisions which most regulators elsewhere in the world would expect to take. In my view this makes the regime in New Zealand more complex, more cumbersome and probably more difficult to enforce than it need be.

237. I recommended earlier in this chapter that Part 2 of the Act should be substantially revised to be provide the Commission with a more agile and future-proof regulatory instrument which ought to be able to address future challenges and changing circumstances without the need for the Government to legislate each time a new issue arises. If that approach is accepted then a mechanism is required to ensure that the Government's political and social objectives are properly accounted for by the Commission. I have identified two means by which this is already done. The first is the annual 'letter of expectations' which the Minister sends to the Commerce Commission[221]. This addresses all aspects of the Commission's work rather than being confined to telecommunications matters, although those are referenced in it. The second is provided by Section 19A of the Act, which requires the Commission to have regard to any Government Policy Statements relating to telecommunications. This was introduced in 2006 and to date only two Policy Statements have been transmitted by the Minister, one in 2009 which required the Commission to take regulatory decisions consistent with and taking account of the Government's international commitments under free trade and other international agreements[222] and another in 2011 relating to the regulation of LFCs and the need to incentivise investment in fibre when setting prices[223]. The latter policy relates to the application of Part 6, which, alongside Schedule 3, are the economic regulation matters which a Section 19A policy statement can address. This limitation may reflect that Ministers in New Zealand have tended to implement social regulation directly through deeds, rather than through direction of the Commission. In this chapter and in others I have recommended that some of these powers be transferred to the Commission in future. If that occurs, then I think it would be appropriate for the scope of Section 19A policy statements to be expanded to incorporate matters of social regulation as well as economic regulation. This should ensure that regulation will be able to adapt to changing popular and political expectations

[221] https://comcom.govt.nz/__data/assets/pdf_file/0021/367401/ComCom-Letter-Of-Expectations-2025-26-9-July-2025.pdf. It is not clear on what statutory basis these letters are sent but the Chair of the Commission provides a reply detailing the work of the Commission in the coming year and explaining how it aligns with the Government's expectations. A similar process of providing a 'strategic steer' applies in the United Kingdom. In Ofcom's case this was introduced in 2017 via amendments to the Communications Act, see Section 2A-C at https://www.legislation.gov.uk/ukpga/2003/21/contents

[222] https://gazette.govt.nz/notice/id/2009-go1348

[223] https://gazette.govt.nz/notice/id/2011-go7120

as well as to changes in the economic environment without the Government needing to legislate on each occasion.

238. Another issue common to almost all telecommunications regulatory regimes I am familiar with is the question of whether and how regulatory decisions can be challenged and thereby constrained. The European regulatory framework emphasised the importance of regulatory autonomy and political independence but also provided for decisions taken by the independent regulator to be subject to a merits based review[224]. This is implemented in different ways in different Member States in accordance with their respective institutional arrangements and legal traditions. If my recommendations were to give the Commission greater autonomy and discretion in decision-making, as I intend they should, then a question would arise as to whether the existing institutional arrangements in New Zealand provide sufficient constraint on the exercise of those powers.

239. The current position in New Zealand is complex for the reasons already discussed above. Many decisions involve recommendations being made by the Commission to the Minister, and decisions being taken by the Minister. As in the United Kingdom, decisions by Ministers in New Zealand are subject to judicial review in the High Court[225]. The same is true of decisions which the Commission takes itself. In the former case it could be argued that reserving the decision for the Minister provides a safeguard against the risk of the Commission acting inappropriately and so these arrangements may have been intended to reassure investors. This appears to have been the intention behind some aspects of the Part 6 regime which allowed the Minister to make decisions about what to my mind are straightforward questions of economic regulation which in most other jurisdictions would be left to the regulator to take. As already noted, I recommend that decisions of this kind are in future taken by the Commission[226], with Ministerial involvement being limited to aspects of social regulation and the provision of an overall policy steer.

240. I note the Government in New Zealand referred to the possibility of moving to a merits review regime, albeit without much apparent enthusiasm, in its 2015 review of the

[224] Article 31 of the EECC

[225] https://www.dpmc.govt.nz/our-business-units/cabinet-office/supporting-work-cabinet/cabinet-manual/4-ministers-law-and-inquiries/litigation-involving-ministers

[226] I recognise that the Act established the role of Telecommunications Commissioner, which is a position held by a single individual within the Commerce Commission, but that decisions are taken by a group comprised of the Telecommunications Commissioner and at least two other members of the Commission (hence the references to 'the Commission' in this report). In the United Kingdom, decision-making powers in Oftel (and other regulators) were held by a single individual (the Director General) but were replaced by a Board structure when Ofcom was created in 2003, including Non-Executive Directors. I would not recommend that corporate governance arrangements are adopted by regulators but I am not well placed and have not been asked to make recommendations on the decision making or other aspects of the Commission's work.

Telecommunications Act[227]. In the United Kingdom, the Government moved from a full merits review to a judicial review standard in 2017[228]. This followed representations from Ofcom to the Government that regulated firms were exploiting the appeals system in order to delay regulation and/or to inhibit Ofcom's ability to act.

241. I therefore think there is a question of whether the appeals standard for Commission decisions should be altered if the other recommendations in this report were to be adopted and the Commission were in future able to exercise a substantially greater degree of discretion over a wider set of decisions than in the past.

[227] https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001, p.108
[228] https://www.legislation.gov.uk/ukpga/2017/30/section/87

242. This chapter provides an account of the development of the market and regulation of mobile telecommunications networks and services in New Zealand over the past 20-30 years and comments on various aspects. It is shorter than Chapter 2, in part because the economic regulation of mobile services is governed by the same Part 2 access regime which I discussed in detail in Chapter 2 and in part because regulation of mobile networks and services has been less extensive than the regulation of fixed networks and services, as has also been the case elsewhere in the world.

243. I recognise that the distinction I adopt between fixed and mobile telecommunications could be misleading and I employ it only to organise the topics which this report considers. As discussed in Chapter 2, cellular networks which have been deployed to provide mobile telecommunications services to individuals can be, and in New Zealand are being used to supply cellular fixed wireless services to households. The firms that retail mobile services in New Zealand are also the largest retailers of fixed services. In addition, the mobile network operators rely upon fixed telecommunications infrastructure which they either self-supply or purchase from Chorus or other fixed network operators in order to connect cell sites to the rest of their network and to other networks. The regulated fibre service that is used for such backhaul arrangements is known as the Direct Fibre Access Service or DFAS. I considered DFAS in the fibre report[229] and noted that the Commission had recently decided to undertake a deregulation review of point-to-point fibre (including DFAS) in areas outside of the Chorus UFB footprint and had received no complaints in relation to the supply of backhaul services for mobile networks by Chorus. On this basis I do not consider the future regulation of DFAS to be a matter of priority, and to the extent that concerns arise in future they could be addressed through the application of the Part 2 access regime that I recommend in Chapter 2.

244. The development of the mobile telecommunications market in New Zealand follows a more conventional pattern than fixed telecommunications which I discussed in the previous chapter. As occurred in most European countries and the United States, spectrum licences to enable the provision of analogue mobile services were initially awarded to the incumbent fixed telecommunications operator, Telecom New Zealand in 1987. A second licence was awarded to BellSouth, a US-based telecommunications operator, in 1993 and Vodafone subsequently acquired BellSouth's mobile operations in 1998. In Europe, Sweden had been the first country to offer a

[229] The analysis summarised here appears at paragraphs 95 to 99 of the fibre report.

mobile spectrum licence in 1981 and had been unusual (together with the United Kingdom) in awarding licences to two firms at that point. The rest of Europe generally followed the New Zealand model of allowing the incumbent fixed telecommunications operator to introduce analogue mobile services into the market and then introducing a second competitor when digital technologies became available in the 1990s. I consider this another example of technological development and disruption – in this case the development of the GSM standard - enabling entry and competition in telecommunications markets.

245. In contrast with its position in fixed telecommunications Telecom New Zealand did not enjoy an entrenched position in the mobile market and Vodafone had acquired a greater market share by 2003[230]. The 1990s were a period in which the market for mobile telecommunications services expanded dramatically and beyond traditional business users into the consumer mass market – subscriptions in New Zealand increased by over 4x between 1997 and 2007[231]. This enabled further entry in Europe, with the United Kingdom licensing a further three entrants in 1993 (using PCN technology at a higher 1800 MHz frequency) and Germany and France adding a third entrant shortly thereafter. 2degree's entry as the third operator in the New Zealand market in 2009 was relatively late in comparison to developments in Europe, particularly as it launched with a 2G GSM network and activated 3G a year later. There appear to have been a number of factors, including regulatory issues which I discuss below, that accounted for this[232]. The United States developed in a different manner because the FCC had awarded cellular spectrum licences on a local or regional rather than national basis. AT&T and Verizon, both former fixed telecommunications regional monopolists emerged as national mobile network operators, alongside Nextel and Sprint (who merged in 2005) and Voicestream (acquired by T-Mobile in 2001).

246. Aside from spectrum policy, which I discuss later, the regulation of mobile networks and services over the past 20-30 years has largely been concerned with the promotion of entry and prevention of exclusionary conduct on the one hand and, more recently, with consolidation and restructuring of the industry. These issues have not arisen because of the presence of a recently privatised monopolist, as was the case with fixed telecommunications, but because later entrants confronted barriers to entry or exclusionary conduct by mobile operators already in the market.

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[230] p.20 at https://comcom.govt.nz/__data/assets/pdf_file/0025/63835/2007-Telecommunications-Market-Monitoring-Report0.pdf

[231] p. 19 at https://comcom.govt.nz/__data/assets/pdf_file/0025/63835/2007-Telecommunications-Market-Monitoring-Report0.pdf

[232] 2degrees' predecessor company, Econet Wireless New Zealand Ltd, was established in 2000 and entered into an agreement with Hautaki Ltd, which held 3G spectrum on behalf of Maori interests. In comparison with Vodafone or Telecom New Zealand, the company had limited access to capital.

National roaming

247. The first issue concerns national roaming and arises because economies of density and scale in mobile networks, discussed in Chapter 1, mean that mobile infrastructure in rural areas can be uneconomic for an entrant without a customer base, as well as taking time to deploy. This could be particularly the case if a prospective entrant had been allocated higher frequency 1800 MHz spectrum, which required a higher density of cells to achieve the same coverage as an operator using the lower frequency 900 MHz spectrum which was the first spectrum to be allocated for the provision of digital mobile services. Providing rural coverage using 3G technology and 2.1 GHz spectrum was even more challenging.

248. Some entrants, including Mercury One2One in the United Kingdom in 1993, had launched without extensive geographic coverage (i.e. substantially less than 40% of the population)[233]. This strategy failed and the company ended up doubling its coverage by 1997. During the 1990s even established mobile networks were still under development and mobile coverage was an important point of competitive differentiation which was heavily advertised by mobile operators[234]. Mobile network coverage expanded in most markets as a result of competition between the existing operators (and as a result of the expansion of the overall market opportunity) throughout the 1990s.

249. Prospective entrants, including 2degrees in New Zealand, argued that they could not compete effectively for end users without extensive mobile network coverage which the existing operators had by this time acquired. It would take time to acquire coverage and the costs of deploying sites in rural areas were prohibitive. Timing was an important consideration because the mobile market was expanding rapidly, allowing new entrants to acquire first time users rather than having to switch them away from an existing provider. Governments and regulators that sought to promote competition in mobile markets became more receptive to these arguments as by the late 1990s any entrant would face established mobile operators already in possession of national mobile networks with extensive rural coverage.

250. Nonetheless, there has been no consensus amongst regulators about whether to introduce national roaming obligations in order to promote entry into mobile markets. Such obligations

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233 https://www.engagingwithcommunications.com/publications/THG_Papers/Mercury_one2one/mercury_one2one.html#:~:text=The%20UK%20events%20took%20place,a%20consortium%20including%20British%20Aerospace

234 Coverage was not so closely monitored by regulators – the Commission's early Monitoring Reports contain no reference to it at all and the first reference I have found was in the 2013 report. I assume this may reflect the 2001 Act, which requires the Commission to promote competition rather than be concerned with social regulation matters, which I consider include coverage.

began to appear in Europe the late 1990s and early 2000s. The United Kingdom was the first country to auction 3G spectrum licences in 2000. It reserved a fifth licence for a new entrant (acquired by Hutchison 3G) and imposed a time-limited national roaming obligation upon Vodafone and BT Cellnet[235]. This expired, following a review, in 2004. The time limited nature of the obligation was intended to incentivise the access seeker to substitute their own network within a reasonably short period of time and so could be viewed as a version of the 'ladder of investment' strategy which I discussed in Chapter 2. Roaming obligations in Italy and Austria have applied for similar periods. However, countries such as Germany and France decided not to regulate and required entrants either to deploy their own networks or to rely upon commercial arrangements without any form of regulatory backstop[236]. The ACCC in Australia has reviewed whether to regulate national roaming services in 1998, 2005 and 2016, and has declined to do so on each occasion[237]. Roaming arrangements in the United States and Canada are different in nature because they are generally used to extend coverage in regions for which the access seeker does not hold it own spectrum licences, although the Canadian regulator concluded in 2014 that the three national operators should be obliged to provide national roaming to other operators on regulated terms (and operators had been required to supply national roaming services prior to that as a condition of their spectrum licences)[238]. The United States has obliged operators to provide roaming services since 1981 and has the ability to intervene to set terms in the event of disputes but does not appear to have ever done so[239].

251. In almost all cases where national roaming obligations were introduced– and again in contrast with the regulated prices in fixed telecommunications that were discussed in Chapter 2 - the price terms of the arrangements have remained a commercial matter to be resolved between the parties. This is for two reasons, First, it was expected that competition between the existing mobile network operators to acquire the roaming traffic of the entrant would generate reasonable commercial terms. In some cases there was provision for pricing disputes to be referred to the regulator but I am not aware of their ever being used. Second, regulators were at this time far more concerned about the impact of regulation upon an operator's incentives to invest in improving and expanding their mobile infrastructure than in the case of regulating owners of fixed copper networks which were already mature and not expected to be replaced at that time. Later, of course, European regulators would also begin to worry about the impact of access regulation upon

[235] https://www.nao.org.uk/wp-content/uploads/2001/10/0102233.pdf, p.20-1
[236] Slide 7 at https://www.accc.gov.au/system/files/Optus%20submission%20Annex%201%20of%201_0.pdf
[237] https://www.accc.gov.au/system/files/Mobile%20roaming%20declaration%20inquiry%20final%20report_0.pdf?ref=0&download=y
[238] https://crtc.gc.ca/eng/archive/2015/2015-177.htm
[239] https://docs.fcc.gov/public/attachments/FCC-11-52A1.pdf

the incentives of fixed network operators to deploy fibre further into their networks, or to replace copper connections with fibre, and would revisit their approach to regulating prices, as I explained in Chapter 2.

252. National roaming in New Zealand appears to have been challenging. National roaming was a specified service in Schedule 1 of the 2001 Act and so subject to non-price specification, an approach consistent with that taken in Europe in the late 1990s. Although Econet was established in 2000 it appears to have taken 7 years for it to agree commercial terms for national roaming with Vodafone (in 2007). I assume that Vodafone was mindful of the Commission's then ongoing investigation into whether the service should become a designated service under the Act, in which case the Commission would have been able to regulate prices. The specification of the service was updated in 2008[240]. An access seeker under the terms of the service defined in Schedule 1 of the Act was required to have network coverage of at least 10% of the population (2degrees launched with 47%) and plans to extend to at least 65%. Similar conditions often applied in Europe to ensure that the access seeker had a sufficient commitment to invest in its own network.

253. The agreement with Vodafone appears to have achieved its purpose and 2degrees has now deployed its own extensive 4G network. It converted its national roaming arrangements with Vodafone into a MORAN network sharing arrangement with OneNZ in 2020 without any intervention on the part of the Commission. At that point 2degrees reported that 1% of its traffic was being carried on the OneNZ network. During the same period the company's market share has grown from 4% in 2009 to 19% by 2020[241], although I note that it peaked at 24% in 2012, remained stable until it fell in 2018, since when it has remained stable at around 20% of mobile subscriptions[242]. I would not attribute these fluctuations in 2degrees' market share to coverage-related matters[243].

254. In 2023 the Commission undertook its 5 yearly review to decide whether there were grounds to deregulate national roaming and concluded that there were not, largely on the basis that any new entrant would likely require national roaming and that it provided a regulatory backstop for commercial arrangements[244]. In my view there is little or no prospect of entry into the mobile

[240] https://www.legislation.govt.nz/regulation/public/2008/0251/latest/DLM1450511.html
[241] p.34 https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001 and p.26 at https://comcom.govt.nz/__data/assets/pdf_file/0030/247377/2020-Annual-Telecommunications-Monitoring-Report-Revised-version-16-March-2021.pdf. I note 2degrees' share was higher, at 24% in 2015
[242] p.161 at https://comcom.govt.nz/__data/assets/pdf_file/0033/361959/2023-Telecommunications-Monitoring-Report-15-August-2024.pdf
[243] I think it more likely to reflect 2degrees greater exposure to competition from MVNOs and sub-brands serving the value conscious segment of the market
[244] https://comcom.govt.nz/__data/assets/pdf_file/0026/326843/2023-Review-of-National-Roaming-Final-Decision-30-August-2023.pdf

telecommunications network market in the foreseeable future[245]. The question in Europe and the United States is more commonly whether there will or should be exits via mergers, such as those involving Hutchison (a 3G entrant in Europe during the 2000s) in Austria, Ireland and Italy, in Germany and the Netherlands and, most recently, in the United Kingdom. I am not aware of any expectation that 2degrees, which is owned by Macquarie Asset Management and Aware Super, will seek to exit the market in the foreseeable future[246].

255. If the existing Part 2 regime remains in place, then I would recommend removing the national roaming service from Schedule 1. However, in Chapter 2 I have recommended that the Part 2 regime be substantially revised to make it more flexible. If this were done then on the facts before me I would expect the Commission to conclude that no mobile operator held a substantial degree of market power in the mobile market and that, accordingly, there were no grounds to regulate. The Commission could reconsider whether regulation was required at a later date if the facts were subsequently to change.

256. I am aware that co-location was also a specified service under Schedule 1 of the 2001 Act. The Commission's 2023 Monitoring reports states that it has no information on the extent to which this occurs or has occurred in the past[247]. The Commission is due to review this designation in 2026. In the meantime, all of the mobile network operators divested their passive tower assets in 2022/3: Vodafone to Fortysouth[248] and Spark[249] and 2degrees to Connexa[250]. Tower assets generally attract a higher valuation multiple when held by a TowerCo in the expectation that utilisation levels will increase because operators will be more willing to co-locate when towers are not owned by a competitor. TowerCos do not compete in the mobile services market and therefore have no incentive to deny access to their towers in the way that a vertically integrated mobile network operator would have. In my view there is no reason to expect an entrant to be prevented from obtaining access to towers in the absence of regulation and so no reason to retain co-location as a specified service.

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[245] I note the Commission concluded in 2019 that 'there does not appear to be a strong case for regulatory intervention to promote a fourth MNO to enter the New Zealand market.' p.66 at https://comcom.govt.nz/__data/assets/pdf_file/0022/177331/Mobile-Market-Study-Findings-report-26-September-2019.PDF. This appears to be on the basis that the market was functioning well. In my view, even if that were not the case, the Commission would be unlikely to be able to induce investors to fund entry by a fourth operator.

[246] https://disclosure.spglobal.com/ratings/en/regulatory/article/-/view/type/HTML/id/3220714

[247] P.157 at https://comcom.govt.nz/__data/assets/pdf_file/0033/361959/2023-Telecommunications-Monitoring-Report-15-August-2024.pdf

[248] https://media.one.nz/towerco

[249] https://www.nzx.com/announcements/395197

[250] https://www.2degrees.nz/media-releases/2degrees-announces-sale-of-tower-assets-for-1076bn?srsltid=AfmBOooH0Dmgh6J3nJh-t-en82CpBUv5ewTe0JcTHEXOyFGP94enTLda

Expanding mobile coverage

257. New Zealand today has three mobile networks, each with extensive population coverage and significant geographic coverage. The Commission reports 4G population coverage of just over 98% in 2024 and geographic or landmass coverage of 54%[251], which appears reasonable for a country with New Zealand's characteristics (UK has 99% outside premises 4G coverage and 89% geographic coverage[252]). Mobile users appear satisfied with the current availability of mobile services[253]. These outcomes are primarily the result of competition between the mobile network operators that has driven coverage expansion over the past 20 years.

258. In recent years there has been an increasing concern amongst Governments that incentives in the mobile industry to further expand coverage beyond that already achieved may be exhausted. As network coverage for each operator has converged at over 90% of the population and a substantial part of the accessible landmass in most countries, it has ceased to be a basis for competitive differentiation[254]. This is also evidenced by an increased propensity for mobile operators to share network infrastructure, originally by sharing access to towers and more recently by entering into more extensive sharing of the radio access network or RAN, as in the network sharing arrangement between 2degrees and OneNZ or the Rural Connectivity Group arrangements. I think it important to recognise that whilst these arrangements may reflect a recognition that it is now difficult to differentiate on the basis of network coverage, they may also serve to ensure that such differentiation is no longer possible and so in this sense of self-fulfilling. Competition authorities in Europe will generally scrutinise mobile network sharing arrangements since they represent as form of non-compete agreement with respect to coverage. Most agreements for rural network sharing are approved on the basis that, in the absence of sharing there would be no network deployment at all. On the other hand, network sharing arrangements also tend to ensure that end users at a shared location will then have a choice of retail supplier. This contrasts with the situation that could arise under the network competition model, in which a significant proportion of households may have coverage from only a single operator and so will be deprived of choice. Recognising this, Ofcom has in recent years begun to measure and report mobile coverage in the United Kingdom by reference to the proportion of households that have a choice between all 4 operators, the proportion having at least 2 and so on. I note the Commission

[251] p.194 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[252] p. 29 at https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/multi-sector/infrastructure-research/connected-nations-2024/connected-nations-uk-report-2024.pdf?v=386497
[253] p.189 at https://comcom.govt.nz/__data/assets/pdf_file/0033/361959/2023-Telecommunications-Monitoring-Report-15-August-2024.pdf
[254] There are exceptions to this, with Telstra's advertising of its superior network coverage in Australia being a prominent example.

does not appear to do this in its current Monitoring Report but recommend that it does so in future. Rural users may be harmed if they are deprived of coverage, but they may also be disadvantaged if they are deprived of choice[255].

259. Network sharing arrangements may therefore extend mobile coverage beyond that which can be obtained by requiring operators to compete with each other, but they may still not achieve the outcomes which Governments require. In Chapter 2 I suggested that a key question for the New Zealand Government and the Commission at this point in the market's development is what fixed broadband services households in rural areas should expect to be able to access. A similar question arises in relation to mobile services, and particularly 5G services, both in New Zealand and elsewhere in the world.

260. Government subsidy of mobile network deployments, invariably in rural and remote rural areas, has been slower to emerge than subsidies of fixed broadband networks. In the United Kingdom the Government established a joint venture with the mobile operators in 2020 to co-finance a Shared Rural Network which is intended to extend 4G geographic coverage to 95% in aggregate (and 90% for each individual operator)[256]. This programme was initially resisted by the British network operators but was subsequently adopted following threats by Ministers that they would otherwise impose national roaming obligations on all operators[257]. I referred in Chapter 2 to public funding arrangements in Spain and the United States that are intended to support the deployment of 5G networks in rural areas. I expect to see an increasing number of such initiatives in future.

261. In New Zealand, the Government has funded the RBI programme, which was primarily intended to expand cellular fixed wireless broadband coverage but also involved the deployment of new cell sites which I would expect to expand mobile coverage in those areas[258]. In 2016 the Government also introduced the Rural Mobile Programme or Mobile Black Spot Fund, which involved contracting with a consortium of mobile operators (the Rural Connectivity Group) to

[255] This concern may be less acute with mobile services, since operators engage in national or consistent geographic pricing which ensures that competition in urban areas also constrains prices in rural areas.
[256] https://www.gov.uk/government/news/shared-rural-network
[257] https://www.theguardian.com/business/2014/dec/18/mobile-phone-firms-coverage-deal-sajid-javid. It is not clear to me that UK Ministers could have done so legally under the European regulatory framework.
[258] I do not have data for mobile coverage in 2011, when the first RBI contract was signed, but in 2013 population coverage for Vodafone and Spark was 97% and 88% for 2degrees. The first RBI programme was completed in 2016, at which point coverage was 98% and 96% respectively. It is difficult to determine whether the RBI programme had any material impact on mobile coverage (and specifically Vodafone's coverage), but I also recognise that it was not intended to.

deploy cell sites along 1400 km of rural highways and 168 tourist sites. This was expected to increase geographic coverage overall by 20-30%[259].

262. A question remains about the Government's and Commission's expectations for 5G coverage in New Zealand. This is a live debate in Europe, with the European Commission highlighting the limited deployment of 5G Standalone networks in most European countries[260]. The latest report states that whilst Europe has achieved 94% 'basic' (i.e. non-standalone) 5G coverage by 2024, comparable with the United States, it lags in the deployment of 5G Standalone networks which allow users to fully exploit the benefits of 5G technology and which are used to support advanced industrial applications such as robotics. European policymakers regard 5G Standalone technology as an important enabler of future productivity growth, although I consider there is currently limited evidence to support this assumption.

263. Compared to 5G coverage in the 90 percent range, the Commission reports New Zealand 5G coverage as being at 40% of the population in 2024[261]. The latest Monitoring Report states:

> 'Our analysis of public statements indicates that two MNOs have scaled back their initial ambitions for 5G deployment. This shift likely reflects a global sentiment that 5G is more challenging to monetise than initially anticipated with investments facing increased scrutiny from investors. As noted in the urban connectivity chapter, we have also seen slow uptake of 5G fixed wireless services. We anticipate a slowdown in 5G deployment once key urban areas are covered as providers redirect funds towards higher-performing investments such as data centres'[262].

264. The Commission reports that so far only Spark has announced the deployment of a national 5G Standalone network by 2026[263].

265. I think there are several ways to react to this evidence. One is that the New Zealand mobile operators are deploying capital in an efficient manner in response to user demand. It is widely recognised that, as the quote states, the willingness of users to pay higher prices for a 5G connection have been limited to date. On the other hand, those users that acquire even a non-

[259] https://www.mbie.govt.nz/science-and-technology/it-communications-and-broadband/digital-connectivity-programmes/broadband-and-mobile-programmes and https://www.beehive.govt.nz/release/next-phase-flagship-rural-connectivity-rollout-launched
[260] p.7 at https://ec.europa.eu/newsroom/dae/redirection/document/116740
[261] p.190 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[262] Ibid p.193
[263] Ibid p.193

Standalone 5G connection will obtain a materially better broadband connection than users of a 4G connection. Latest OpenSignal data suggests mobile users in New Zealand obtain speeds of 50 Mb/s on average, a result which is dominated by 4G connections. However, 5G connections are above 200 Mb/s in many instances[264]. Most of the applications which mobile users currently consume on mobile devices with small screens do not require anything like 200 Mb/s.

266. On this view, 5G is a technology that fails to address a meaningful user need and operators in New Zealand are responding to market signals. To the extent that the technology is being deployed, it is in order to obtain 'bragging rights' and appear innovative with users, to anticipate the arrival of new, as yet unknown, applications, or it may be deployed to fulfil other objectives, such as meeting demand for 5G fixed wireless services (5G fixed wireless is having a significant impact in European countries such as Italy[265], but low take up of 5G fixed wireless in New Zealand reflects limited deployment). In contrast, it could be argued that operators in Europe and the United States (as well as Governments who provide public subsidies for 5G) are deploying capital inefficiently. On this view there is no regulatory action required and no need to be concerned about New Zealand's comparative performance.

267. Another view is that whilst market dynamics may mean that 5G coverage is relatively modest, it is important to ensure that any benefits from 5G coverage are distributed equitably, or at least more equitably than would be the case without any form of social regulation. This appears to be the position which the New Zealand Government has taken when licensing the 3.5 GHz spectrum for 5G. The short term rights were initially auctioned without coverage obligations but were converted into long term management rights contracts in 2023 with coverage commitments to extend 5G coverage to 55 towns within the urban or UFB network footprint[266]. I note that 5G coverage expanded from 27% to 40% of the population between 2023 and 2024[267] and assume that some of this is attributable to the need to fulfil the 5G coverage commitments, although I do not know what percentage of the population the 55 towns collectively represent. I discuss spectrum licensing further below.

268. The question which follows is whether the additional 55 towns represent the limit of the Government's ambitions of whether further measures will be required, perhaps to eventually extend 5G coverage into rural areas as Governments in Europe, the United Kingdom and the United States are now doing, including through the provision of public subsidies.

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[264] https://www.opensignal.com/reports/2024/09/newzealand/mobile-network-experience
[265] Average download speed increased from 26 Mb/s to 56 Mb/s and upload speed from 8 Mb/s to 24 Mb/s, see https://www.opensignal.com/2024/05/16/5g-fwa-is-a-game-changer-for-broadband-services-in-italy
[266] https://www.rsm.govt.nz/projects-and-auctions/completed-projects/preparing-for-5g-in-new-zealand
[267] p.190 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

269. This brings me to a third perspective, which is that the deployment of 5G networks in rural areas could not only address concerns about ensuring equitable or more equitable access to mobile services in future but should also be viewed by reference to the Government's ambitions for fixed services in rural areas which I discussed in Chapter 2. For example, if the Government were to subsidise or otherwise encourage the deployment of 5G in rural areas to alleviate capacity constraints and enable the more competitive provision of cellular fixed wireless services, then this would also and at the same time expand the provision of 5G mobile services in those areas. Evidence from the United States, where 5G fixed wireless services were launched by T-Mobile and Verizon in 2022, suggests that 5G may turn cellular fixed wireless into a proposition that can be rapidly scaled alongside widespread provision of a 5G mobile service[268]. It is important to recall that 4G technology was designed and developed for mobile broadband services and not with fixed wireless services in mind, whereas 5G technology has proved to be better suited to fixed wireless applications which have been described by some as the 'killer application' for the technology[269].

270. If the Government and Commission were to allow Chorus to expand its fibre network by charging materially higher prices in rural areas, then this would likely improve the investment case for 5G cellular fixed wireless services in rural areas, and by extension the investment case for 5G mobile services, relative to a situation in the price of rural fibre services was the same as that applicable in urban areas. This underlines that decisions taken about the future regulation of fixed telecommunications networks and services in rural areas are likely to affect the prospects for obtaining 5G mobile coverage in those same areas[270]. I would therefore recommend that if the Government decides to develop a strategy for new technology deployment in rural areas (which I recommend they do) it should incorporate both fixed and mobile technologies and explicitly take into account the interaction between the two[271], as well as taking account of the interactions between economic regulation (which I discuss in Chapters 2 and 3) and social regulation (which I discuss in Chapter 4).

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[268] These operators, neither of whom resell fixed services supplied using other technologies, have acquired over 8 million fixed wireless connections since launch but also have high levels of 5G mobile take up and performance in the same areas, see https://www.opensignal.com/2024/06/06/5g-fixed-wireless-access-fwa-success-in-the-us-a-roadmap-for-broadband-success-elsewhere

[269] https://www.fierce-network.com/wireless/op-ed-fixed-wireless-access-emerges-killer-app-5g

[270] There is another point to consider, which is that deploying 5G in remote rural areas to address fixed broadband concerns may result in a mobile network which has good coverage in urban and remote rural areas, but limited coverage in between.

[271] An example of such a strategy for rural broadband provision is that written by me for the National Infrastructure Commission of Wales (of which I was a member) at https://www.gov.wales/sites/default/files/publications/2020-12/digital-communications-infrastructure-in-wales-report-and-recommendations.pdf

Mobile Terminating Access services

271. Mobile call termination or Mobile Termination Access services (MTAs) were first regulated in the United Kingdom in 2001 and were included in the original list of relevant markets which the European Commission expected to be regulated under the 2002 regulatory framework. The United States had different 'bill and keep' arrangements under which no equivalent payment passed between operators when exchanging calls. In the 2000s income from terminating calls that were initiated on other networks represented a substantial proportion of revenue for mobile operators in Europe (and I expect in New Zealand) and an even greater proportion of profits.

272. Complaints about unfair mobile call termination prices came from two sources. One was fixed telecommunications operators who considered that they were providing an ever growing subsidy to mobile operators as the size of mobile user base expanded in the 1990s and the volume of calls to them correspondingly grew. The other were new entrant mobile operators who complained that above cost call termination charges sustained high retail prices for calling between networks, whereas large mobile network operators were able to internalise these costs for calls made between users within its own network. This allowed operators with larger customers bases to exploit network effects and so exclude their small competitors.

273. It was this concern about price discrimination against calls from the 2degrees network which prompted the Commission to investigate and regulate prices from 2010. Prices were set for a 5 year period by reference to an initial pricing principle which required the use of international benchmarks, as discussed in Chapter 2. The decision included provision for the Commission to consider bill and keep arrangements but it does not appear to have ever done so[272] I further understand that rates have remained unchanged since 2014[273]. As noted earlier, 2degrees' market share had peaked at 24% in 2012, at which point any exclusionary effect from price discrimination was likely to have diminished compared to the position in 2009 when 2degrees had had only a 4% market share.

274. In 2025 the Commission found reasonable grounds to undertake a deregulation review of MTAs[274]. The growth of digital messaging services and the decline of voice calling have greatly reduced the economic significance of MTAs for operators in the intervening period. Regulators in

[272] https://www.legislation.govt.nz/regulation/public/2010/0262/latest/DLM3167649.html#DLM3167648
[273] p.178 at https://comcom.govt.nz/__data/assets/pdf_file/0033/361959/2023-Telecommunications-Monitoring-Report-15-August-2024.pdf
[274] https://comcom.govt.nz/__data/assets/pdf_file/0021/365061/Mobile-termination-access-services-MTAS-review-final-decision-25-March-2025.pdf

Europe have continued to regulate call termination rates for the past 20 years and the European Commission adopted a Recommendation in 2009 which was intended and did in fact lower prices significantly to address 'fundamental competitive distortions', as well as ensuring greater alignment amongst Member States[275]. In 2018 the European regulatory framework adopted provisions to allow the Commission to set a single mobile termination rate, to be applied to all operators in all countries, set at 0.2 eurocents (0.4 NZ cents) from 2024[276].

275. I agree with the Commission's decision to find reasonable grounds to review. I agree that the current market structure for mobile telecommunications in New Zealand precludes the use of call termination rates for exclusionary or anti-competitive purposes and that the price for terminating mobile voice call services will be constrained by alternative communications services such as Whatsapp.

Retail competition

276. In this chapter thus far I have discussed the development of the mobile market and regulation with respect to the entry of vertically integrated firms into the market. Most countries, including New Zealand, have encouraged entry on this basis. An early exception was the United Kingdom, which in 1985 required the two network operators, Vodafone and BT Cellnet, to retail their services through both independent and affiliated or 'tied' service providers or retailers. Numerous disputes arose between the operators and the independent service providers, who alleged that the vertically integrated firms engaged in margin squeeze and otherwise inhibited their ability to compete on fair terms[277]. German mobile operators also had regulatory obligations to supply independent service providers. Many other markets, both in Europe and the United States, also saw mobile operators use third party retail and distribution channels on a commercial basis to meet the demand for mobile services during the 1990s and 2000s or to appeal to parts of the market which the operator's own brand and retail channels would not.

277. As growth slowed in the late 2000s and 2010s and sales commissions were increasingly being paid to churn existing mobile users between different networks rather than expand the market, mobile network operators began to acquire independent distributors and so remove them from the retail market. Assumptions about the number of mobile networks that could be sustained had changed since service provision obligations had been adopted to promote retail competition in mobile markets in the 1980s and 1990s. Entry barriers had proved lower than expected and

[275] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009H0396
[276] https://digital-strategy.ec.europa.eu/en/news/eu-wide-voice-call-termination-rates-become-applicable-today. The relevant Article in the EECC is Article 75.
[277] https://publications.parliament.uk/pa/cm200001/cmselect/cmtrdind/90/90ap14.htm

competition between three, four or even five vertically integrated firms (Germany initially licensed 6 3G operators and the UK 5) proved to be viable, at least for a period[278]. In these circumstances, competition from independent service providers was less important and competition authorities and regulators did not generally object to their acquisition by the mobile operators. This is another illustration of how telecommunications markets change over time and how assumptions about market structure or the scope for competition can be overturned.

278. Virgin Mobile was the first MVNO to launch in Europe in 1999 and the first to launch in the United States in 2002. In both cases it obtained access to mobile network services on a commercial basis and without regulatory intervention. The European regulatory framework that was adopted in 2002 included mobile network access for MVNOs in early lists of relevant markets that national regulators were expected to analyse but, as I explained earlier, they had to find SMP in the relevant market before being able to intervene. By that time there were very few European mobile markets in which a single firm would be considered to hold market power or a position of dominance[279] and so regulation to enable MVNO entry required the national regulator to find joint SMP or dominance to the requisite legal standard. Regulators in Ireland, France, Spain and Malta attempted to do so, with only Spain (between 2005 and 2017) and Malta (between 2006 and 2012) being successful. In each case the regulator required mobile network operators to provide access to their networks but did not specify regulated terms or prices for doing so. This was similar to the approach which some regulators in Europe had taken to national roaming previously and which I discussed earlier. By 2007, however, the European Commission concluded that mobile access for MVNOs could be withdrawn from consideration by national regulators. Since then there have been some attempts to introduce regulated access arrangements in mobile (in Czech Republic in 2023[280]) but they have been blocked by the European Commission.

279. I should note that obligations to supply MVNOs or to preserve existing commercial access arrangements also formed a basis for remedies to resolve competition concerns arising from mergers of mobile network operators in Europe (alongside obligations to provide national roaming in some cases). For example, the merger between Hutchison and Orange in Austria was approved by the European Commission in 2012 subject to an undertaking that the merged entity

[278] It is worth noting that the service provision model was never expected to allow firms to enter the market as retailers and then invest in network facilities later, as the 'ladder of investment' strategy envisaged in fixed telecommunications – see Chapter 2.
[279] Cyprus was one exception, in which CYTA had a 90% market share and was obliged by the regulator to provide access to MVNOs in 2006 and again in 2009. Slovenia in 2006 was another.
[280] https://digital-strategy.ec.europa.eu/en/news/commission-closes-its-depth-investigation-proposed-regulation-market-wholesale-access-mobile

would reserve 30% of its network capacity to support the entry of up to 16 MVNOs on wholesale terms which were approved by the Commission[281]. No MVNOs had existed in the Austrian market prior to the merger but Hutchison agreed to contract with one MVNO, UPC, before the transaction could complete (which it did in January 2015). MVNO access remedies were also adopted in relation to mobile mergers in Ireland and Germany (after which point the European Commission concluded that regulated access for MVNOs was an ineffective merger remedy and resorted to other measures in Italy). More recently, MVNO commitments have been viewed by competition authorities as a transitory measure until a new network-based operator has entered the market. That was the case, for example, in the T-Mobile/Sprint merger in the United States[282]. Since I do not envisage a merger between any of the three existing mobile network operators in New Zealand in the foreseeable future, I do not consider the merits of these merger remedies any further in this report[283].

280. MVNOs have entered since the early 2000s in many countries, including in Europe and the United States. Their impact, measured in terms of market shares, varies enormously and reflects the wide variety of different customer segments which MVNOs tend to focus upon (although some existing retailers, such as supermarkets, appeal to a more general audience[284]). On this measure, MVNOs are very significant in Germany (in part due to the historic service provision referred to earlier), significant in the United Kingdom and the United States, and relatively insignificant in other European countries[285]

281. The Commission reports that there were eleven MVNOs in the market in New Zealand in June 2024, with a collective market share of 2.5% (up from 1.6% in 2023)[286]. Each of the three network operators hosts at least one MVNO. Some are suppliers of fixed broadband services (and/or electricity services, such as Mercury and Contact Energy) who I assume are cross-selling

[281] https://ec.europa.eu/competition/mergers/cases/decisions/m6497_20121212_20600_3210969_EN.pdf
[282] https://www.justice.gov/archives/opa/pr/justice-department-settles-t-mobile-and-sprint-their-proposed-merger-requiring-package
[283] I also do not consider the structural separation initiatives in mobile that have been undertaken by, amongst others, the Rwandan and Mexican Governments, often referred to as Wholesale Open Access Networks. These have all failed and there is no indication that the Government or Commission in New Zealand are considering such an approach, and I do not recommend that they do. They have never been considered in Europe or the United States. For details see https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2017/07/GSMA_WOAN.pdf
[284] For example, I undertook a study of MVNOs in 2019 and found that MVNOs in Norway mainly serve business users, whilst MVNOs in Spain mainly provide international calling services to immigrant communities, see https://applications.crtc.gc.ca/DocWebBroker/OpenDocument.aspx?DMID=3647494
[285] p.7 at https://comcom.govt.nz/__data/assets/pdf_file/0019/104248/Spark-NERA-Competitive-effects-of-MVNOs-and-assessment-of-regulated-MVNO-access-Submission-on-the-Issues-Paper-26-October-2018.PDF
[286] I note that the collective market share in 2018 (according the Mobile Market Review) was 1.1%, so MVNO growth rates are quite volatile between years, reflecting the low base, see p.201 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

or bundling mobile to existing or new fixed broadband or electricity customers within a limited geographic footprint. Others like Kogan are established retailers. Some of these MVNOs, appear to be reselling cellular fixed wireless services in limited volumes[287]. Wholesale terms between the MVNO and network operators are unregulated in New Zealand and so will have been concluded on a commercial basis.

282. I note that there were requests during the 2019 Mobile Market Study for the Commission to regulate terms under Part 2 of the Act or for obligations to be included in spectrum licences, which I discuss below. The Commission - wisely in my view - declined to do so.

283. It appears to me that the Commission expected that MVNOs would achieve a greater market share by 2024 than they have. It appears to regard the growth of MVNOs favourably and says 'This increase in the number of MVNOs is consistent with an international trend towards increased network utilisation by MNOs as they seek to monetise ongoing investments into their networks'[288]. Although I agree that mobile network operators everywhere have an incentive to monetise their investments in network capacity, I am not certain there is such an international trend in relying upon MVNOs to do so. In my experience, for the reasons discussed earlier, the trend is for mobile network operators to seek greater control and exclusivity over their retail distribution channels, often by acquiring MVNOs and bringing their activities inhouse but retaining the distinctive brand. The data on MVNOs can, for this reason, be misleading if these affiliated sub-brands are included as MVNOs. My experience over the past 30 years is that the impact of MVNOs can fluctuate over time as the market and commercial models evolve[289].

284. I would therefore not regard any particular outcome in relation to MVNOs as being evidence of a lack of competition or failure in the market for mobile services[290]. In my view the low market share achieved by, in international terms, comparatively late MVNO entrants into the New Zealand mobile market is evidence of the challenges faced by any firm entering and competing in mature telecommunications retail markets, particularly when the existing vertically integrated

[287] p.35 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf. The report says they do this in both urban and rural areas. It appears that the major resellers are the energy companies who I understand compete predominantly in urban areas but I also note the report (p.130) says there are around 20 RSPs offering 4G fixed wireless services in rural areas.
[288] p.203 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[289] In the United Kingdom (and elsewhere in Europe and the United State to some degree), the latest trend is the entry of MVNOs operated by financial institutions such as Revolut, Monzo and, prospectively, Klarna. These firms have not provided telecommunications services in the past, but it remains to be seen how successful they will be. I am not aware of any financial institutions in New Zealand yet having entered the mobile market.
[290] I note that in 2019 the Commission said it would require 'compelling evidence of a competition problem or market failure' to regulate wholesale services supplied to MVNOs. I agree this is the right threshold and that it has not been met, see p.83 at https://comcom.govt.nz/__data/assets/pdf_file/0022/177331/Mobile-Market-Study-Findings-report-26-September-2019.PDF

mobile network operators already have their sub-brands such as Skinny (a sub-brand of Spark). I also note that the focus of many MVNOs in New Zealand is on cross-selling mobile services to an existing customer base rather than necessarily obtaining a significant market share across the country as a whole or acquiring customers who they do not already supply with other services. I note the Commission committed in 2019 to ongoing monitoring of MVNO arrangements[291], including commercial terms. I have not found evidence that it has done so or what conclusions it may have drawn. My recommendation at this stage is that the Commission take no action in relation to MVNO access, but that if the Part 2 access regime were revised in the way that I proposed in Chapter 2, it would allow the Commission to revisit the issue in the future if there were grounds for doing so.

Spectrum policy

285. Spectrum policy can, in my experience, have a major influence over the development of mobile telecommunications markets and, thereby, important consequences for other aspects of the regulatory regime which I have so far discussed in this chapter. Spectrum matters in New Zealand are governed by the Radiocommunications Act 1989[292] and Radiocommunications Regulations 2001[293] and are administered by a unit within the Ministry of Business, Innovation and Employment (MBIE) rather than by the Commission.

286. I would expect New Zealand to have sufficient spectrum resources to meet its telecommunications requirements[294]. Spark and OneNZ each hold more than 300 MHz of sub-6GHz spectrum[295], which compares favourably with holdings of most European mobile operators and with the position of AT&T and Verizon in the United States. Only T-Mobile, with 372 MHz, holds significantly more mid- and low-band spectrum[296]. 2degrees' spectrum holdings are similar

[291] para 4.59: 'Although we remain of the view that there is no need to intervene to regulate MVNO access at this stage, we intend to monitor the development of MVNOs, including ongoing monitoring of MVNO market shares and the impact that MVNO-based entry has in the retail market. We also intend to undertake periodic reviews of commercial MVNO arrangements. Reviewing commercial contracts will provide us with greater ongoing visibility of the terms being offered to MVNOs, and how the commercial terms compare to key price and non-price dimensions of MVNO access'

[292] https://www.legislation.govt.nz/act/public/1989/0148/latest/dlm195576.html

[293] https://www.legislation.govt.nz/regulation/public/2001/0240/latest/dlm71513.html

[294] The MBIE publishes a 5 year spectrum outlook and has projects to release new 5/6G spectrum for telecommunications, see https://www.rsm.govt.nz/assets/Uploads/documents/annual/new-zealand-spectrum-outlook-2023-to-2027.pdf. Since all mobile operators use the same spectrum to provide cellular fixed wireless services, I do not consider these separately. WISPs require or use spectrum which is not used to provide mobile services and I discuss their position (which appears to involve some spectrum capacity constraints) in Chapter 2.

[295] p.197 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[296] https://www.opensignal.com/2024/06/06/5g-fixed-wireless-access-fwa-success-in-the-us-a-roadmap-for-broadband-success-elsewhere

to that of many smaller European operators. The spectrum holdings of Tū Ātea is a unique feature of the New Zealand telecommunications regime and not one I am qualified to comment upon.

287. I would not have any concerns about the asymmetry in current mobile spectrum holdings, which in my view create some opportunity for service differentiation in a market which is otherwise characterised by standardised technologies which are available to all market participants on similar terms. The New Zealand operators will not exercise much if any influence over the global supply chain which develops and supplies these technologies.

288. It appears that the Ministry has, since 2000, tended to auction mobile spectrum, with the auction of the 700 MHz spectrum for 4G having been conducted in 2013[297]. The technical design of this auction, which included reserve prices, spectrum caps to restrict the amount of spectrum which each bidder could acquire and a multi-stage lot allocation and frequency assignment process, does not appear to have had any unusual features when viewed in light of my experience of auctions in Europe. Auction designs are constantly being refined and the MBIE has access to the same expertise in this field as other regulators or Governments. The price of 700MHz spectrum on a per MHz basis for New Zealand appears to be similar to that paid in many countries and far lower than some such as the United States.[298]

289. Once assigned management rights have tended to be renewed without auction or payment of further fees. The 1800 MHz and 2100MHz licences were renewed from 2021 for a further 20 year term[299]. The 700 MHz management rights have an 18 year term from 2014[300]. This approach contrasts with that taken in Europe, where many spectrum licences for mobile services have been reauctioned and, in some cases, reassigned. There has been a lively debate about the merits of this approach in Europe since the 2G licence terms began to expire in the late 2000s. The industry argued that uncertainty around renewal of spectrum assets served to deter further investment until the renewal was concluded and, given the criticality of spectrum to the mobile operator in question and the sunk investments made against it, the auction was simply a means for Governments to extract further rents from the industry[301]. Governments in Europe have begun to respond to these concerns by extending the terms of licences when they are renewed – in 2022,

[297] https://www.rsm.govt.nz/projects-and-auctions/auctions/completed-spectrum-auctions-1996-present/auction-12
[298] My calculations are admittedly very crude: the MBIE report $270 million of receipts for 90MHz of spectrum, which with a population of 5.2 million yields around $0.57MHz/capita or €0.3/MHz/capita. I compare this to the values in the DotEcon report p.6 at https://www.comreg.ie/media/dlm_uploads/2019/06/ComReg-1959b.pdf
[299] https://www.beehive.govt.nz/release/spectrum-rights-renewed-3g-and-4g-bands
[300] https://www.beehive.govt.nz/release/radio-spectrum-auction-details-announced
[301] https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/economic-discussion-papers-/cra-report-on-mobile-spectrum-license-duration-and-mnos-investment-decisions.pdf?v=329233#:~:text=11.,infrastructure%20is%20required%20for%20both.

for example, the Spanish Government extended the term of all existing licences by 10 years to enable operators to amortise investments over a longer period of time[302]. Germany extended mobile licences for 5 years in 2025[303].This shows that changes to the term of spectrum licences can have an effect on the balance sheets and financial results of mobile operators as well as their investment incentives. In France, the regulator and Government agreed a 'New Deal for Mobile' with operators in 2019 under which the existing spectrum licences were renewed without payment but in return for commitments to extend 4G coverage in rural areas[304].

290. The United Kingdom and the United States take a different approach. Ofcom in the United Kingdom has typically assigned licences for an initial term of 15 or 20 years, but with a strong presumption of renewal thereafter. However, at that point Ofcom introduced administrative fees which are intended to incentivise the holder of spectrum to utilise it efficiently or to divest it to another user if it could not. These administrative licensing fees have been a source of considerable debate over many years and it is not clear that they have served much purpose other than to extract income from the operators, since they have not induced any operator to divest itself of any spectrum. The United States follows a similar approach to the United Kingdom by assigning spectrum licences through auction for an initial term of 15-20 years but with a strong presumption of renewal without further fees.

291. I think several points arise from this. First, we now have almost 30 years (since the first FCC spectrum auction in 1994) of experience of using market mechanisms, specifically auctions in various formats, to assign spectrum licences in the mobile industry and I am not aware of anybody proposing an obviously superior approach. Previous administrative assignments were prone to litigation and I do not detect any appetite amongst regulators or the industry to return to them. In my view it does not matter whether the auction is undertaken by the Government or by the regulator. More important is that whoever administers it is well advised and the auction is designed appropriately. Second, the duration of licences in New Zealand is likely now shorter than those in many European countries or the perpetual rights which apply in the United Kingdom or United States. I understand that a proposal to extend management rights beyond 20 years was considered and rejected during consideration of the Radiocommunications Amendment Act of 2000[305]. I think there are arguments for revisiting this issue but I do not think it would have a

[302] https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2025/02/Spain-Spectrum-Licensing-Best-Practice.pdf
[303] https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2025/20250324_frequenzen.html#:~:text=Five%2Dyear%20extension,more%20opportunities%20for%20accessing%20spectrum.
[304] https://www.arcep.fr/actualites/actualites-et-communiques/detail/n/new-deal-mobile-4.html
[305] Clarke and Mosby p.520

significant impact upon the performance of the mobile market in New Zealand and it does not appear that the mobile operators in New Zealand have themselves advocated for changes to licence terms.

292. Third, experience shows that it is difficult for Governments or regulators to use market mechanisms to incentivise the efficient use of spectrum resources. The United States aside (which, in part due to the regional licensing structure has a large and liquid market for spectrum assets), spectrum trading has not been as significant a feature over the past 20 years as many expected. In my view this is because the markets are too thin in most countries and operators are reluctant to trade assets with competitors. In any event, new RAN sharing technologies are increasingly likely to enable operators to share rather than trade spectrum resources. In these circumstances it is difficult to see what purpose administrative or what I understand are referred to as resource management fees in New Zealand (which I understand are not currently applied to mobile telecommunications spectrum licences and which I do not suggest should be[306]) would serve[307].

293. The United States aside, I think for many spectrum experts the past 30 years have revealed the limits of market mechanisms in spectrum policy, but without a coherent alternative approach having yet emerged[308]. At the same time, as discussed in Chapter 1, policymakers have begun to pursue social objectives in relation to the provision of mobile telecommunications services which competitive markets have fallen short in delivering. One response to this has been, as the spectrum renewal example from France cited above illustrates, that regulators and Governments have increasingly introduced additional regulatory obligations into spectrum licences to extend coverage or achieve other social objectives. I discuss this issue next.

Licence obligations

294. For the licensing of the 700 MHz 4G spectrum the MBIE in New Zealand introduced obligations to upgrade 75% of existing rural sites to 4G (to a maximum of 300 sites) and for those

[306] I understand they apply to some shared fixed wireless access licences, see https://www.rsm.govt.nz/assets/Uploads/documents/pibs/policy-rules-for-crown-spectrum-management-rights-pib-59-apr24.pdf

[307] I understand the MBIE currently levies fees under the Radiocommunications Regulations 2001 to cover its administrative costs, which it reviews every 5 years and which are currently under review, see https://www.rsm.govt.nz/assets/Uploads/documents/consultations/2025-Fees-review/consultation-document-review-of-radio-spectrum-licence-fees-2025.pdf

[308] The Government in the United Kingdom, for example, has recently asked Ofcom to review whether market mechanisms remain suitable and Ofcom have concluded that they broadly are, see https://www.ofcom.org.uk/siteassets/resources/documents/spectrum/spectrum-management/review-of-ofcoms-market-based-approach-to-mobile-spectrum-management?v=330689

acquiring 15 MHz of spectrum (which turned out to be Spark and Vodafone) to add 25 additional 4G rural sites over the first 5 years[309]. These obligations appear relatively undemanding in comparison with obligations in Europe. For example, in Austria licensees are required to cover 80% of previously unserved rural areas and 90% of roads[310]. In the United Kingdom, Ofcom had originally proposed 700 MHz coverage obligations, which required each licensee to provide geographic 4G coverage to 90% of the landmass, and deploy at least 500 new rural 4G sites[311]. These were withdrawn when the operators agreed to participate in the Shared Rural Network which I referred to earlier in this chapter. Coverage obligations in European spectrum licences have generally become more demanding and more prescriptive in response to growing concerns about lack of mobile service availability in rural areas and other 'black spots'.

295. As far as I can see the 700 MHz coverage obligations for the New Zealand operators do not appear in, and so are not enforced through, the management rights or licences themselves[312]. I assume there are separate contractual arrangements between each operator and the Government which are capable of being enforced through the Courts should the need arise. This in contrast with the position in Europe, where obligations appear in the spectrum licences and for which non-compliance could (but in practice does not) provide grounds for revoking the licence.

296. For 5G spectrum in the 3.5GHz band, the Ministry auctioned short term rights which were then converted into long term management rights of 20 years with coverage commitments to extend 5G coverage to 55 towns with the operators each paying the Government $24m to be contributed to the Mobile Black Spot programme[313]. Again, these obligations do not strike me as very demanding and regulators in Europe have also tended to be less concerned with coverage obligations at 3.5GHz (Ofcom, for example, did not impose any) because this frequency is not well suited to expanding coverage in rural areas. I discussed the question of 5G coverage earlier in this chapter.

297. The New Zealand Government is not unusual in incorporating coverage obligations into the spectrum licensing process but other aspects of the approach taken to spectrum licensing in New Zealand are different. Management rights (to exploit a particular frequency) are assigned first a

[309] https://www.rsm.govt.nz/assets/Uploads/documents/auctions/auction-12/cbd75523c2/700-mhz-auction-implementation-coverage-requirements-summary.pdf
[310] https://5gobservatory.eu/national-5g-spectrum-assignment/
[311] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-2-6-weeks/135129-consultation-coverage-obligations-in-the-700-mhz-and-3.6-3.8-ghz-spectrum-award/associated-documents/consultation-coverage-obligations-in-the-700-mhz-and-3.6-3.8-ghz-spectrum-award-ofcoms-approach-to-verifying-compliance.pdf?v=323762
[312] https://rrf.rsm.govt.nz/ui/licence/spectrum/view/425695
[313] https://www.rsm.govt.nz/projects-and-auctions/completed-projects/preparing-for-5g-in-new-zealand

particular entity for a fixed term but otherwise without regulatory (as opposed to technical) conditions. Individual spectrum licences are then sub-assigned by that entity, including to itself[314]. Thus, for example, the Ministry's spectrum register shows One NZ as holding management rights in the 899-915 MHz frequencies for a period of 15 years and holding a number of individual licences – again without regulatory conditions - within that management right[315]. This two tier process is complex and was adopted in the 1989 Act because, as I understand it, the spectrum regime in New Zealand represents spectrum frequencies as being akin to property rights which the holder of the management rights is then entitled to use in whichever way they see fit (provided that they comply with the technical limitations to avoid interference etc). This is different from the approach taken by Governments in Europe or the United Kingdom, most of whom represent spectrum frequencies as being more akin to a leasehold agreement under which the landlord is free to impose whatever conditions they consider appropriate. In practice the differences in administrative arrangements do not appear to have had any material impact on the comparative performance of the New Zealand mobile industry and I am not convinced that that there are strong grounds for recommending changes to them.

298. The New Zealand Government did undertake a review of spectrum policy in 2015[316]. This included consideration of whether the Radiocommunications Act and Telecommunications Act (and Broadcasting Act) should be amalgamated into a single legislative instrument, as the United Kingdom had done with the Communications Act in 2003 and the European Union had done with the European Electronic Communications Code in 2002. The review concluded that:

> 'The Government does not propose to combine all three pieces of current legislation into one Communications Act. The least disruptive approach to achieve regulatory coherence would be to consolidate the economic regulatory functions into the Communications Act and leave the Radiocommunications and Broadcasting Acts to deal with specific non-economic aspects of regulation.'[317].

299. I think this is an important and useful distinction which regulators in Europe have tended to obscure. It is clearly the case that spectrum licensing could have technical (to ensure that spectrum rights are properly defined and protected), social (in relation to coverage obligations insofar as they require spectrum owners to behave in ways which they would not otherwise under market conditions) and economic aspects (in relation, for example, to the question of whether

[314] The legal regime is explained in detail by Clarke and Mosby, p.513-526
[315] https://rrf.rsm.govt.nz/ui/management-right/427
[316] http://www.rsm.govt.nz/projects-auctions/current-projects/review-of-the-radiocommunications-act-1989
[317] https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001, p.50

asymmetric spectrum assignments may distort or otherwise adversely affect competition in mobile markets). In Europe there has been an increasing tendency for spectrum licensing to be used to pursue all three of these objectives simultaneously, alongside others. This has meant that that spectrum licences have accumulated a long list of obligations over time.

300. An example of what I have in mind is the introduction of obligations for spectrum licensees to provide access to MVNOs. Such commitments had been considered as part of the assessment of applications for 3G spectrum licences in Ireland in 2002 (unsuccessfully, as only one bidder, a new entrant, proposed to support MVNOs) and France for 4G spectrum licences in 2011 (where bid values were subject to a multiplier to reflect willingness to provide access to 'full' MVNOs)[318]. In my view these were cases where the economic regulator sought to use spectrum licences to impose access obligations which ought properly to have been subject to the constraints provided by the economic regulation or market review framework in Europe which I discussed in Chapter 2. Mobile operators who could not be found by the regulator to have a position of significant market power nonetheless found themselves being obliged, or at least strongly incentivised, to provide network access to MVNOs as a condition of their obtaining spectrum licences. I consider this as an inappropriate use of the licensing process.

301. I think a similar argument could be made in relation to social policy obligations, including coverage obligations. If Governments or regulators decide that mobile operators should extend their networks beyond what it commercially feasible then I think these are matters better addressed by programmes such as the Shared Rural Network in the United Kingdom or the Mobile Black Spots programme in New Zealand than through coverage obligations in spectrum licences. I have already noted that the New Zealand Government appears to enforce coverage commitments through contractual arrangements which sit outside of the management rights and licensing regime and in my view this is the better approach. Spectrum licence coverage obligations are difficult to enforce in any event, since the threat of licence revocation is not credible. This means they are often adopted for presentational purposes in order for the Minister to be able to claim to have extracted tough commitments from the firms in return for assigning them what many regard as a valuable public resource.

302. The 2015 Government review also proposed that the economic or competition related aspects of spectrum licensing should be assigned to the Commission under the Act. I understand this to

[318] Relatedly the FCC reserved a spectrum licence in the 700 MHz auction of 2008 for firms willing to offer 'open access' commitments, see https://www.sciencedirect.com/science/article/abs/pii/S0167624509000122#:~:text=Google%20entered%20bids%20until%20its,purchase%20any%20of%20the%20licenses.

relate to issues such as whether spectrum caps should be applied to limit the degree of asymmetry that might otherwise result from an assignment process or the reservation of spectrum for a new entrant. The Government suggested that the Commission could provide advice to the Ministry or publish a decision prior to the spectrum assignment process being initiated.[319] I also note that in the 2019 Mobile Market study the Commission indicated that if it were concerned that spectrum assignments might distort competition (e.g. through asymmetries) then it could intervene under Section 47 of the Commerce Act[320].

303. I do not have strong views on how the implications of spectrum licensing decisions for competition are addressed but they certainly need to be, and in a transparent manner rather than through informal communication behind the scenes. In Europe there have often been tensions between Government and regulators on these matters. For example, spectrum caps are likely to reduce competitive tension in the auction and so reduce proceeds for the Treasury, whereas spectrum reservations may increase competition amongst the existing firms and so increase proceeds. The Commission's advice will no doubt depend upon the particular circumstances at hand, but there will be a balance between ex ante intervention to influence the structure of the market and a reliance upon regulation to mitigate any adverse competitive effects in the market after the spectrum has been assigned. Since the Commission will be responsible for the latter I think it right and proper that it also hold a view on the former.

304. Overall, my view is that New Zealand spectrum regulation remains more disciplined than spectrum regulation in Europe has become, and that this is a strength of the regime which should be preserved. The 20 year limit on licence durations is comparatively short but does not appear to be a concern for the mobile operators in New Zealand. I regard mobile coverage as a matter of social regulation to be decided by Government and not a technical matter to be decided by those administering or overseeing spectrum rights. I recommended earlier that the Government develop clear objectives for rural cellular network coverage in New Zealand. Having done so, I would expect the Government to enter into appropriate contractual arrangements with operators to fulfil them. The Commission should clearly have a role in assessing the competitive implications of assignment processes before they are undertaken but other forms of economic regulation should remain firmly under Part 2 of the Telecommunications Act and not be a feature of spectrum licensing.

[319] p. 91at https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001
[320] p. 64 at https://comcom.govt.nz/__data/assets/pdf_file/0022/177331/Mobile-Market-Study-Findings-report-26-September-2019.PDF

3G decommissioning

305. The mobile operators in New Zealand have announced their intention to switch off 3G by the end of 2025. These dates are not imposed by the Commission and are (in my view rightly) regarded as being first and foremost a commercial matter for the operators concerned. In many countries 3G is the first major mobile network decommissioning programme since the switch off of analogue networks in the 1990s. In the United Kingdom all operators except O2 had decommissioned their 3G networks by the end of 2024 and agreed with the British Government to decommission their 2G networks by 2033 at the latest (although none have yet done so)[321].

306. The approach to 3G decommissioning has differed from that taken for copper networks which I discussed in Chapter 2. This partly reflects the fact that the onus is upon the end user rather than the network operator to take measures (by buying a new device or reprogramming an existing one) to enable then to switch to a 4G connection if they are not already automatically able to do so. Ofcom issued a document in 2023 in which it set out its 'expectations' for the industry[322]. These included:

a. That the operators would ensure similar coverage availability following switch off (i.e. by addressing any locations where 3G coverage was available but 4G was not – I would expect these to be minimal). I note that One NZ makes a similar commitment on its website[323]

b. Identifying those customers who need to replace their 3G handset and providing notice at least 3-6 months in advance and providing subsidies to vulnerable customers[324]. This is more challenging for pre-pay users who may only be identifiable by their telephone number and only contactable by text.

c. Raising awareness and providing longer notice periods to other users of 3G SIMs, such as POS terminals, smart energy meters and telecare alarms.

[321] https://www.gov.uk/government/news/a-joint-statement-on-the-sunsetting-of-2g-and-3g-networks-and-public-ambition-for-open-ran-rollout-as-part-of-the-telecoms-supply-chain-diversificatio
[322] https://www.ofcom.org.uk/siteassets/resources/documents/phones-telecoms-and-internet/information-for-industry/3g-and-2g-switch-off/3g-and-2g-switch-off?v=322171
[323] https://one.nz/3g-shutdown/
[324] Ofcom found that elderly users tended to have older handsets and so were more likely to be affected.

307. Ofcom estimated that around 6% of mobile users in the United Kingdom had 2/3G devices prior to decommissioning[325]. The challenge in the UK was likely exacerbated by the presence of Three UK, an operator which had entered in the 2000s and which had never deployed a 2G network onto which 3G devices of the operators would generally default for voice calling (although in the United Kingdom arrangements are also in place to enable emergency calls to be originated from any available network). This was important given regulatory obligations to ensure that users could obtain access to emergency services. I note that in New Zealand Spark and 2degrees have already decommissioned their 2G networks, which I assume means that 3G handsets cannot default to 2G for voice calls on those networks as they can for most networks in the United Kingdom.

308. In Australia, operators also decommissioned their 3G networks during 2024. The Australian Government engaged with the industry (via ATMA, the industry trade association) and obtained similar commitments with respect to ensuring coverage and identifying users who would be affected[326]. In that case it appears that around 740,000 devices were identified as being unable to make emergency service or 'triple zero' calls, with these often being imported handsets which were not compatible with the VoLTE configuration on Australian networks and/or could not use the 4G frequency bands of Australian network operators. Operators sought assistance from the ACCC in communicating with affected users[327], many of whom were difficult to identify having purchased handsets from retailers other than the operator itself[328]. The Australian operators introduced a number which users could text to check whether a registered device would be able to make emergency calls after decommissioning (and to avoid their calling the emergency services in order to check) and I note operators in New Zealand have adopted a similar process[329]. I am not aware of this issue having been a significant concern in the United Kingdom, although Ofcom noted that non-UK SIMs are used in some IoT devices and that it might be difficult to identify the provider of such services or their customers.

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[325] Ibid p.4

[326] https://www.infrastructure.gov.au/media-communications-arts/phone/mobile-services-and-coverage/3g-network-switch#:~:text=Australia's%203G%20networks%20have%20now,to%20place%20calls%20over%204G.

[327] My understanding is that mobile operators asked the ACCC to apply Section 128 of the Australian Consumer Law and declare a product recall on safety grounds, but that the ACCC declined to do so. The benefits to the industry of the ACCC doing this are not clear to me.

[328] https://www.channelnews.com.au/accc-ignores-telco-pleas-to-warn-of-000-calls-not-working/#:~:text=An%20ACCC%20spokeswoman%20said%2C%20%E2%80%9CThe,phone%20to%20call%20emergency%20services.

[329] https://www.tcf.org.nz/digital-living/understanding-the-3g-shutdown

309. I do not know how many New Zealand users have 3G devices or 4G devices which may be unable to make voice calls when the 3G network is decommissioned[330]. OpenSignal data suggests that at some locations users collectively spend more than 10% of their time on 3G connections[331]. My understanding is that, at present, the New Zealand mobile operators are not offering financial support to customers who may need to upgrade their device. I note that concerns seem to have arisen about retailers who continue to sell 3G devices without advising customers that they will no longer be usable after 2025[332]. Ofcom considered that notifying potential purchasers of 3G devices that they would not work after a certain date was already a requirement both of telecommunications regulation and general consumer law, the latter being relevant since in the United Kingdom the operators themselves had long since ceased selling such devices.

310. The 3G decommissioning process exhibits some challenges both for regulators like the Commission and for the operators concerned (although the removal of costly and increasingly insecure network equipment also has obvious benefits for the industry and more generally). The main issues arise from the fact that mobile devices are purchased by users from a wide range of retailers, over whom mobile operators have little influence and who are not themselves subject to telecommunications regulation. Most regulators appear to have preferred a self- or co-regulatory approach with the mobile operators, rather than seeking to introduce regulatory obligations in the way that, for example, the Government and Commission have done with the copper withdrawal code. I am not party to any discussions between the Commission and industry about 3G decommissioning and so am not well placed to give a view on whether this approach will be effective in New Zealand.

[330] The Commission reports that Spark has identified 120,000 mobile devices and 80,000 IoT devices that are 3G only, see p. 284 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[331] https://www.opensignal.com/2025/05/22/hanging-onto-the-fading-signal-the-challenges-of-sunsetting-3g-networks-in-new-zealand/dt#:~:text=3G%20shutdowns%20in%20New%20Zealand%20enable%20national,and%20more%20efficient%204G%20and%205G%20services.&text=These%20concerns%2C%20along%20with%20the%20desire%20to,March%202025%20and%20then%20to%20December%202025.

[332] https://www.nzherald.co.nz/business/companies/telecommunications/spark-delays-3g-shutdown-commerce-commission-fields-multiple-complaints-about-retailers-still-selling-3g-devices/UEOFTM2INFGWZPQWJIFABBVWQM/

Chapter 4: Social regulation

311. This chapter considers the development in New Zealand and elsewhere of what I described in Chapter 1 as social regulation. This is regulation which recognises that competitive markets may not always deliver outcomes which are regarded by society as fair or otherwise acceptable. That may be because there are public benefits or externalities which private consumers, and therefore firms, will not take account of when transacting with each other in the market or it may be for other reasons. As I explained in Chapter 1, prior to privatisation most social regulation was undertaken, either explicitly or implicitly, through political direction of a telecommunications company which enjoyed a monopoly market position. This led to the adoption of a commonly held set of assumptions which are remarkably similar around the world about how and to whom telecommunications services should be provided. These assumptions have also proven remarkably resilient over time.

312. Having said this, I think social regulation has failed to keep up with developments in markets and technology, including in New Zealand. During this period economic regulation to promote competition has been the primary focus in most countries. The consequence of this is that regulatory interventions in pursuit of social objectives have tended to be rather ad hoc and disconnected. I provide some recommendations in this chapter that are intended to remedy this.

313. A starting point is the 1934 Communications Act establishing the FCC in the United States to:

> 'make available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nationwide, and world-wide wire and radio communication service with adequate facilities at reasonable charges.'[333]

314. The aim of the European regulatory framework, first adopted almost 70 years later, is not dissimilar, its aim being to:

> 'ensure the provision throughout the Union of good quality, affordable, publicly available services through effective competition and choice, to deal with circumstances in which the needs of end-users, including those with disabilities in order to access the services on an equal basis with others, are not satisfactorily met by the market and to lay down the necessary end-user rights.'

[333] Section 1 at https://transition.fcc.gov/Reports/1934new.pdf

315. Thus, the idea of universal availability of and access to telecommunications services has been a feature of telecommunications regulation since its inception. Access to telecommunications services was regarded almost everywhere as being essential for effective participation in society in the same way as access to electricity or mains water are. The technologies used to provide this access have changed over the past 20-30 years but these basic assumptions have not.

316. There are two important aspects to social regulation. The first is a supply side issue and arises from the fact that the costs of deploying telecommunications infrastructure vary materially, and often by orders of magnitude, with respect to location because of economies of density which I referred to in Chapter 1. This is particularly the case with fixed telecommunications networks, but also true of mobile networks. This is why the primary risk of discrimination in telecommunications does not arise due to differences of race, sex or other characteristics cited in the 1934 Communications Act, except insofar as they correlate with differences in the location at which telecommunications services are consumed.

317. The second is a demand side issue and arises from differences in the affordability of telecommunications services for different groups of users. Publicly owned telecommunications operators had not been funded through taxation as health or education services were, but through end user charges. Prices were set not to reflect the underlying costs of providing services as might be expected in a competitive market but to maximise participation. This initially meant that the price for obtaining and maintaining a fixed copper connection to the network were supressed whilst the prices of other services, and particularly services that were used by wealthier business users, were inflated.

318. It was anticipated that the introduction and promotion of competition into telecommunications markets in the 1980s and 1990s would have implications for social regulation since competitive markets tend to converge towards cost-reflective prices. That would mean prices for telecommunications services in high cost rural locations increasing (and prices in urban locations falling) relative to the consistent geographical pricing that could be sustained and cross-subsidised in the absence of competition. The artificially high prices of services such as international or long distance calls would attract entry which would compete margins away, whilst the artificially low prices to access the network would deter entry and, as margins for other services were competed away, eventually prove unsustainable.

319. As I explained in Chapter 1, Governments responded to this concern by introducing regulations which required the privatised former monopolist to maintain the provision of existing

telephony services to anybody who requested them at the same regulated price irrespective of location[334]. In many European countries, the level of the regulated price for the connection was gradually raised during the 1980s and 1990s, in part to promote entry into local markets (for example by HFC network operators in the United Kingdom) and in part to offset the loss of profits in other markets as competition began to bite. During this period firms entering into the more profitable long distance and international calling markets were also required to make what in the United Kingdom were called access deficit contributions and in the United States intercarrier compensation payments to meet the shortfalls in revenues arising from the below-cost connection charges.

320. Once these various pricing distortions had been removed, any residual subsidies were expected to be met through the establishment of a Universal Service Fund or similar arrangements. A very large and complex set of funding arrangements have developed in the United States, particularly since 1996, as the scope for subsidy provision has extended beyond the basic telephony services (i.e. 28 kb/s copper connections) originally envisaged. In Europe there has been a reluctance on the part of national regulators to activate these funding arrangements – Germany and the United Kingdom have never done so – or to expand the scope of the obligation to include broadband technologies, which only three Member States had done by 2011[335] and which the United Kingdom did in 2020[336]. In many European countries, the obligations in relation to universal service provision remain the same today as they did in the late 1990s, notwithstanding the enormous advances in technology and in end user expectations in the period in between.

321. The United States has taken a more expansive approach to universal service policy. The Telecommunications Act of 1996 gave the FCC the authority to expand the scope of services to include broadband services and it has implemented a plethora of different funding arrangements, including the Connect America Fund, The Enhanced Alternative Connect America Cost Model (Enhanced A-CAM) Program, the Rural Digital Opportunity Fund (RDOF), and the 5G Fund for Rural America, each of which adopts different objectives and is funded from different sources, collectively amounting to $7-8 billion per year[337].

[334] There were also obligations in relation to the maintenance of telephone call boxes and the provision of directory and phone book services which I ignore.
[335] P.2 at https://eur-lex.europa.eu/legal-content/EN/TXT/DOC/?uri=CELEX:52011DC0795
[336] https://commonslibrary.parliament.uk/research-briefings/cbp-8146/
[337] https://www.congress.gov/crs-product/R47621

322. As with economic regulation, policymakers around the world have approached social regulation in ways which I would say have increasingly diverged. During the 1980s and 1990s there was a widespread commitment to consistent geographic pricing and maintaining affordable access to basic copper telephony services. Changes to the scope of universal service obligations and other aspects of social regulation were recognised as being distributional questions about how the interests of different groups of end users should be balanced which were for elected politicians rather than regulators to make. Public funding was limited in an industry from which the State had only recently withdrawn. Social objectives were overlaid upon markets in which private firms participated.

323. The boundaries between economic and social regulation have become more blurred in recent years. In Europe, regulators have been given duties to promote new technologies as well as promoting competition. Significant public funding and in some cases public ownership of new networks has been reintroduced into the telecommunications industry and State Aid has been administered through contracts which impose access and other obligations upon recipients but sit outside of the regulatory regime. The same combination of private contracts and the regulations has developed in New Zealand, although arguably existed since the privatisation of Telecom New Zealand.

324. This trend began in Europe following the global financial crisis of 2008 with the adoption of Digital Agenda targets in 2010 for the deployment of superfast broadband (>30Mb/s) to all European households by 2020, with 50% of households having subscriptions of 50 Mb/s or more[338]. Subsequent targets were adopted in 2016 (that all households have access to >100 Mb/s by 2025 and 5G coverage be available in all urban areas and major transport routes[339]) and again in 2021 (that all households have access to >1Gb/s by 2030 and 5G coverage of 100% of the population[340]). It is important to note that only one of these targets (that 50% of households take up connections of 50Mb/s or more by 2020) is dependent upon the affordability of broadband services and no measures were proposed by the Commission to regulate the prices to ensure that they were affordable. These targets were not met in most Member States[341].

325. In the United Kingdom the expectations of British Ministers are presented in the 'strategic steer' which Ofcom is required to have regard to. The 2019 version expected Ofcom to, amongst

[338] https://digital-strategy.ec.europa.eu/en/library/broadband-coverage-europe-2020#:~:text=In%20particular%2C%20it%20monitors%20progress,100Mbps%20or%20more%20by%202020'.
[339] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0587
[340] https://commission.europa.eu/document/download/9fc32029-7af3-4ea2-8b7a-4cd283e8e89e_en?filename=cellar_12e835e2-81af-11eb-9ac9-01aa75ed71a1.0001.02_DOC_1.pdf
[341] p. 22 at https://www.eca.europa.eu/Lists/ECADocuments/SR18_12/SR_BROADBAND_EN.pdf

other things, 'consider the full range of options to support the nationwide availability of gigabit-capable networks'[342] and monitor mobile investment and [consider] appropriate options…..if it becomes clear the current market structure is not supporting investment in 5G at sustainable levels'[343]. The European regulatory framework also includes the objective of 'ensuring connectivity and the widespread availability and take-up of very high capacity networks'[344].

326. The United States divides programmes between the FCC, which administers the Universal Service Fund (which has been in the process of being reformed for the past 15 years), and an agency of the Department of Commerce, known as the National Telecommunications and Information Administration or NTIA. The most significant development in recent decades was the Obama administration's National Broadband Plan in 2010, which included numerous initiatives, including expanding the scope of universal service provision to connections of at least 4Mb/s, creating a Mobility Fund to fund 3G deployment in rural areas and a target that at least 100 million households have access to >100 Mb/s by 2020[345]. The Biden administration's Infrastructure Investment and Jobs Act of 2021 also included a US$60 billion provision for broadband infrastructure, of which US$42 billion was administered by the NTIA as the Broadband Equity Access and Deployment or BEAD programme which aimed to ensure universal provision of broadband services of at least 100 Mb/s[346].

327. In the United States, the allocation of public funds to infrastructure programmes is the result of complex political interactions between State and Federal Governments and legislators in Congress about which I am not an expert. In Europe, the allocation of public funds is highly constrained by the State Aid rules which I referred to in Chapter 2 and which are intended to restrict the allocation of public funds to projects which would not otherwise be funded by the private capital market so as not to distort competition. In the case of broadband networks, this effectively prohibits any public subsidy of broadband networks in urban areas, with the result that most State Aid in Europe has been directed at expanding the geographic scope of broadband networks into rural and remote rural areas to ensure that rural households have access to broadband technologies which they would not otherwise have access to.

328. The Government's approach in New Zealand has similarities and differences relative to the approach taken either in Europe or the United States. The Government has avoided setting targets for new technologies, except for a statement in October 2015 that 99% of households should have

[342] p.9 at https://assets.publishing.service.gov.uk/media/60016add8fa8f55f6156b4a4/SSP_-_as_designated_by_S_of_S__V2.pdf
[343] Ibid p.12
[344] Article 3 of EECC
[345] p. XIV at https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf
[346] https://www.ntia.gov/sites/default/files/2025-06/bead-restructuring-policy-notice.pdf

access to broadband services of at least 50Mb/s by 2025 (with the remaining 1% having access to at least 10 Mb/s)[347] which was described as an 'aspirational target'. However, Governments in New Zealand have entered into contractual arrangements with firms to provide funding for a variety of projects which were intended to advance social (as well as economic) objectives, including the UFB contracts that were concluded between the LFCs and Crown Infrastructure Partners (CIP) (now National Infrastructure Funding and Financing (NIFF)) for the deployment of fibre networks and the RBI contracts concluded between CIP and Chorus and Vodafone for the deployment of fibre, VDSL and 3G networks in rural areas. As with the State Aid programmes in Europe, the focus of the New Zealand Government in these programmes has been largely directed at the supply side issues of infrastructure deployment and much less with the adoption or take up of new technologies. Firms have been left to migrate customers from old to new networks at their own pace, with regulation being introduced to ensure that end users are not adversely affected or disadvantaged when they do so.

329. Without the constraints of State Aid rules, the Government has been able to use public funds more extensively than its European counterparts[348] and has taken a more active role as a lender and investor in the UFB programme than is common in Europe, where most public funding takes the form of grants. The RBI agreement with Vodafone, which took the form of a grant, is more similar to the European approach in this respect.

330. The Government's recent subsidy programmes have been more limited in scope, being the second phase of the RBI programme to expand cellular capacity in certain rural locations with the addition of around 500 cells, the Mobile Back Spots programme, which was substantially completed by the end of 2024[349] and the Rural Capacity Upgrades programme, which is described as focussing on cell sites in the urban fringe and which initially upgraded 70 towers with $90 million of funding to do more. The Rural Users Scheme, which has a budget of $15million and allows qualifying households in remote areas without broadband access (other than via satellite) to each receive a subsidy of up to NZ$2000, appears to be the only programme intended to address affordability concerns[350].

[347] https://www.beehive.govt.nz/release/ambitious-target-set-rural-broadband

[348] Studies suggest New Zealand public expenditure on telecommunications per capita is around 2x the highest spending European country (France) or the United States, see https://www.tandfonline.com/doi/full/10.1080/10438599.2023.2222265

[349] https://nationalinfrastructure.govt.nz/rural-broadband/

[350] https://www.beehive.govt.nz/release/new-connectivity-funding-more-rural-homes-and-businesses I assume that households who cannot access the copper network but who could obtain a fixed wireless connection (which is significantly more expensive than a copper broadband connection) would not qualify for the Rural Users Scheme.

331. However, I also note recent decisions to allow changes in the size of the TDL, which is used to part fund the various rural programmes described above, to be made through regulation rather than legislation[351]. The TDL replaced the TSO fund in 2011[352] and currently stands at only ~$12 million p.a. after having been reduced from $50 million p.a. in 2019[353]. Contributions are allocated to operators (with a turnover of more than $10 million) by the Commission. TDL funds are also used to support the telecom relay service) and can be used to fund upgrades to the emergency calls system. The TDL has primarily been used to support RBI2 and the Mobile Blackspot Fund[354]. The industry appears concerned that the Government may increase funding requirements for the TDL in future, although it is not clear to me whether the Government has decided to do this or what the additional funds would be used for.

332. I have discussed the questions that remain for the Government and Commission in relation to rural network deployment and availability in Chapters 2 and 3. These include the future scope of fibre networks, whether and how 5G cellular fixed wireless should be deployed in areas where fibre will not be available or not available for some years and whether and how to improve rural 5G mobile coverage. The question that remains is what additional regulation is required to ensure that end users can then access whatever technology is deployed on a fair and equitable basis.

The TSO regime

333. The universal service or TSO arrangements in New Zealand are as outdated as those in Europe but there are few precedents as to how to reform them[355]. The most significant difference between New Zealand and Europe is that, as part of the separation of Telecom New Zealand in 2011, each of Chorus and Spark entered into contractual agreements or Deeds with the Government (to grandfather the previous obligations applicable to Telecom New Zealand) whereas in Europe a single vertically integrated firm assumed the obligation[356].

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[351] https://www.mbie.govt.nz/science-and-technology/it-communications-and-broadband/our-role-in-the-ict-sector/discussion-document-enhancing-telecommunications-regulatory-and-funding-frameworks/section-3
[352] https://www.legislation.govt.nz/act/public/2011/0027/latest/DLM3387314.html#DLM3387305
[353] https://www.legislation.govt.nz/act/public/2015/0054/latest/DLM6480304.html#DLM6480302
[354] https://comcom.govt.nz/__data/assets/pdf_file/0023/363560/2024-NZCC-35-Final-2023-24-Telecommunications-development-levy-liability-allocation-determination-5-December-2024.pdf
[355] European policymakers may address this issue in the forthcoming Digital Networks Act, which is due to be published before the end of 2025 and is expected to replace the European Electronic Communications Code. The United States has been attempting ad hoc reforms of the USF arrangements for at least the last 15 years (since the publication of the National Broadband Plan in 2010)
[356] https://www.mbie.govt.nz/assets/a3fd64d5b0/tso-deed-for-tso-network-service-chorus.pdf and https://comcom.govt.nz/__data/assets/pdf_file/0024/90492/Spark-TSO-LRTS-Deed-November-2011.PDF

334. The cross-subsidy arrangements are potentially more complex with structural separation. Chorus can recover its total network costs through regulated input prices provided these are set at appropriate levels (and provided it is not subject to competitive pricing pressures forcing it to under recover) and so should not require external subsidy. However, Spark may not be able to earn a reasonable margin on TSO customers at the regulated retail price, in which case it will need to charge higher prices for non-TSO services, making Spark relatively less competitive in relation to other RSPs who do not have any TSO obligation. I understand, however, that Spark agreed (in the TSO agreement it entered into with the Government) not to seek such a subsidy or to request that the Commission undertake a TSO cost calculation.

335. The obligation to provide a basic local residential telephony service to everyone who requests it at a price that is affordable is similar to that found in Europe, although the free local calling requirement is unusual. The deeds required Chorus to supply a network to support local residential telephone service at a price that cannot increase in real terms above the price which prevailed in November 1989. Spark is required to provide a retail service on the same basis. The obligation in New Zealand was limited to a requirement that this service be available to any household or business that was connected or capable of being connected to the network in December 2001[357]. This means there is no obligation to serve premises built since that date or otherwise to further extend the copper network so as to get to as close to 100% coverage as possible. In Europe, the obligation was genuinely universal in the sense that every household was, in principle, to be provided with an affordable service, although in practice a very small proportion of households will always need to be served by other means. This may explain why Chorus' copper network appears less extensive in remote rural areas than most copper networks in equivalent European countries[358]. It could also create a situation in which Chorus could decommission copper network connections in rural areas that it has introduced since 2001 but not be allowed to decommission connections in place prior to that date. This outcome would be so absurd that I have assumed Ministers will allow Chorus either to decommission the entirety of its rural copper network, as I recommend it should be able to do, or none of it.

336. The significance of the TSO obligation has diminished over time and legal disputes over the calculation of costs, which were a feature of some markets including New Zealand in the

[357] Clarke and Mosby p.322

[358] In 2015, before copper decommissioning began in Europe, 94% of all European households could obtain DSL services, which suggests slightly more than that could obtain a USO telephony service. The UK, France and Italy all reported very close to 100% DSL coverage in that year, see p.25 at https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=17842

2000s[359], have long passed[360]. Many users are likely to have found better alternatives, either in the form of lower cost pre-pay mobile services or fixed broadband offered on a commercial basis in the competitive market. By 2011, the Commission estimated that 300,000 households purchased services provided pursuant to TSO obligations (compared to 1 million in 2005)[361]. Clarke and Mosby estimated 140,000 in 2021[362].

337. The TSO arrangements were reviewed by the Government in 2013, as required by the Act[363]. I think the Commission's response to that review is interesting because it proceeds on the assumption that a TSO regulation is not required if markets are competitive:

> The RBI will bring a service platform capable of effective retail competition to a large section of rural end-users, where previously there was no service provider competition. Therefore, the service TSO in those areas may become obsolete[364].

338. As I explained in Chapter 1, in my experience social regulation is often applied even under competitive conditions because policymakers consider that market outcomes are not fair or otherwise acceptable. There are two aspects. First, policymakers may consider that prices should not vary with respect to location and so impose a consistent geographic pricing rule. That is the case today in New Zealand (and often in Europe) not only with respect to the service specified in the TSO deeds but also with respect to other services, including fibre services, which Chorus supplies[365]. As noted in Chapter 2, an important consideration in the further expansion of the fibre network into rural areas will be whether any deviation from the consistent geographic pricing rule will be allowed. Various outcomes are conceivable. For example, Chorus might be required to charge the same price for fibre service in a particular rural area, but for this price to differ with that charged in another rural area, and for both prices to differ from that charged in the existing urban areas. Some degree of aggregation in pricing is always required in telecommunications to reduce administrative complexity, but there are still questions as to what degree that is.

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[359] For example, Vodafone challenged the Commission's calculation of TSOs costs for 2004/5 and 2005/6 in the courts in 2010, see https://www.courtsofnz.govt.nz/assets/cases/2011/sc-4-2010-vodafone-new-zealand-ltd-v-telecom-new-zealand-ltd.pdf

[360] I can find records of Commission TSO cost calculations and allocations up to 2007/8, but not beyond, and so I do not know whether the Commission continued to make further determinations until the Government effectively ended the cost recovery mechanism in 2011.

[361] p.6 at https://comcom.govt.nz/__data/assets/pdf_file/0032/59486/1592021-Commerce-Commission-submission-on-TSO-review-discussion-document-20-August-2013.PDF

[362] Clarke and Mosby p.322

[363] https://www.beehive.govt.nz/release/tso-discussion-document-released. I have been unable to locate the document itself.

[364] p.3 at https://comcom.govt.nz/__data/assets/pdf_file/0032/59486/1592021-Commerce-Commission-submission-on-TSO-review-discussion-document-20-August-2013.PDF

[365] https://comcom.govt.nz/__data/assets/pdf_file/0035/266939/Geographically-consistent-pricing-Guidance-on-our-approach-to-section-201-of-the-Telecommunications-Act-30-September-2021.pdf

339. The other aspect is that policymakers may consider that competitive prices are unaffordable for some households. In these circumstances, subsidy arrangements will be required to ensure that other groups of users who consume other services contribute to subsidise the costs of providing the universal service product to the group of users who rely upon it. These subsidy arrangements would be difficult to sustain under competitive conditions in which firms generally cannot sustain unprofitable services. The anchor service obligations under the PQ regime under Part 6 of the Act are intended to ensure that Chorus supplies a specified fibre service (of 100 Mb/s) at a price specified by the Minister which is intended to be affordable for households wishing to migrate from a copper to a fibre broadband service[366]. I do not know how much information about the actual costs of supplying the service would have been available to the Minister at the time the price was decided (which was some time before the fibre network had been built) but I assume the primary consideration at the time was to set a price that was considered to be affordable and likely to promote the rapid and widespread take up of fibre services irrespective of the cost. I note that there are no provisions in Part 6 for Chorus to seek subsidies from other operators. This may reflect an aversion to having the Commission undertake contentious TSO calculations which tend to get litigated, it may reflect an assumption that Chorus will supply the vast majority of broadband connections in the areas it serves and can internalise any subsidies between its own users (subject to the Commission determining the overall revenue allowance for the business as a whole) and/or it may reflect an assumption that the anchor service price will always be above cost[367].

340. I note in the fibre report that Chorus has since launched a lower price 50 Mb/s entry-level fibre service on commercial terms and migrated almost all of the users on the anchor service to a higher speed (500 Mb/s) fibre service which is not subject to regulation. As with the TSO regime, the significance of anchor service arrangements in the PQ regime appears to be diminishing over time, although I recommended in the fibre report (and recommend here) that it be retained.

341. The regulation of copper withdrawal under Part 2AA of the Act means that the existing TSO arrangements under Part 3 will have to be withdrawn before the copper network can be decommissioned, which Chorus has announced that it intends to do by 2030. I do not know the number of households who currently rely upon a TSO service supplied by Spark, but I assume it

[366] The analysis summarised here appears in paragraphs 161 to 181 of the fibre report

[367] I noted in the fibre report (paragraph 167) that the Act currently requires the price of the anchor service to be 'cost based' and recommended that this be removed. If the anchor service is to perform a TSO-like function as I recommend in this report then it should not exclude the possibility that an affordable price may be one that does not recover the costs of the service and which therefore requires a subsidy.

is far fewer than the 300,000 households the Commission identified in 2011. As noted above the Government's recent concerns in relation to affordability of telecommunications services appear to relate to those households in remote rural areas beyond the reach of the copper network footprint who are eligible for the Remote User subsidy programme.

Approach if fibre extends to most rural households

342. A question arises as to what, if anything, should replace the TSO arrangements in Part 3 of the Act once the existing arrangements cease. In my view the answer depends in part upon the approach the Government takes to other issues, particularly fibre network deployment in rural areas which I discussed in Chapter 2. If this is to be extensive, I would recommend that the existing anchor service arrangements under Part 6 of the Act continue to function as a safeguard to ensure that Chorus makes access to its fibre network available on affordable terms (and competition between RSPs ensures that retail prices for end users are affordable). I have already noted that the experience of the UFB programme to date suggests that the anchor service serves a limited function and that Chorus has incentives to ensure the affordability and widespread adoption of its fibre services. It also shows that firms responding to changing market signals are likely to be better placed to respond to the needs and expectations of users than a regulator attempting to define a service or specify a price. However, Chorus' incentives and its conduct may alter once the copper decommissioning process has been completed, the prices which it wishes to charge to fund the deployment of its network in rural areas may differ materially from those it was able to charge urban households (for the reasons discussed in Chapter 2) and the ability to pay of households in rural areas may also be different. In these circumstances, I recommend retaining the anchor service regulations and applying them in the same way to any new fibre deployment[368].

Approach in areas without fibre

343. The position of rural households that will not be served by the fibre network is more difficult This includes rural households who may eventually be served by fibre but who rely on deregulated copper services in the interim or who have switched to satellite or cellular fixed wireless services after the copper network has been decommissioned but before a fibre network has replaced it.

[368] I recognise that it is possible that any subsidy of the anchor service by other Chorus customers might increase as fibre is deployed into higher cost areas (depending on how the Government approaches geographic pricing requirements) and that if Chorus' share of fixed broadband connections were small then there may be a case for establishing a TSO fund (or rely upon the TDL) to ensure that users on other networks contribute towards the costs of retaining an anchor service. This would be complex and my assumption is that it will not be required because Chorus would, in the long run, expect to obtain a very high share (80%+) of all fixed broadband connections in any area where it deploys a fibre network.

344. Chorus has said if price regulation of copper services is withdrawn in rural areas it will increase prices for its copper services[369]. Copper services in rural areas currently retail at around $100/month on average, whilst 4G fixed wireless services retail at closer to $120/month on average, reflecting a mix of 4G services that are offered at urban prices of below $100/month and some much higher priced 'rural' 4G services at between $130 and $190/month (with all three cellular operators appearing to apply the 'rural premium' to households in the same or similar geographic areas)[370]. Starlink's LEO Lite service retails at $80 and the full service at $159[371] throughout the rural area in New Zealand. I noted in Chapter 2 that I regard current pricing behaviour as reflecting a transitional period in which there is 'competition for the market' in both urban and rural areas in New Zealand.

345. If Chorus were to raise its prices as it has said it will then I would expect the RSPs to pass the majority of the additional costs on to end users. This may accelerate the migration from the copper network to alternative technologies which is already underway, and which will then be further accelerated by copper decommissioning. Chorus has rightly noted that the economics of maintaining copper services as the user base declines are challenging and there is a self-reinforcing effect as price increases drive migration, higher costs and further price increases. In the absence of some kind of regulated anchor service, I think it is likely that rural households will find themselves paying significantly more for their broadband services in future than in the past. This would either be because the cellular fixed wireless operators and/or Starlink follow Chorus in raising their prices or because, in time and for the reasons discussed in Chapter 2, Starlink wins the competition for the market and obtains a dominant or near dominant position in the market and increases its prices accordingly.

346. One potential response to this, floated by the Commission in its response to the 2013 review, is to require the RBI network (or something which might now be regarded as its successor) to assume this function. I understand that the Vodafone RBI deed required it to offer a retail service of at least 5Mb/s to any premises within the footprint and WISPs were required to offer services of 10-25MB/s under the RBI2 grant funding arrangements. The Vodafone commitments have now

[369] para 3.124 at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf. Chorus has already begun to consult with RSPs on copper decommissioning in rural areas but has yet to provide any indication of how prices may change on the 'path to retirement', see https://sp.chorus.co.nz/consultation/have-your-say-new-commercial-copper-terms

[370] p. 42-3, at https://www.comcom.govt.nz/assets/Documents/copper-services-investigation/Copper-Services-Investigation-Final-recommendation-report-21-August-2025.pdf. I do not know the proportion of 4G fixed wireless rural households that pay the higher 'rural' tariff

[371] Ibid. I do not know the proportion of Starlink rural households that purchase the Lite version of the service.

expired. It does not appear that the Government required recipients of the Rural Capacity Upgrades Programme to commit to using the capacity to provide services on regulated terms or prices.

347. I see three options for ensuring affordability in areas where there is no fibre anchor service available, assuming Chorus will have decommissioned the copper network and the existing TSO commitments will have ended. The first is to do nothing and accept the current differences in broadband pricing for urban and rural users, reflecting differences in costs. If so, I think the Commission's focus should be upon ensuring effective competition amongst the fixed wireless operators and between them and the LEO satellite operators, for which, as I discussed in Chapter 2, I see the primary issue as being to ensure 5G technology is deployed in rural areas.

348. The second option, which would complement the first, would be to extend but also likely revamp the Remote User Scheme so as to provide more targeted support to a wider population so that financial support would be available to households who would become reliant upon either fixed wireless or LEO satellite broadband once copper services had been withdrawn. I am attracted to demand-side voucher schemes of this kind because they minimise any distortion of retail prices and competition on the supply side. However, most such schemes provide a one-off fixed sum subsidy (as the New Zealand scheme currently appears to do) to purchase access to a broadband network (e.g. to pay for the satellite receiver installation) rather than providing an ongoing payment towards the costs of remaining connected to the network, which is what the TSO obligations were intended to address by regulating the monthly prices that could be charged[372]. There are schemes in the United States which have provided a monthly subsidy of this kind, such as the Lifeline programme under which households with income of less than 135% of the income level defined as 'poverty' or on certain federal assistance programmes can apply for a discount on their monthly subscription fees, with the costs being met from the Universal Service Fund[373]. In my experience, however, administration of such schemes is challenging, either because take up amongst the qualifying households is low or because the scheme is vulnerable to fraud or maladministration. The US Congress declined to continue funding of another subsidy programme, the Affordable Connectivity Program, in 2024 due to such concerns.

[372] For example, the Gigabit Broadband Voucher Scheme in the United Kingdom allocates vouchers of £4500 to qualifying businesses and households who can then approach BT Openreach (or other providers) and request fibre connections in areas which they would not otherwise serve, see https://www.gov.uk/government/publications/gigabit-broadband-voucher-scheme-information/gigabit-broadband-voucher-scheme-information

[373] https://www.fcc.gov/general/lifeline-program-low-income-consumers

349. Given this, I recommend the Government and Commission give serious consideration to a third option. The details require further thought but would involve running a competitive tender between RSPs to assume an obligation to supply a specified broadband service to any household within a specified area at a regulated price (likely using some kind of reverse auction format)[374]. I recognise that different fixed cellular wireless operators may have different network coverage in rural areas at present and so it may be necessary for some to commit to deploying new infrastructure as part of their bid[375]. Some may also face capacity constraints in some areas which would need to be alleviated in order to fulfil their obligations. The viability of this proposal may depend upon the extent to which the three cellular operators still have significant differences in cellular coverage at a local level, notwithstanding the recent efforts of the Rural Connectivity Group. If the differences were significant (which I do not expect on the evidence I have seen they would be) then there may not be enough competitive tension in the auction[376].

350. I would expect the losing bidders will complain that the introduction of regulated prices into an otherwise competitive market will distort other prices and may affect their incentives to further invest in rural areas. This is unavoidable and needs to be balanced against the social objectives which would underpin this form of regulation. The impact on competition will depend upon the nature of the service that is specified and, to a lesser extent in my view, the level of the price that is set. The price would obviously need to below the prevailing competitive prices which we observe in the market today, otherwise the regulation serves no purpose. But I do not assume it would equate to the price paid by households for the equivalent service in urban areas. I assume the regulated service would be specified in a way which would mean that take up would be relatively limited and the vast majority of households would be supplied with fixed broadband services on commercial terms. I therefore do not envisage that this measure would contribute towards other objectives which the Government may have in relation to rural fixed broadband provision, such as avoiding the risk of Starlink obtaining a dominant position. I envisage that the obligation could be to provide a 4G fixed wireless service in the short term, with the expectation that 5G would be deployed later if the Government decides to support it.

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[374] The use of reverse auctions to allocate universal service obligations is not a new idea – Paul Milgrom proposed in the mid-1990s, see https://gsb-faculty.stanford.edu/susan-athey/files/2022/04/milgrom_procuring_universal_service.pdf and it has been promoted by the World Bank, see http://documents1.worldbank.org/curated/en/099651211282373597/pdf/IDU0dbf327200338f04d3e0baf708920f13a346c.pdf. I am not aware of auctions having been used for this purpose in Europe or the United States.

[375] The tender would technology-agnostic and so it would be open to Starlink to bid against the three cellular fixed wireless operators, but I would not expect them to do so. I assume the WISPs would not have sufficient network coverage, either individually or collectively, to bid and I explained in Chapter 2 why I have doubts about their long term prospects. Since the obligation would apply to the retail services provided to end users, it would also be open for MVNOs to bid, but again I would not expect them to do so.

[376] I recognise there is some risk that no bids are received, even if cellular fixed wireless network coverage is similar and the Government were to offer very high prices. In that case the Government and Commission would obviously need to reconsider.

351. I also envisage issues with the setting of prices. In a tender process, bidders will need to know in advance the prices they will be allowed to charge to value their bids. However, telecommunications markets and user expectations are dynamic and we must avoid a repeat of universal service regulation which consists of outdated regulatory obligations which serve little useful purpose. I therefore think it important that the Commission is able to adjust the prices or the specification of the regulated service (as is the case for the anchor service under Part 6 of the Act) and that the obligations should be re-tendered on a regular basis, such as every 5 years.

Consumer protection regulation

352. Prior to 2018 there was no specific regulation in New Zealand of the conduct of telecommunications operators in their interactions with retail customers (aside from the requirements under the TSO and RBI programmes discussed above). Part 2 and Part 6 of the Act were concerned with the way in which network operators interacted with RSPs or with each other in a business-to-business context, not with business to consumer relationships. New Zealand was quite unusual in this respect. Europe had adopted a Directive in 2002 which referred to 'end user rights' and contained provisions such as:

> 'Member States shall ensure that transparent and up-to-date information on applicable prices and tariffs, and on standard terms and conditions, in respect of access to and use of publicly available telephone services is available to end-users and consumers, in accordance with the provisions of Annex II.
>
> National regulatory authorities shall encourage the provision of information to enable end-users, as far as appropriate, and consumers to make an independent evaluation of the cost of alternative usage patterns, by means of, for instance, interactive guides.
>
> Member States shall ensure that national regulatory authorities are, after taking account of the views of interested parties, able to require undertakings that provide publicly available electronic communications services to publish comparable, adequate and up-to-date information for end-users on the quality of their services. The information shall, on request, also be supplied to the national regulatory authority in advance of its publication. National regulatory authorities may specify, inter alia, the quality of service parameters to be measured, and the content, form and manner of information to be published, in order to ensure that end-users have access to comprehensive, comparable and user-friendly information. Where

appropriate, the parameters, definitions and measurement methods given in Annex III could be used.'[377]

353. The Annexes referred to in this quote contain detailed descriptions of the information regulated firms are required to publish and quality of service parameters (the 2002 list contained 9 such measures) which regulators were expected to monitor. Subsequent revisions to the European framework have further expanded the scope and the current regime includes, for example, limitations on the duration of contracts and end user rights to terminate contracts[378] and rules on the presentation of bundled offers[379]. In 2017 Ofcom undertook a review of what it called the General Conditions of Entitlement which applied to all telecommunications operators in their interactions with end users. The list of provisions that were reviewed to ensure that regulation remained appropriate included contract requirements, information publication and transparency requirements, billing requirements, complaints handling and access to alternative dispute resolution, measures to meet the needs of vulnerable consumers and end-users with disabilities, tackling nuisance calls and provision of calling line identification facilities, and rules on switching and mis-selling.'[380] Ofcom's conclusion at the time was:

'We have actively considered opportunities for deregulation but have come to the view that most of the consumer protection conditions discussed in this second consultation are not good candidates for significant deregulation, because consumers need protecting from the potential harm that might arise in these areas in the absence of regulatory protection'[381].

354. Consumer protection regulation, such as that described above, has therefore been a feature of telecommunications regulation in Europe since the 1990s, rather than being introduced later and after competition had developed, as occurred in New Zealand. It is not entirely clear why this was the case but I think part of the explanation may lie in the harmonisation objective of European telecommunications regulation. Consumer protection law in Europe has tended to be a matter for individual Member States, each of whom has taken its own approach reflecting different cultural values and expectations. The inclusion of consumer protection measures in the European telecommunications regulatory framework sought to introduce a greater degree of consistency in approach. The focus on disclosure of information, enabling comparison of rival offers (including in relation to quality) and the focus on termination rights are intended to promote more effective

[377] Articles 21 and 22 at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0022
[378] Art 105 of the EECC
[379] Art 107
[380] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/uncategorised/7773-review-general-conditions/associated-documents/secondary-documents/review-of-the-general-conditions-of-entitlement-consultation-on-the-general-conditions-relating-to-consumer-protection.pdf?v=319916
[381] Ibid p.2

engagement by consumers with the market and thereby to complement the promotion of competition which was at the heart of the economic regulation agenda. By specifying what is to be measured and disclosed by firms rather than setting absolute targets or minimum standards, the intention is that competition between firms will bid up quality and standards.

355. The introduction of consumer protection regulation in New Zealand in 2018 seems to have been motivated by concerns that consumers had not been obtaining good outcomes, or at least that their expectations were not being met, with the Minister noting in 2017 that 'the telecommunications sector generates more complaints than any other sector in New Zealand'[382] .

356. Prior to 2018 New Zealand had operated a self-regulatory regime overseen by the Telecommunications Forum or TCF. This body had developed codes on Broadband Product Disclosure and an Emergency Service Calling Code. However, these codes were not binding on non-TCF members and were only binding on TCF members if all voted in favour. A dispute resolution scheme had been established in 2007 as part of the application of a Customer Complaints Code. During this period the Commission had also taken a number of actions against telecommunications operators in relation to misleading advertising, misleading promotions and billing system failures under the Fair Trading Act.[383]

357. Much has been written about the merits of self- or co-regulation over the years, mostly by the industry itself. My own experience is that self-regulation is rarely sufficient to protect the interests of end users, in part because industry bodies like the TCF need to engage in consensus building and will aim to produce a document or code to which all members are willing to sign up to. This inevitably becomes something of a lowest common denominator exercise, with the result that the commitments rarely change behaviour to any significant extent, or in a way which is detrimental to the interests of the members. Although self-regulation is often claimed to be more flexible and agile than formal regulation, that has also not always been my experience. On the other hand, it is also important to recognise that firms operating in competitive markets, as is the case for telecommunications operators and RSPs in New Zealand, do have strong incentives not to disappoint or otherwise mistreat their customers. Consumer protection regulation does not need to resist or overcome the incentives of firms to exclude or disadvantage competitors in the way that economic regulation does. It is also my experience that the firms themselves ought to have a better understanding of end user requirements and how end users may react to different measures (although I note that the Commission, in common with regulators like Ofcom, now undertakes

[382] p. 2 https://www.mbie.govt.nz/dmsdocument/1310-telco-review-cabinet-paper-may-2017-pdf
[383] p. 6 at https://comcom.govt.nz/__data/assets/pdf_file/0021/108435/Telecommunications-retail-service-quality-framework-paper-30-Nov-2018.pdf

quite extensive consumer research of its own). Firms have marketing and other functions that understand how to communicate with customers and how to integrate regulatory requirements into other commercial activities in which they will also be engaged and which they will be communicating to end users. This all points to adopting a more collaborative approach to consumer regulation than economic regulation, whilst at the same time enabling the regulator to impose regulatory obligations or credibly threaten to impose such obligations if the collaboration fails.

358. Part 7 of the Act gave the Commission regulatory powers to enable it to address consumer protection matters rather than rely upon the industry[384]. One aspect of this was that the Commission was able to review the functioning of the existing industry dispute resolution scheme. A similar approach is taken in the United Kingdom, where two dispute resolution schemes have been developed by the industry, both of which are required to be certified and monitored by Ofcom[385].

359. The Commission has undertaken two reviews of the New Zealand dispute resolution scheme, in 2021 and 2024. The 2021 report contained 24 proposed changes (21 of which were implemented) that were intended to improve consumer awareness and use of the scheme (including by expanding the number of participating firms), to improve how complaints were handled (by narrowing the grounds for exclusion and resolving them faster) and improving governance (including by adopting Terms of Reference for the Scheme Agent and establishing an independent company in 2023 and appointing independent directors). It also included requirements that operators publish and publicise their own customer care policies to an agreed set of standards.[386]

360. The 2024 report sought to further improve awareness of the scheme (only 20% of respondents were aware when prompted), further reduce the scope for exclusions, further increase participation, and improve compliance monitoring (by the scheme of the operator participants) and various other aspects of reporting. The report raised concerns about the veto powers which the industry (represented by the TCF) holds over the scheme and proposes that further steps are taken to ensure budgetary independence.[387]

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[384] https://comcom.govt.nz/__data/assets/pdf_file/0021/108435/Telecommunications-retail-service-quality-framework-paper-30-Nov-2018.pdf

[385] https://www.ofcom.org.uk/phones-and-broadband/service-quality/adr-schemes-performance

[386] E.g https://main.prod.vodafonenz.psdops.com/_document?id=0000018a-d35a-de59-af9a-f75fe1500000#:~:text=We%20will%20engage%20with%20you,support%20person%20when%20authorised)%20constructively.&text=We%20will%20provide%20service%20information,affect%20performance%20of%20a%20service.

[387] https://comcom.govt.nz/__data/assets/pdf_file/0033/363876/Review-of-the-TDRS-2024-Final-report-to-TDRL-on-recommendations-for-improvements-to-the-TDRS-19-December-2024.pdf

361. I am not an expert in dispute resolution schemes, but it appears to me that the process of periodic review by the Commission and funding and governance by the industry are now working reasonably well, although it is probably still too early to assess the impact of the various changes that have been made. In my experience this approach will only be tested if the Commission were to recommend the scheme does something which the industry fundamentally opposes or which it considers will impose unreasonable costs upon it[388].

362. Part 7 of the Act also allows the Commission to produce its own retail service codes and guidelines if it concludes that industry RSQ codes developed by the TCF are inadequate. These codes are enforceable by the Commission through the Courts if needed and the Act gives the Commission powers to impose sanctions for non-compliance.

363. The Commission has issued a number of such Guidelines. It issued Guidelines on bundling of telecommunications and electricity services in November 2023[389], which as the title implies is intended to address the risk of higher energy prices subsidising broadband prices and consumers being worse off than if they had purchased the services separately. The Commission assessed compliance in December 2024 and found good outcomes except two firms presenting prices exclusive of GST. The Commission also issued Guidelines on mobile coverage maps[390]in January 2025 which I understand are due to be implemented within 6 months. I understand the Commission is currently working on guidelines on price and cost disclosure.

364. At other times the industry has taken action in the absence of formal regulation by the Commission, including by adopting a mobile code to address tariff optimisation in 2021 and launching a price comparison tool in 2022[391]. This followed a report for the Commission that found many customers could save money by moving to a more suitable tariff[392]. The TCF code

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[388] I note that 2024 member fees were less than $2m, p.40 at https://www.tdr.org.nz/sites/default/files/2024-12/TDR%20Annual%20report%202024_final.pdf

[389] https://comcom.govt.nz/__data/assets/pdf_file/0018/335232/Improving-RSQ-Product-Disclosure-Retail-Service-Bundling-Guidelines-Energy-and-Telecommunications-Bundles-22-November-2023.pdf

[390] https://comcom.govt.nz/__data/assets/pdf_file/0023/364154/Product-Disclosure-Mobile-Coverage-Maps-guidelines-30-January-2025.pdf. Mobile coverage is, in my experience, a difficult issue for regulators. Ofcom has realised that its reliance upon the operator's own predictive coverage models has not provided a good indication of the coverage that is actually experienced by users in the UK and is increasingly relying upon its own measurement tools, including crowd sourcing. I find OpenSignal currently provides the best coverage data for comparing different countries. The FCC is also taking steps to improve its coverage measurement capabilities, see https://www.fcc.gov/BroadbandData and I note the Commission has also undertaken additional work on fixed broadband coverage. If the Government or Commission were to take steps to promote 5G rural coverage, as I recommend, then it will likely require better measurement tools than appear to be currently available to the Commission.

[391] https://comcom.govt.nz/__data/assets/pdf_file/0027/278361/Improving-Retail-Service-Quality-for-Consumers-2022-Update-4-March-2022.pdf

[392] Ibid p.11

was closely modelled on Ofcom's 2020 requirements for similar measures[393]. The Commission adopted Marketing Guidelines in 2021 to address misleading or confusing claims about the 'speed' available and what a 'fibre' service is[394] and asked the TCF to adopt them so that they were binding on members[395]. The Commission published an assessment of the impact of all these initiatives in April 2025 which was broadly positive. I understand the next phase of this programme will address switching (which is highlighted as a particular source of concern in the latest Telecommunications Monitoring Report[396]), billing and debt/affordability[397].

365. These are all familiar issues that have arisen in telecommunications markets around the world over the past 20 years. I have seen nothing to suggest that the performance of the telecommunications industry in New Zealand is any more problematic in this regard than elsewhere, or that the Commission is any more interventionist, than regulators in other countries. As with the debate about economic regulation versus competition law, which I discussed in Chapter 1, there is a similar question about consumer protection regulation versus the general application of fair trading rules, such as are contained in the New Zealand Fair Trading Act and in similar legislation elsewhere in the world. My view on the latter is the same as for the former, namely that these matters are better and more effectively addressed by a telecommunications regulator who will already have established relationships and ways of working with the firms in question and a prior understanding of the markets. I recognise that there is, however, a risk that if a regulator resorts too readily to formal powers or to the imposition of regulatory obligations then self- and co-regulatory mechanisms like the TCF may become increasingly marginalised. In my experience, there is a balance to be struck between different approaches, and the right one will often depend upon the issue at hand.

366. In this regard it appears to me that the TCF still appears to take a reasonably active role in New Zealand, including in supporting some of the initiatives identified above as well as other activities in scam and fraud prevention, co-ordinating activities between members during an emergency, number portability, handset recycling and producing codes on these and various other

[393] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-2-6-weeks/130197-helping-consumers-get-better-deals-on-their-broadband/ecn-consultation-and-statement/statement-helping-consumers-get-better-deals.pdf?v=323929
[394] https://comcom.govt.nz/__data/assets/pdf_file/0030/365682/RSQ-Ex-Post-Reviews-Summary-March-2025.pdf
[395] p. 3 at https://comcom.govt.nz/__data/assets/pdf_file/0027/278361/Improving-Retail-Service-Quality-for-Consumers-2022-Update-4-March-2022.pdf
[396] https://comcom.govt.nz/__data/assets/pdf_file/0016/365011/Switching-Issues-Paper-20-March-2025.pdf and p.106 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[397] p.9 https://comcom.govt.nz/__data/assets/pdf_file/0030/365682/RSQ-Ex-Post-Reviews-Summary-March-2025.pdf

industry matters which the Commission does not regulate[398]. The record of the Commission's interventions since 2018 suggests that the TCF and self-regulation do not always work, but that does not mean it does not have a useful role to play.

367. The Commission has also been developing a series of KPIs that, as discussed above, allow performance by individual firms to be measured and ranked in the expectation that competition or responses from end users will then drive standards up without the Commission having to take its own enforcement action.[399] The Commission produced a methodology for reporting and published first set on a trial basis for publication of a Retail Service Quality (RSQ) report every 6 months[400] This is closely modelled on the approach taken by Ofcom[401] and, as noted earlier, regulators throughout Europe do something similar. The Commission assessed their effectiveness in 2024 and concluded that it was working well (albeit that only 8% of respondents were aware of the rankings)[402]. In my experience measures of this kind are not something that end users will engage with to any significant extent.

368. The Commission monitors customer satisfaction on a range of metrics on a bi-annual basis[403]. In the latest results, for H1 2025, satisfaction with mobile service is somewhat higher than for fixed services. The main source of dissatisfaction for consumers of both fixed and especially mobile services appears to be pricing. Again, this is not unusual in my experience and likely evidence that the industry is largely meeting expectations on quality, although I note there is some evidence of deterioration over time in the latest results.

369. It is clear that a lot of work has been undertaken on consumer protection regulation by the Commission and the industry since 2018, with more anticipated in the next year or so. In my experience there is a risk that such regulation accumulates and compounds over time and is often not reviewed in the way that economic regulation may be. The effects of consumer protection regulation on the industry are difficult to assess and will represent sunk costs for firms, most of whom I would expect to be more concerned about the financial impact of economic regulation.

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[398] p.32-3 at https://www.tcf.org.nz/wp-content/uploads/TCF_Annual_Report_2024.pdf

[399] 'We will therefore be seeking views on how we could use competition and transparency (rather than prescriptive regulation) as a means of highlighting the different performance of each mobile operator on measures that matter to consumers – such as call wait times, first time resolution and transparency of usage and spend information." , p. 5 at https://comcom.govt.nz/__data/assets/pdf_file/0027/278361/Improving-Retail-Service-Quality-for-Consumers-2022-Update-4-March-2022.pdf

[400] https://comcom.govt.nz/__data/assets/pdf_file/0029/327692/Improving-Retail-Service-Quality-Customer-Service-Update.pdf

[401] https://www.ofcom.org.uk/siteassets/resources/documents/phones-telecoms-and-internet/comparing-service-quality/2025/comparing-customer-service-report-2025.pdf?v=397528

[402] https://comcom.govt.nz/__data/assets/pdf_file/0038/357995/Improving-RSQ-Customer-Service-Confirmation-of-dashboards-for-publication-11-July-2024.pdf

[403] https://comcom.govt.nz/__data/assets/pdf_file/0030/368544/Telecommunications-Consumer-Satisfaction-Monitoring-Report-January-June-2025.pdf

However, consumer protection regulation can also introduce entry barriers and undermine incentives or frustrate attempts to innovate. The provisions that were introduced in 2018 were responding to a regulatory vacuum and so there was little risk of over-compensation at that point in time. However, the pendulum tends to swing in regulation and that risk may arise in the future. To guard against this, I recommend that some form of periodic review is required to be undertaken by the Commission (or by a third party such as the Office of the Auditor General), in the same way that my proposals for a revised Part 2 regime would include a requirement for the Commission to review the effect of economic regulation every 5 years or so[404] (and in the same way that the Commission currently undertakes a periodic deregulation review of markets). I noted earlier that the UK Government's latest strategic steer says that it 'would see merit in Ofcom evaluating the impact and costs of regulatory interventions collectively.' and I am proposing that the Commission do something similar[405].

Consumer data rights

370. I have been asked to consider the role of consumer data rights in telecommunications. Consumer data rights refer, in the context of this report, to a set of arrangements which allow end users to authorise the sharing of personal data that is held by one firm with third parties. The approach has been applied primarily in the financial services sector, with the United Kingdom first adopting 'open banking' as a measure to promote competition in the market for consumer retail banking services following an investigation by the CMA in 2016. Users authorise the sharing of records of their financial transactions with third party providers (to enable better management of funds or to recommend other financial products and services) or to enable third parties to initiate payments on their behalf[406]. In the context of telecommunications, the most obvious application would be to allow users to authorise the sharing of records of their consumption patterns and billing records with third party providers in order to select the optimal tariff plan. Similar proposals have been made for sharing data from smart meters in energy networks.

[404] In the United Kingdom the National Audit Office would undertake reviews of this kind. It appears to me that the Office of Auditor General in New Zealand has a more limited role and so may not be a suitable body to undertake the task I envisage. I do not know whether there are other candidates, but I would also have no objection to the Commission undertaking this task itself.
[405] https://www.gov.uk/government/consultations/proposed-statement-of-strategic-priorities-for-telecommunications-the-management-of-radio-spectrum-and-postal-services/proposed-statement-of-strategic-priorities-for-telecommunications-the-management-of-radio-spectrum-and-postal-services#proposed-statement-of-strategic-priorities-for-telecommunications-the-management-of-radio-spectrum-and-postal-services
[406] A telecommunications related open banking application in the UK is the use by Vodafone of open banking to verify that applicants for a social tariff which depended upon their being in receipt of welfare payments were actually receiving those payments into their bank account, see https://www.openbanking.org.uk/insights/vodafone-partners-with-moneyhub-to-use-open-banking-to-assess-customers-for-affordable-mobile-tariff/

371. I note that the potential for consumer data rights to improve tariff optimisation was referred to in the 2019 Mobile Market Study, where the Commission noted that it was 'not easy' and said that it would monitor developments in Australia[407]. The Australian Government's plans to extend consumer data rights to telecoms was paused in 2024, in part because implementation costs in banking and energy proved much higher than anticipated[408]. The British Government consulted on 'smart data' for telecoms in late 2023 but has yet to announce how or whether it will take it forward[409]. So far as I am aware there are no immediate plans to do so. I note that open banking is at an early stage of development in New Zealand, with the banks having taken some steps to implement on a voluntary basis following an investigation into consumer retail banking services undertaken by the Commission in 2024[410] which came to similar conclusions to the CMA investigation cited above. I understand the Government is currently developing a regulatory regime for open banking, as recommended by the Commission, which will require banks to provide access to user data and payment initiation services by the end of 2025[411].

372. In my view, consumer data rights are a theoretically attractive proposition which can appear to represent a modern and pro-competitive approach to protecting consumers. However, the practical experience of implementation, at least to date, suggests the firms holding the personal data are required to incur very significant costs to ensure that highly sensitive data (including in telecommunications, individual call records) is shared in a secure manner[412]. The intent in open banking in the United Kingdom was that the industry would then develop new data sharing and payment solutions, in response to market demand. So far progress beyond the initial set of

[407] p. 98 at https://comcom.govt.nz/__data/assets/pdf_file/0022/177331/Mobile-Market-Study-Findings-report-26-September-2019.PDF
[408] https://ministers.treasury.gov.au/ministers/stephen-jones-2022/media-releases/albanese-government-reset-consumer-data-right
[409] https://assets.publishing.service.gov.uk/media/650800a5dec5be0014c35fa9/open-communications-consultation-smart-data-scheme-uk-telecomms.pdf. I note the latest draft strategic steer says only 'Ofcom will be an important stakeholder in helping to assess the potential merits of establishing a Smart Data scheme in telecoms, including determining the costs and benefits of such a scheme for industry', https://www.gov.uk/government/consultations/proposed-statement-of-strategic-priorities-for-telecommunications-the-management-of-radio-spectrum-and-postal-services/proposed-statement-of-strategic-priorities-for-telecommunications-the-management-of-radio-spectrum-and-postal-services#proposed-statement-of-strategic-priorities-for-telecommunications-the-management-of-radio-spectrum-and-postal-services
[410] https://comcom.govt.nz/__data/assets/pdf_file/0019/362035/Final-report-Personal-banking-services-market-study-20-August-2024-Amended-27-August-2024.pdf
[411] https://www.mbie.govt.nz/business-and-employment/business/competition-regulation-and-policy/consumer-data-right/open-banking
[412] Estimates for the implementation of open banking in the UK are well over £100 million.

specifications has been limited[413] and the governance arrangements have proved to be problematic[414].

373. The Commission adopted a cautious approach to consumer data rights in 2019 and, given the experience of its application in other sectors since then, I would not recommend any change. In my opinion the costs of implementing consumer data rights arrangements for tariff optimisation purposes are likely to significantly outweigh the benefits. My view might be different if data held by telecommunications operators could be used for other complementary purposes which would benefit end users. There are, of course, such purposes but telecommunications operators already have commercial incentives to exploit the data they hold about users. The GSMA (the global trade association for mobile operators) has launched its Open Gateway initiative, which is intended to offer a standardised set of APIs which will allow third parties to interrogate the networks of participating operators and develop complementary services using the data and functionality that is made available to them[415]. An example is an API that allows banks to link financial transactions (including ATM withdrawals but also other payments) to the user location, as recorded by their mobile device[416]. These propositions are at an early stage of development and it is unclear how commercially significant they will prove to be. I recommend that at this stage the Commission allows the industry to first commercialise arrangements for sharing user data with third parties and then considers, at a later date, whether there are other sharing arrangements which are required, which would benefit end users but which it would not expect to be implemented in the absence of regulatory intervention. When doing so, the Commission may wish to liaise with other telecommunications regulators whom I would expect to be in a similar situation and to have come to similar conclusions.

[413] https://www.openbanking.org.uk/wp-content/uploads/SWG-Report-The-Future-Development-of-Open-Banking-in-the-UK-Feb-2023.pdf

[414] https://assets.publishing.service.gov.uk/media/62908644d3bf7f036ebf5880/CMA_OB_Lessons_Learned_Review.pdf

[415] https://www.gsma.com/solutions-and-impact/gsma-open-gateway/

[416] https://snowdropsolutions.com/how-banks-can-use-transaction-geolocation/

Chapter 5: Other telecommunications regulatory matters not addressed in New Zealand to date

374. In this short Chapter I turn away from the 2001 Act to discuss various telecommunications matters which do not currently feature in the telecommunications regulatory framework of New Zealand but which have attracted attention in other countries and regions over the past 20-30 years.

International roaming

375. For completeness, I note that the Government and Commission have not regulated international mobile roaming services, which was a topic that received significant attention in Europe in the 2000s. The reason for this was that the higher costs of calling whilst in another European country appeared to be at odds with the single European market objectives of the European Commission, under which national borders within Europe should no longer have any economic significance. The European Commission first attempted to regulate international roaming charges in 2004 through the application of competition law but was unsuccessful in proving abuse of dominance[417]. The European regulatory framework, based on a requirement to find SMP, proved similarly ineffective. In consequence, the Commission adopted a regulation in 2007 which did not require firms to hold a position of dominance for their wholesale roaming prices to be regulated, as they have been in Europe since that time.

376. I note that between 2011 and 2015 there was also considerable interest by Governments in both New Zealand and Australia in reducing the costs of trans-tasman roaming[418] but it appears that action by operators to reduce charges and improve communications with consumers were sufficient to pre-empt formal action in either country[419]. I do not consider that any further action is required on this topic and note that it would in any event be very difficult for a national regulator such as the Commission to address the retail prices which New Zealand users pay to roam in other countries when those prices depend upon the charges levied by foreign operators for access to their networks. My proposed revisions to the Part 2 regime would, in theory, provide the Commission with the tools to intervene in the wholesale market serving visitors to New Zealand (provided the Commission could identify an operator or operators with a substantial degree of market power), but New Zealand end users would obtain no benefit from this unless regulators in other countries were both willing and able to reciprocate.

[417] https://competition-cases.ec.europa.eu/cases/AT.38097
[418] See, for example, https://www.regulation.govt.nz/assets/RIS-Documents/ris-mbie-ttmr-may13.pdf
[419] https://www.tcf.org.nz/wp-content/uploads/Documents-TCF-International-Mobile-Roaming-Code-Endorsed-April-2023-1.pdf

Peering

377. In contrast with other countries, the Government and Commission in New Zealand have not sought to intervene in disputes between global digital platforms and telecommunications operators. These disputes began when so called open internet or net neutrality regulations were introduced by the FCC in the United States first in 2005, then more substantively in 2015[420] and were then introduced in Europe in 2016[421]. These regulations were in response to concerns that telecommunications operators with their own internet content services would block or degrade access to competing content services, or that they would do the same to VOIP services in order to protect revenues earned from traditional telephony services (which many operators in Europe did indeed do for a period of time in the early 2010s[422]). Such concerns are now largely of historic interest as most telecommunications operators have sold or closed their digital content businesses and VOIP services have become ubiquitous.

378. Open internet regulation was withdrawn at the federal level of the United States in 2017[423] but remains in place in Europe where there is now a concern that rules which aim to prevent discriminatory conduct will also inhibit service differentiation which is otherwise supposed to be enabled by 5G network slicing and network APIs which I referred to in Chapter 4. The topic of net neutrality seems to have been debated briefly in New Zealand, with Internet NZ issuing a discussion paper in 2015 [424] and that the Government sought views during its 2015 review of the Telecommunications Act, noting:' for the average end-user in New Zealand, net neutrality and traffic management have not yet been a cause for concern. Nor have content providers raised concerns about being made to pay premiums to get a decent quality of service from RSPs.[425]

379. So far as I know there has been no proposal for open internet or net neutrality regulation in New Zealand of the kind introduced in either the US or Europe[426]. In my view the conduct that such regulation is supposed to prevent is unlikely to occur and has not in fact occurred in telecommunications markets in recent years. The risks of adverse impacts upon investment and innovation on the part of network operators, although often overstated by the industry, are

[420] https://docs.fcc.gov/public/attachments/FCC-15-24A1.pdf
[421] https://digital-strategy.ec.europa.eu/en/policies/open-internet#:~:text=The%20EU's%20Regulation%20on%20open,safeguards%2C%20'specialised%20services'.
[422] https://www.berec.europa.eu/sites/default/files/files/document_register/2012/7/BoR12_30_tm-snapshot.pdf
[423] https://docs.fcc.gov/public/attachments/FCC-17-166A1.pdf
[424] https://internetnz.nz/assets/Archives/Network_neutrality_discussion_document.pdf
[425] https://www.mbie.govt.nz/dmsdocument/14216-regulating-communications-for-the-future-review-of-the-telecommunications-act-2001, p.102
[426] Clarke and Mosby provide a good discussion of this at p.394.

sufficient to merit caution. I therefore do not recommend that the Government or Commission consider open internet regulation further.

Platform contributions to network costs

380. In recent years there has also been a fierce debate in Europe (and in countries such as India and Brazil as well as the Caribbean) over proposals that global internet content platforms, particularly those responsible for the majority of video traffic (i.e. Netflix, Meta and YouTube) should be obliged to contribute to the costs incurred by telecommunications network operators, particularly the costs of augmenting capacity on mobile networks to carry video traffic. This debate has been undertaken in anticipation of the European Commission's proposals for a new Digital Networks Act which is due to be published by the end of 2025. Earlier Commission papers suggested that the Commission was considering extending the scope of regulation so as to be able to intervene in peering disputes between European telecom operators and the global content platforms[427] although I would add that European regulators remain much more resistant to doing so[428]. In 2021, Commissioner Brendan Carr of the FCC in the US also proposed that contributions to their USF should be made by large digital platforms, although he has not done so since his recent appointment as Chair of the FCC[429].

381. The global content platforms such as Netflix oppose such proposals, arguing that they have co-operated with telecommunications operators (e.g. by co-locating their own servers inside operator networks or by deploying compression or other coding technologies) and have invested in their own infrastructure for many years. They say their digital services contribute to the positive valuation which end users place on telecommunications networks (i.e. the services are complements)[430] and that in any event it is requests from end users that cause the costs which the

[427] 'There are very few known cases of intervention (by a regulatory authority or by a court) into the contractual relationships between market actors that generally functions well and so do the markets for transit and peering. There has been nonetheless a vivid debate on this topic. Moreover, it cannot be excluded that the number of cases in the future will increase. Should this be the case, subject to careful assessment, policy measures could be envisaged to ensure swift resolution of disputes. For example, the commercial negotiations and agreements could possibly be further facilitated by providing for a specific timeline and by considering the possibility for requests for dispute resolution mechanisms, in case commercial agreements could not be found within a reasonable period of time.', p.26 at https://ec.europa.eu/newsroom/dae/redirection/document/102533
[428] https://www.berec.europa.eu/system/files/2022-10/BEREC%20BoR%20%2822%29%20137%20BEREC_preliminary-assessment-payments-CAPs-to-ISPs_0.pdf and https://www.ofcom.org.uk/__data/assets/pdf_file/0028/245926/net-neutrality-review.pdf
[429] https://docs.fcc.gov/public/attachments/DOC-372688A1.pdf. I note the TCF proposes expanding the scope of the TDL to include digital content providers in 2011, but this was rejected by the Government, see Clarke and Mosby p.408
[430] https://www.analysysmason.com/contentassets/ef8295594cc54285bf554b05daa06431/modelling-the-impact-of-netflix-traffic-and-open-connect-on-isp-traffic-dependent-costs---2022-07-14.pdf

network operators incur and that operators should therefore seek to recover those costs from those users.

382. Telecommunications operators argue that existing (unregulated) peering relationships under which traffic is exchanged without payment means that there is a 'missing price' which removes incentives to be efficient. They claim that an imbalance of bargaining power (exacerbated in Europe by Open Internet regulation which constrains their ability to threaten to block access) prevents them from imposing such a price on the global platforms[431]. European operators argue that regulatory intervention is therefore required – either to impose a price in the event of peering dispute or to impose a universal tariff of some kind[432].

383. There have been a number of peering disputes (notably in Germany but also Switzerland) in recent years which have been referred to the courts and which, in the German case, resulted in Meta terminating its peering relationship with Deutsche Telekom[433] and in the Swiss case in Swisscom being ordered to reinstate settlement free peering[434]. A number of studies have also been undertaken into the functioning of peering and transit markets which have not previously been regulated and which are generally not well understood by regulators[435].

384. In my view there is insufficient evidence of a market failure to justify regulating the terms of peering relationships between digital platforms and telecommunications operators, which are complex and dynamic[436]. The rapid growth in traffic volumes which ignited the debate appears to have ended in in Europe, with growth rates now projected to be in the low single digits[437]. Many of the arguments employed by the telecommunications operators refer back to an alleged funding shortfall which means European operators are unlikely to fulfil the 5G and fibre coverage targets which the European Commission has set for 2030 and which I referred to earlier. In my view there are better and simpler ways to tax firms if we want them to contribute to public funds that are

[431] https://axonpartnersgroup.com/europes-internet-ecosystem-socio-economic-benefits-of-a-fairer-balance-between-tech-giants-and-telecom-operators/ and https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID4468870_code47132.pdf?abstractid=4468870&mirid=1
[432] The details of the proposals often become somewhat hazy at this point.
[433] https://about.fb.com/news/2024/09/why-were-having-to-end-our-direct-peering-relationship-with-deutsche-telekom/
[434] https://www.init7.net/de/news/241223-mm-init7-comcom-orders-swisscom-must-operate-zero-settlement-peering-with-init7-en.pdf
[435] https://www.berec.europa.eu/system/files/2024-06/BoR%20%2824%29%2093_draft%20BEREC%20Report%20on%20the%20IP-IC%20ecosystem_1.pdf and https://www.bundesnetzagentur.de/EN/Areas/Telecommunications/Peering/download.pdf?__blob=publicationFile&v=1
[436] In Europe, some of the issues which operators complain about in this debate would be alleviated by removing open internet regulation, which I think should be done for many reasons.
[437] https://www.lightreading.com/5g/data-traffic-growth-or-decline-there-s-no-upside-for-telecom

required to subsidise network deployment, as the Government of New Zealand has recently done by adding Starlink to the list of contributors to the TDL.

385. Implementing and enforcing such regulations, which would involve the Commission determining how contributions would be assessed, how they would be collected and to whom and how they would be allocated to operators, would in my view be very challenging. As the attempts to enforce the media bargaining codes in Australia and Canada have shown, global platforms may prefer to withdraw services from comparatively small markets, rather than acceding to demands to make financial contributions to local beneficiaries[438].

386. Recent communications from the European Commission suggests that it will not now seek to regulate peering arrangements but will instead adopt a proposal advocated by Vodafone that operators and global content platforms jointly agree a code of conduct for 'responsible use of networks'. I anticipate that the platforms will readily agree to participate in such an exercise, which will likely be overseen by the Commission but I expect to largely reflect existing industry practices. Having studied the subject, the European Commission seems finally to have recognised that the arguments in favour of regulation are weak. I would also not ignore the geopolitical considerations and the threat from the Trump administration that any such proposals would trigger retaliatory action by the United States[439].

Messaging interoperability

387. Another regulatory issue for global digital platforms relates to messaging services. Platforms such as Whatsapp and iMessage offer messaging services that have not been interoperable with each other or with other messaging platforms. In the revision of the European telecommunications regulatory framework in 2018, provisions were introduced - largely in response to lobbying by telecommunications operators - which, under certain conditions, would require such digital messaging providers to interoperate with each other and with other services requesting access to their user base[440]. Such provisions were intended to enable new entrants to overcome the barriers to entry arising from the direct network effects which characterise almost every communications

[438] https://publicknowledge.org/is-the-australian-bargaining-code-over/
[439] https://www.whitehouse.gov/fact-sheets/2025/02/fact-sheet-president-donald-j-trump-issues-directive-to-prevent-the-unfair-exploitation-of-american-innovation/. It is widely rumoured that these issues also formed part of the recent US-EU trade agreement, the details of which remain obscure, https://www.reuters.com/business/media-telecom/network-fee-big-tech-not-viable-solution-boost-eu-digital-rollout-eu-says-2025-07-31/#:~:text=Show%20more%20companies,EU%20executive%20said%20on%20Thursday.
[440] Art 61(2) of the European Electronic Communications Code

service of this kind and which I discussed in Chapter 1[441]. In contrast to digital platform markets, the obligation to interoperate has been a feature of telecommunications regulation in Europe from the outset of liberalisation and does not depend upon a firm first being found to have significant market power or dominance. The conditions under which regulators may intervene are that 'the Commission has found an appreciable threat to end-to-end connectivity between end-users throughout the Union or in at least three Member States and has adopted implementing measures specifying the nature and scope of any obligations that may be imposed.'

388. These provisions have never been activated and are likely to be displaced by similar obligations in Article 7 of the Digital Markets Act or DMA, which Europe adopted in 2022[442]. This requires firms designated as 'gatekeepers' (a defined term which not equivalent to dominance but which instead refers to various quantitative criteria such as number of users and revenues in Europe) to allow interoperable access on request to various messaging services, starting with individual messaging services and at a later date extending to group video and voice services. So far as I am aware, regulated interoperability has yet to be achieved with Facebook Messenger or Whatsapp, which are the services currently designated by the European Commission. It is worth noting that in September 2024, without being required by European regulation to do so, Apple enabled messaging interoperability between iPhones and Android devices using RCS[443] (although this does not mean that the iMessage and RCS platforms interoperate, as would be required if Apple were to be designated as a gatekeeper with respect to iMessage).

389. So far as I am aware the New Zealand Government has yet to determine whether or how it might regulate digital platforms. Many aspects of digital regulation have little to do with telecommunications regulation or the other issues I have discussed in this report and are beyond its scope. However, interoperability of digital messaging services does have a strong affinity and was first addressed through amendments to an existing telecommunications regulatory regime rather than any separate digital regime. In my view, demand for interoperability from new entrant messaging service providers remains uncertain and so I would recommend that the Government and Commission wait and monitor the application of the DMA provisions in Europe or other digital regimes, such as that currently being developed in Australia[444] (which I have no doubt the Commission is doing in any event). For global markets such as messaging, I recommend that New

[441] Such as the Rich Communications messaging services that had been developed by telecommunications operators and the GSMA in the 2010s but which had never been successfully scaled up.
[442] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R1925
[443] https://9to5mac.com/2023/11/16/apple-rcs-coming-to-iphone/
[444] https://treasury.gov.au/consultation/c2024-547447

Zealand aim to import arrangements and standards which the global platforms are already complying with rather than seeking to create its own.

Scams and other unlawful use of telecommunications networks

390. Digital platforms have in recent years prompted a great deal of concern amongst policymakers and end users about anti-social, unlawful or otherwise undesirable activities which are facilitated by the transmission of messages over telecommunications networks. These have emerged alongside activities such as spam text messages or unsolicited telephone calls which have been used by criminals and others for decades but which are also undergoing technological advances with the use of AI and other technologies.

391. Many of the scams or fraud undertaken by organised criminal groups originate outside of national borders, leaving national Government unable to pursue or prosecute the perpetrators (although there is a degree of international co-operation between law enforcement agencies). Within national borders, telecommunications regulators may have powers to prosecute persons who misuse telecommunications services[445]. Work by Ofcom in the United Kingdom (between 2017 and 2023) initially targeted so-called 'nuisance calls' originating from call centres, which caused distress if abandoned or nobody spoke[446]. These included the imposition of fines on the firms originating such calls. More recently, attention in the UK has switched to various types of 'scam', which may result in financial loss (as well as distress) as a result of users being persuaded to make financial payments or disclose personal information (so called 'phishing'), such as their bank account or debit card details.

392. Ofcom has introduced measures intended to reduce 'spoofing', a practice in which calls or messages purport to originate from a legitimate telephone number, such as a bank, but in fact originate from a scammer, including from outside the UK. It has also required operators to tighten the checks that they applied before telephone numbers were allocated to third parties[447]. The FCC in the United States has taken similar measures in relation to both unsolicited calls and texts[448], including recently in relation to AI-generated robocalls[449].

[445] Ofcom, for example, has such powers under Sections 128-30 of the Communications Act 2003. There is no equivalent provision in European telecommunications law.
[446] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/7837-review-of-how-we-use-persistent-misuse-powers/summary/persistent-misuse-policy-statement.pdf?v=335575
[447] https://www.ofcom.org.uk/siteassets/resources/documents/phones-telecoms-and-internet/information-for-industry/scams/tackling-scam-calls-and-texts-ofcoms-role-and-approach?v=327458
[448] https://docs.fcc.gov/public/attachments/FCC-23-21A1.pdf
[449] https://docs.fcc.gov/public/attachments/FCC-24-84A1.pdf

393. Industry participants have also taken various initiatives themselves. For example, financial institutions in the United Kingdom have compiled a list of 'do not originate' numbers which will receive calls from customers but will not be used to originate calls, allowing telecommunications to block any calls that appear to originate from these numbers. Similar arrangements exist for message headers on text messages[450]. Some operators in the United Kingdom now sell 'anti-scam' services to users on a subscription basis[451].

394. Other sectors, including the financial sector and digital platforms, often form part of a wider response to scams. For example, the Payment Systems Regulator in the United Kingdom introduced new rules in 2024 requiring banks to reimburse victims of so-called 'authorised push payment' scams in which victims are persuaded by scammers to authorise the transfer of funds[452]. As the financial industry incurs significant (and growing) reimbursement costs it has argued that digital platforms and telecommunications operators (and their regulators) should be required to do more[453]. I note that in New Zealand the Government launched an 'anti-scam alliance' in July 2025 with participation from the telecommunications industry, the banking sector and digital platforms[454]. In Australia, Parliament approved amendments to the Competition and Consumer Act 2010 to introduce a 'scams prevention framework' which regulates telecommunications operators, digital platforms, banking and insurance companies and requires each to, amongst other things, document and report actions taken to prevent and disrupt scams, comply with codes and allow users to report scams and resolve disputes[455]. The ACCC is the designated regulatory body to monitor and enforce these provisions.

395. The battle against scammers is a game of Whack-a-mole and as operators and regulators tackle scams on one platform so the criminals migrate to others, including digital platforms such as Facebook and Tik Tok. As noted above, regulatory powers in relation to such digital platforms are less well defined, are still under development in many countries and do not exist in New Zealand. The European Digital Services Act imposes various obligations upon online platforms, including requirements to undertake due diligence before allowing third parties to use the

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[450] p.9-10 at https://www.ofcom.org.uk/siteassets/resources/documents/phones-telecoms-and-internet/information-for-industry/scams/tackling-scam-calls-and-texts-ofcoms-role-and-approach?v=327458
[451] https://newsroom.ee.co.uk/ee-launches-scam-guard-to-protect-millions-from-nuisance-calls-dark-web-hackers-and-phishing-scams/
[452] https://www.psr.org.uk/publications/policy-statements/ps234-app-scams-reimbursement-policy-statement/
[453] https://www.ukfinance.org.uk/news-and-insight/press-release/uk-finance-calls-urgent-action-all-sectors-fraud-continues-threaten#:~:text=Home%C2%BB-,UK%20Finance%20calls%20for%20urgent%20action%20from%20all%20sectors%20as,into%20the%20hands%20of%20criminals.
[454] https://www.mbie.govt.nz/business-and-employment/consumer-protection/combatting-online-financial-scams
[455] https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;db=LEGISLATION;id=legislation%2Fbills%2Fr7275_aspassed%2F0001;query=Id%3A%22legislation%2Fbills%2Fr7275_aspassed%2F0000%22

platform, to remove illegal content and suspend those involved in it, and to inform law enforcement agencies of suspected criminal activities on the platform[456]. Some aspects of the Digital Services Act are enforced by the European Commission and others are enforced by national regulators, some of whom are the existing telecommunications regulators but others of whom are not[457]. In the United Kingdom, the Online Safety Act (which was preceded by the Online Fraud Charter[458]) is enforced by Ofcom and imposes similar obligations upon digital platforms[459].The Digital Services Act and the Online Safety Act have both recently been criticised by Amercian politicians on 'free speech' grounds[460].

396. I am not aware of the Commerce Commission having taken any formal action against scam activity although, in common with other regulators, it has issued various warnings and advice to users in the past[461]. Section 112 of the Act prohibits 'misuse of a telephone device' which I assume could be used to prosecute those originating nuisance or scam calls. I also note that there are various other legislative provisions, such as the Unsolicited Electronic Messages Act 2007 and Harmful Digital Communications Act 2015, which may be relevant but which are beyond the scope of this report. I note the TCF produced an industry code on scams in 2022[462] and that the Minister of Commerce and Consumer Affairs wrote to operators in November 2024 asking them to update it[463].

397. Given Government concern about scams and reliance upon self-regulation to date, I would recommend that they be included within the scope of Part 7 of the Act to allow the Commission to introduce and enforce its own codes, as it does for retail services, if it considers that industry self-regulation is insufficient (as I suspect is likely to prove the case).

Network Resilience

398. Another regulatory topic in telecommunications which is attracting a great deal of attention in most countries, including I assume in New Zealand following recent earthquakes and weather-

[456] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2065
[457] For example, Ireland has established a new regulatory body, the Coimisún na Meán rather than assign responsibility to Comreg.
[458] https://www.gov.uk/government/publications/online-fraud-charter-2023/online-fraud-charter-2023-accessible
[459] https://www.legislation.gov.uk/ukpga/2023/50
[460] In addition to comments from the Trump Administration, the House Judiciary Committee has recently held hearings on these matters, https://judiciary.house.gov/committee-activity/hearings/europes-threat-american-speech-and-innovation
[461] https://comcom.govt.nz/news-and-media/news-and-events/archive/fraud-awareness-month-protect-your-phone
[462] https://www.tcf.org.nz/industry-hub/industry-codes/scam-calls-and-sms-prevention
[463] https://www.mbie.govt.nz/dmsdocument/29910-encouraging-action-against-online-financial-scams-an-open-letter-to-the-new-zealand-telecommunications-sector-pdf

related events, is network resilience. I note that the TCF has published a 'resilience plan' in 2023[464], established a Telecommunications Emergency Forum to co-ordinate industry responses to disruptive events[465] and that a group of operators commissioned a report on climate change scenarios in 2024, but without specific recommendations for action[466]. The Commission refers briefly to resilience in its Annual Monitoring Report[467].

399. As with consumer protection matters which I discussed in Chapter 4, firms in competitive markets will have incentives to ensure that their services are reliable and that end users do not suffer disruption. However, as with consumer protection, both in New Zealand and elsewhere, there are also good reasons to doubt whether industry self-regulation will be sufficient to meet the challenge. In the case of resilience, there are likely to be considerable costs which firms may find difficult to recover from end users (since most users will find it difficult to value resilience until confronted with a lack of service). This will mean that, absent some external intervention, the competitive market is likely to under-invest in resilience. In addition, many aspects of resilience relate to the features of the market as a whole rather than the position of any individual firm or network within that market and will require co-ordinated or collective action to address them.

400. In the United Kingdom amendments to the Communications Act in 2021 introduced obligations on operators to anticipate and take measures to mitigate 'security compromises' whether arising from cyberattacks or other events such as natural disasters[468]. Ofcom first published guidelines on network resilience in 2022 and more comprehensive guidance in 2024[469] which addresses matters such as risk assessments, network design and supply chain management. Regulators or Governments in Germany, France, Finland and Australia have taken similar initiatives in recent years[470].

[464] https://www.tcf.org.nz/news/2023-telecommunications-resilience-plan
[465] p.15 https://www.tcf.org.nz/wp-content/uploads/TCF_Annual_Report_2024.pdf
[466] https://www.spark.co.nz/content/dam/spark/documents/pdfs/governance/Final-telecommunications-sector-climate-scenarios-July-2024.pdf?srsltid=AfmBOorkx2DYJFTLwrW6CnlJzyzj1uz9ZIwltlt3oZvV7FlLeiWyHrfj
[467] p.71 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf
[468] Section 105A of the Communications Act 2003
[469] https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/272921-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/network-and-service-resilience-guidance-for-communication-providers.pdf?v=385029
[470] For a useful summary see https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/05/enhancing-the-resilience-of-communication-networks_a47d78a1/d6920477-en.pdf

401. There are many aspects to resilience, including cyber security, most of which are well beyond the scope of this report[471]. However, it is self-evident that improving resilience in telecommunications infrastructure will involve trade-offs with other objectives which the Commission is expected to pursue, such as the promotion of competition or network investment. A number of countries have, for example, required mobile operators to remove network equipment supplied by designated high risk vendors (generally Huawei and other Chinese vendors) at their own expense, which may have consequences for competition if some firms must incur these costs but others, who made different supplier choices, do not[472]. There are also questions about market structure and whether, for example, consideration of mobile network sharing arrangements by competition authorities should explicitly take redundancy and resilience considerations into account. Most competition authorities do not do so today and have not done so in the past.

402. A market structure in which there is a single fixed fibre network operator in each area, as the Government has created in New Zealand, may appear to reduce options for redundancy between suppliers, and I think this may be a consideration with respect to fibre backhaul services on which mobile operators rely[473], particularly in rural areas (e.g. under the RBI arrangements[474]). However, for individual fibre connections mobile services will be the default fall back option for all but a few large businesses and facilities for which telecommunications services are mission critical. In fixed telecommunications, the primary concern as regards resilience in Europe (and for the United States) is the diversity in the routing of submarine cables and the arrangements in place to protect them from attack[475].

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[471] Cybersecurity concerns are increasing both because of the commercialisation of criminal cyberactivity (enabled by the dark web) and increased activity by hostile state actors. Similar threats arise to all forms of critical national infrastructure (as well as many commercial and public entities) and are generally addressed by specialist agencies such as ENISA or the US Cybersecurity and Infrastructure Security Agency (CISA). I note the National Cyber Security Centre performs a similar function in New Zealand.

[472] An example I am familiar with is Australia, where Telstra had not deployed Huawei equipment in its 5G network but Optus had, see https://www.accc.gov.au/system/files/public-registers/documents/Optus%20%28Statement%20of%20Kelly%20Bayer%20Rosmarin%29%20-%2019.10.22%20-%20PR%20VERSION%20-%20MA1000021%20Telstra%20TPG.pdf

[473] This is briefly referenced by the Commission at p. 274 at https://comcom.govt.nz/__data/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf. I note that the Commission is currently consulting on the treatment of resilience capex which Chorus wishes to spend under the PQ regime, see p.28 at https://comcom.govt.nz/__data/assets/pdf_file/0027/367344/Fibre-IM-Review-2027-Issues-paper-Tranche-1-10-July-2025.pdf

[474] This illustrates how regulation for resilience can intersect with social regulation as there is a question of whether rural households should expect broadband services or networks that are less resilient than those of their urban counterparts and, if not, how the higher costs of securing an equivalent standard of resilience should be met. For example, the Australian Government has funded a programme specifically to improve the resilience of mobile networks in rural areas, see https://www.infrastructure.gov.au/media-communications-arts/phone/mobile-network-hardening-program

[475] https://digital-strategy.ec.europa.eu/en/node/13378/printable/pdf

403. There is more opportunity for improving resilience in mobile networks. Regulators in other countries have focussed on two issues to date[476]. The first is a requirement to support emergency roaming, under which users can be automatically switched between mobile networks under prescribed conditions to ensure they retain access to a defined set of services. This requires provision not only of the technology and processes required to automatically register large numbers of devices on the visited network but also a requirement that mobile operators reserve sufficient excess capacity in their networks to be able to support the needs of both their own users and those visiting. The FCC in the US is the most advanced regulator in implementing such arrangements, having adopted mandatory rules in 2022[477] which are based upon previous industry commitments[478]. Similar arrangements have been implemented in Canada[479]. I expect this debate also to emerge in Europe in the coming years and possibly in relation to the forthcoming Digital Networks Act. However, I also think that recent developments in D2D satellite communications could have significant implications for the way in which this question is approached in future, although I am not aware of any regulator having yet given this serious consideration.

404. The other key issue is the resilience of the power supply to cell sites and other facilities, which raises questions about whether regulators should require the installation and maintenance of back up batteries capable of providing power for a specified period of time.[480]. The costs of doing so can be substantial – Ofcom estimate it would cost £1 billion to provide 4 hours battery back up to allow users to access emergency services only[481]. It's latest study notes:
'Internationally we have not seen a common consensus emerge on how to ensure resilience on the RAN, with individual countries adopting different positions depending on their circumstances. For example, challenging weather conditions prompted Australia and Norway to implement mobile network power backup, with Australia taking a voluntary approach (12 hours for a limited number of sites) and Norway mandating it (2 hours, with 4 hours in rural areas), while

[476] This is a summary analysis of research I have undertaken on this topic at the Centre of Regulation in Europe or CERRE, see p.145- at https://cerre.eu/wp-content/uploads/2022/11/GGDE_FulIReport.pdf
[477] https://docs.fcc.gov/public/attachments/FCC-22-50A1.pdf
[478] https://www.ctia.org/the-wireless-industry/industry-commitments/wireless-network-resiliency-cooperative-framework#:~:text=To%20further%20these%20efforts%2C%20leading,and%20after%20emergencies%20and%20disasters.
[479] https://ised-isde.canada.ca/site/ised/en/memorandum-understanding-telecommunications-reliability
[480] Ofcom has published network resilience guidance at https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/272921-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/statement-on-network-and-service-resilience-guidance.pdf?v=379449.
[481] p.4 at https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/272921-resilience-guidance-and-mobile-ran-power-back-up/associated-documents/mobile-ran-power-resilience-technical-report-cfi-update.pdf?v=390945

Switzerland has considered plans to mandate up to 72 hours of backup with potential service restrictions'.[482]

Sustainability

405. Finally, it is important to note a growing political and regulatory interest in and concern about the sustainability and environment consequences of the telecommunications industry. Untaxed carbon emissions present a classic externality problem in any sector which market mechanisms are unlikely to be able to regulate, although there also a trend for end users to be concerned about the environmental impact of the services they consume and for firms to view this as an aspect of competition or their brand. Whatever the motivations, many large telecommunications operators have adopted their own environmental policies as part of social responsibility programmes and/or in order to comply with listing and financial reporting requirements. This includes operators in New Zealand such as Chorus[483].

406. Regulation for sustainability is at an early stage of development in Europe with regulators focussed on developing a reporting and monitoring framework that allows for comparability between firms[484]. European regulators have yet to engage with the factors that impact emissions such as reducing the frequency with which mobile devices are replaced by users. I note that in New Zealand the TCF has an initiative to recycle mobile devices and a climate change working group[485] but I am not aware of the Commission or Government having taken in any action on this issue. Resilience is the near-term concern, but I expect that regulators around the world will come under increasing pressure from politicians and the public to do more on sustainability in the years ahead.

[482] Ibid p.4
[483] https://company.chorus.co.nz/sustainability
[484] https://publications.jrc.ec.europa.eu/repository/bitstream/JRC136475/JRC136475_01.pdf
[485] https://www.tcf.org.nz/digital-living/sustainable-futures

Chapter 6: Summary of recommendations

407. In this chapter I list the recommendations in this report:

Recommendations from Chapter 2

408. I recommend the Government replace Part 2, Schedule 1, 2 and Schedule 3 of the Telecommunications Act to provide the Commission with a more streamlined and more flexible approach to access regulation in which:

i. Decisions about economic regulation are made by the Commission and not by Ministers on the recommendation of the Commission as they often are today.

ii. The existing periodic deregulation review process is retained, but with a single review (renamed a 'market' or 'competition' review) undertaken by the Commission to determine whether regulation should be withdrawn, amended or remain unchanged. These reviews should be undertaken at least every 5 years, or on a different basis as the Commission determines[486].

iii. The firms to be regulated under Part 2 are not identified in the Act itself but identified by the Commission as part of its review. These firms must be found by the Commission to have a 'substantial degree of market power' consistent with Section 36 of the Commerce Act in order for Part 2 regulation to be applied to them.

iv. The firms which the Commission identifies are obliged to supply services defined by the Commission under price and non-price terms which may also be defined by the Commission. The distinction between designated and specified services should be removed.

v. The distinctions between initial pricing principles and final pricing principles should also be removed, with the Commission itself left to determine the methodology is considers most suitable having regard to its statutory objectives (and any relevant Government Policy Statement). The expectation should be that the Commission will revisit regulated prices in every market review to ensure that they continue to align with costs, if appropriate.

[486] For example, I recommend that the review period for fibre regulation under the PQ regime (which could transition to be included in Part 2 in the longer term) be extended to 8-10 years.

vi. Obligations to provide number portability and similar services (potentially including customer data right provisions in future) are transferred to Part 7 of the Act to better reflect their social regulation and consumer protection purposes, but with provision to withdraw them if appropriate.

vii. Obligations not to discriminate and equivalence of input provisions in the Fibre Deeds should, in time, be incorporated into the Part 2 regime and directed enforced by the Commission, and the existing Deeds should be voided.

409. I recommend the Minister accept the Commission's recommendation to deregulate copper services in rural areas. However, before voiding the TSO deed and allowing Chorus to proceed with decommissioning the copper network in rural areas, the Government should decide upon its expectations for fixed broadband services in rural areas in the longer term, having regard to the risks of Starlink gaining a dominant position and its social regulation and social inclusion objectives. In doing so, the Government should consider:

i. Whether, and to what extent, it wishes to provide public funding to support the extension of fibre networks in rural areas.

ii. How it would allocate such public funding, and whether it would undertake a competitive procurement process as it did in 2011.

iii. Whether - alternatively or in addition to the provision of public funds - the Minister should allow Chorus to decommission copper networks in rural areas before 2030 only to the extent that Chorus is prepared to commit to deploying fibre networks in rural areas.

iv. Whether and to what extent the Government wishes to promote, including through the provision of public funds to the Rural Connectivity Group, the deployment of 5G cellular fixed wireless services in rural areas, either in areas where fibre is unlikely to ever be deployed and/or in areas where fibre will only be deployed long after copper networks are decommissioned.

v. Before deciding to support 5G (in addition to or instead of supporting fibre deployment in rural areas) the Government or Commission should undertake a study to determine:

1. Whether 5G (non-standalone) cellular fixed wireless broadband services can be expected to be an effective competitor to Starlink's LEO broadband network over the longer term.

2. The additional benefits of extensive 5G network deployment in rural areas for mobile users.

410. I recommend the Government ensures that Section 2A of the Act and the copper withdrawal code applies to the decommissioning of copper in rural areas.

411. I recommend the Government and Commission support and enable the deployment of LEO broadband and D2D satellite services in line with global developments.

412. I recommend the Government retains Part 6 of the Act in the short term but aims to transition it into the Part 2 regime I recommend in the longer term.

413. I recommend the Government simplifies Part 6 of the Act by:

a. Extending the period between reviews for setting the revenue allowance for fibre services from 3-5 years to 5-10 years, effective from the next PQ regime in 2028.

b. Either remove any periodic review requirement for quality standards (allowing the Commission to intervene on quality or withdrew quality regulation as and when appropriate) or set a shorter review period (e.g. 4 years).

c. Introducing a presumption that maintenance capex and opex starting values for the next period will be taken from the outturn values in the prior regulatory period and indexed forward in the same way that the RAB is. The Commission should be able to depart from this approach, either on its own initiative or following a reasoned request from an LFC.

414. I recommend the Government expands the scope of Part 6 of the Act to apply to the other LFCs in addition to Chorus (and to fibre deployed by Chorus outside of the existing UFB area) but:

a. Set the revenue allowance for the other LFCS by using Chorus' allowance on pro rata basis. Adjustments to particular cost items could be made by the Commission following receipt of a reasoned request from the LFC in question.

b. Remove prescriptive guidance from the IMs concerning WACC parameters and quality standards.

415. I recommend the Government and Commission address issues relating to the extension of fibre networks in rural areas on a commercial basis under the Part 6 regime, specifically:

a. The Government providing guidance on how the Commission will assess requests for network expansion capex to be included in the RAB, whilst the Commission should also consult on this issue[487].

b. A decision on whether and how the existing consistent geographic pricing rules might be altered to allow Chorus and other LFCs to charge higher prices for equivalent fibre services in different geographic areas and amendments to the Act to implement this decision.

c. Retain the existing anchor service arrangements but rename them 'social tariffs'[488].

416. I recommend the Commission address competition issues for fibre networks under either the existing Part 6 regime or (in the longer term) the recommended Part 2 regime:

a. The Commission should undertake a study of the barriers to the development of PONFAS and whether regulation should be retained. If it concludes it should, the Commission should undertake a market review under the new Part 2 regime which I recommend and determine prices and terms and the Commission should be able to determine prices and terms under the Part 6 regime in the meantime.

b. The Commission should consider changes to the technical specification of PONFAS, as discussed in the fibre report.

c. The Commission should produce new guidance on the application of the Economic Replicability Test, as discussed in the fibre report.

417. I recommend the Government amends Section 19A of the Act so that the Government can provide Government Policy Statements on the application of Part 2, Part 3 and Part 7 of the Act to which the Commission must have regard.

[487] I note the Commission is currently doing this in the Input Methodology review, see https://comcom.govt.nz/__data/assets/pdf_file/0027/367344/Fibre-IM-Review-2027-Issues-paper-Tranche-1-10-July-2025.pdf

[488] The future requirement for a fibre social tariff will likely depend upon the Government's approach to my recommendations on extending fibre to rural areas, as addressed above.

418. I recommend the Government consider whether the changes I recommend, many of which are intended to assign greater responsibility and discretion in decisionmaking to the Commission, provide a basis for requiring (some or all) of the envisaged Commission decisions to be subject to a full merits review at the High Court.

Recommendations from Chapter 3[489]

419. I recommend the Commission and Minister deregulate national roaming services, either at the next deregulation review under the existing Part 2 regime (due 2028) or as part of the revision of the Part 2 regime recommended above.

420. I recommend the Commission and Minister deregulate co-location services at the next deregulation review in 2026.

421. I recommend the Minister deregulates Mobile Terminating Access services following the review which the Commission will undertake shortly.

422. I recommend the Government address mobile coverage, including 5G mobile coverage, issues in the context of the 5G rural wireless study I recommend in Chapter 2.

423. I do not recommend any action in relation to the provision of access to mobile networks for MVNOs.

Recommendations from Chapter 4

424. I recommend that once the existing TSO obligations are withdrawn in rural areas the Government and Commission rely upon the existing fibre anchor service (renamed social tariff) regime to ensure affordable fibre services are available to rural households where fibre is available or envisaged. The Act should be amended to allow prices to be set below cost, if necessary, as discussed in the fibre report.

425. I recommend that if the population remaining outside of the fibre network is small (i.e. <5% population), the Government expand the Remote User Scheme (funded by an expanded TDL) to support affordable monthly broadband connections over fixed wireless or satellite for qualifying households.

[489] In this chapter I discuss but make no recommendations to change spectrum licensing or management arrangements or 3G decommissioning

426. I recommend that if the population remaining outside the fibre network is significant (>5% of total population), the Government consider an auction of 'TSO rights' to provide a specified broadband service at a specified social tariff which the Government would define on the recommendation of the Commission.

427. I recommend that the auction should be conducted every 5 years by the Commission and should be technology agnostic (with the expectation that an existing cellular fixed wireless network operator is most likely to win). I recommend that Part 3 of the Act is revised to allow such an auction to be administered by the Commission.

428. I recommend the Government amend Part 7 of the Act to require the Commission to review any consumer protection measures taken under the Act (e.g. retail service codes, guidelines, KPIs) at least every 5 years to determine whether regulation should be withdrawn, amended or remain unchanged.

429. I recommend the Commission monitors international developments in consumer data rights.

Recommendations from Chapter 5[490]

430. I recommend the Commission monitors international developments in the regulation of messaging interoperability.

431. I recommend the Government introduce provisions in Part 7 of the Telecommunications Act to give the Commission the powers required to effectively address scams and/or other legislative measures to allow the Commission to require effective co-operation between and with firms outside of the telecommunications sector.

432. I recommend the Government and Commission consider regulation to require cellular network operators to implement measures to enable emergency roaming.

433. I recommend the Government and Commission consider regulation to require cellular network operators to provide a minimum level of battery back up at cell sites for resilience purposes.

[490] In this chapter I also discuss developments elsewhere in the world concerning international roaming services, peering disputes, contributions to network costs from global platform operators, and sustainability but make no specific recommendations on these.