

Mobile Market Development in New Zealand

Prepared for

2degrees

Authorship

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Executive Summary

1. This is a submission to the review of mobile telecommunications markets in New Zealand, currently being undertaken by the Commerce Commission. It was prepared at the request of 2degrees but represents the independent views of the author.
2. I do not attempt to answer the specific questions in the Issues Paper published by the Commission, but instead comment on a few particular issues. These mainly arise from concerns expressed in the Issues Paper about the wholesale markets in which MVNOs and any potential builder of a fourth network would seek access to existing networks.
3. The sustainable structure of the MNO sector is considered first: this concept can be summarised in the number of MNOs that could be supported by demand, given cost structures, if each were operating at minimum efficient scale. At present, we have two MNOs operating with scale and a third, nearly completed national network that needs more traffic to achieve scale.

Fourth Network Prospects

4. The likely commercial case for building a fourth MNO is considered with reference to empirical data from New Zealand and recent history in Australia. The Australian mobile sector appears to have revenues approximately eight times that of the New Zealand mobile sector. It once had four networks but the two smallest merged in 2009. Another network build was announced by TPG last year, but this now seems very doubtful for essentially the same reason: a merger with the smallest operator. Other countries such as Ireland, Austria and Germany have also experienced 4-to-3 mergers of MNOs. This experience casts doubt on the commercial prospects for a fourth network in New Zealand.
5. A high-level analysis of New Zealand data confirms that it would be challenging to build a fourth network here. My analysis suggests a break-even market share of 10% (by revenue), which would need to be achieved quickly and at modest cost, with both low levels of capital investment and low overheads to attract that market share. However, it is very unclear that low overheads and low capital are compatible with gaining high market share in a short period, with existing operators, including 2degrees spending significant sums on overheads (including subscriber acquisition costs) and capital. Of course, variations in capital costs (including spectrum and infrastructure costs and the risk adjusted cost of funds) would be expected to make a significant difference to the business case.

Wholesale Markets

6. By contrast, there appears to be a reasonably strong outlook for MVNO-based competition, due to recent changes in the structure of the wholesale market. My analysis suggests that the recent near-completion of network construction by 2degrees, combined with its materially lower market share than Spark and Vodafone, is likely to re-invigorate the wholesale market, due to a combination of ability and incentive effects.
 - 2degrees has always had strong incentives to sell wholesale access, arising from the cost-reducing effects of greater traffic; but

- Its ability to pursue those incentives has recently improved by the completion of its network roll-out and the corresponding drop in usage of roaming services to provide coverage.
7. Consistent with the Commission's merger guidelines, 2degrees is something of a maverick, disrupting the wholesale market and reducing the risk of coordinated effects. Compared to the situation 10 years ago when 2degrees was first seeking wholesale access, this market is materially more competitive. There is a corresponding weakening of the case for an increase in the intensity of regulation such as by seeking to designate certain forms of wholesale access.

Spectrum

8. An important reason for considering the sustainable structure of the MNO sector is that doing so has implications for spectrum allocation. As the Issues Paper shows, 2degrees holds materially less spectrum than its larger rivals. If this situation persists as it achieves scale, 2degrees will still have higher unit costs even if it achieves comparable shares of market volume.
9. Encouraging a fourth network could lead to further fragmentation of spectrum holdings, which would increase costs for 2degrees as we move into the 5G investment cycle. Unless a fourth network is clearly viable, this would create a risk that not only would capital be wasted (i.e. the fourth network merges with the third), but the costs of the main existing challenger would be increased, leading to higher prices in the retail market.

Vertical Integration

10. Last but not least:
 - fibre backhaul is going to be critical to 5G success;
 - Chorus owns most of the fibre backhaul and is probably a monopolist in many places; and
 - Vertical integration of a monopoly into competitive markets creates severe competition and regulatory problems.
11. It follows that regulators and policy makers should be very wary of the risks that might arise if Chorus were to seek to provide 5G services at a wholesale level in competition with MNOs.

1 Introduction

12. The Issues Paper starts by setting out the purpose of the mobile markets study, the role of the issues paper, potential outcomes and the legislative backing for the study. The purpose is consistent with the Terms of Reference published earlier by the Commission. In essence this is an information-gathering study of the demand and supply sides of the mobile market(s), conducted with a view to informing whether any regulatory settings might warrant further consideration and possible adjustment.
13. While this is useful context, we also need to recognise that any adjustments to regulatory settings need to respect the objectives in s18 of Telecommunications Act (2001). In particular, the purpose of regulation is to promote the long-term benefit of end-users of telecommunication services, which requires consideration of efficiencies and the incentives to invest in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services. In this analysis, I take s18 as part of the underlying objectives to be pursued, and more generally consider that new measures advocated should
 - Be of long-term benefit to consumers of telecommunications services in New Zealand;
 - Promote efficient competition; and
 - Ensure that any new regulation has a strong cost-benefit justification.
14. The first of these is drawn directly from the Telecommunications Act. The second objective (promote efficient competition) is drawn from the history of New Zealand's approach to telecommunications policy since 1990, the primary thrust of which has been to promote infrastructure-based competition. This included the unbundling of access to fixed-line copper infrastructure, the regulation of mobile termination rates, colocation and national roaming. By contrast, the UFB project and the structural separation of Telecom into Chorus (to accommodate that project) were squarely in line with more service-based competition over the new fibre single access network. Over time, with fibre unbundling the intention was still to shift towards infrastructure competition.
15. The role of access regulation has at least partly been to allow smaller firms to get started on the so-called "ladder of investment", including by building a customer base. As noted above, in the mobile sector, access regulation has been promoted through the specified national roaming and colocation services. Reflecting the desire for infrastructure-based competition, access to the specified national roaming service has been restricted to mobile networks that have already covered 10% of the population and have credible plans to extend this to 65% population coverage. In its recent consideration of national roaming, the Commission has concluded that "*retaining roaming as a specified service remains important for promoting competition*".¹ This view is consistent with the long-term policy stance that promotes mobile infrastructure competition.

¹ Commerce Commission, Review of National Roaming: Final decision on consideration of deregulation of national roaming, 4 September 2018, paragraph 21.

16. The specified nature of the national roaming service also offers a good example of the third principle suggested above. Potential suppliers of national roaming services face a delicate balance of incentives. Other things being equal, they would prefer that no further networks were constructed, but once a roll-out has commenced and reached the initial 10% coverage threshold, roaming providers need to analyse the following trade-off.
 - A relatively high roaming price offer will promote more rapid network construction by the new network, advancing the timing and coverage of infrastructure-based competition.
 - A relatively low roaming price offer will deter network construction as the new network finds it more economical to rent access rather than commit further new capital.
17. There are other factors in play of course, including the requirement that the new network plan for 65% coverage and the threat of price regulation by shifting roaming to a designated service. However, this basic trade-off remains relevant and has provided a sound economic reason for the Commission to exercise forbearance over the terms of access to national roaming services rather than move this to a designated service.
18. It should also be recognised that while there are strong economic reasons to promote infrastructure-based competition, there are also limits to the efficiency of that strategy. As discussed below, there are natural limits to the number of competing mobile networks that can be sustained in any market. Regulatory measures to promote and/or assist entry by new networks beyond those limits do not promote competition over the long-term. Rather, the effect would be to mis-direct scarce capital investment and set up a situation in which a future consolidation is inevitable.

1.1 Scope of this Report

19. Against the background of the objectives stated above, this report comments on several matters relevant to the future development and efficiency of the mobile sector in New Zealand. Since the underlying regulatory questions have the potential to affect the structure of the mobile industry, it seems appropriate to frame the report around the well-known structure, conduct, performance paradigm.²
20. This paradigm was originally conceived as a one-directional framework, in which industry structure determines or influences the conduct of firms and the observed performance of the firms and the industry are in turn influenced by that conduct. However, the potential for the opposite flow of effects is also noted: if the dynamic process of competition is working effectively, firms that perform well will tend to expand (and vice-versa),³ the process of which ends up affecting the observed industry structure. Both possibilities need to be kept in mind.

² Joe S. Bain, 1968, *Industrial Organisation*, John Wiley & Sons.

³ Jesús Huerta de Soto, 2009, *The Theory of Dynamic Efficiency*, Routledge, London.

21. This report is about the underlying economic issues raised by the Issues Paper. It does not attempt to answer all of the Commission's questions, but instead offers an economic perspective on many of the matters raised:

- Section 2 considers the current and possible future structure of the mobile industry.
- Section 3 analyses the way firm conduct would likely evolve under alternative structures.
- Section 4 derives from the above analysis some inference regarding how regulatory decisions may affect the future performance of the industry for end-users.

2 Industry Structure

22. For many years, New Zealand was served by a mobile sector duopoly and there were questions over whether our economy could *sustain* a third network. Almost ten years ago, 2degrees launched a third network, purchasing national roaming services from Vodafone to support its business plan⁴. As the Commission has recently noted, those initial roaming agreements were struck under the threat of direct regulation, but even so, they contained clauses that may be considered anti-competitive.⁵
23. I understand that 2degrees has now built 3G coverage for 98% of the population and that its 4G coverage is close behind at 92%. The capital required to construct three full scale networks has therefore now been committed, which is a permanent improvement in the industry structure. Even if one of the existing networks were to fail financially, the network assets would remain in place to under-pin infrastructure-based competition.
24. Against this background, there is a natural policy question over whether New Zealand might be able to do better. Could we sustain four mobile networks? This is an important policy question because it potentially affects decisions over such matters as:
 - Spectrum allocation;
 - Entry-facilitating regulatory measures, particularly in the regulation of wholesale access; and
 - Regulatory constraints, such as line of business restrictions.
25. To put the matter more directly: policy choices over new mobile entry should be derived from a proper economic analysis of the economic merits (i.e. both the costs as well as benefits) of a fourth network.

2.1 Sustainable Industry Structure

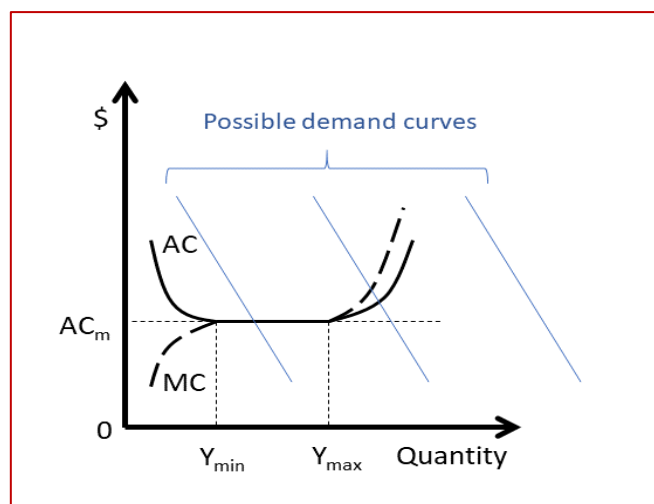
26. It is well understood by economists that the sustainable structure of an industry depends jointly on the cost of supply and the total level of demand. The relevant question can be framed as follows: how many firms, each operating at minimum efficient scale, can expect to have their costs covered given the existing level of demand.
27. Minimum efficient scale (MES) is important, especially in a capital-intensive industry such as mobile telecommunications. In this industry, firms invest capital and then try to sell utilisation of the resulting assets. The greater the usage, the more volume over which the large fixed costs can be spread, and the lower is the average (and marginal) cost of service. If volumes are restricted for any reason on one network, that network has higher unit costs and will have lessened ability to price aggressively.

⁴ Vodafone was a monopolist of GSM wholesale services at this time because Telecom was using CDMA technology.

⁵ Commerce Commission, Summary of findings of investigation of the national roaming agreement between Vodafone and 2Degrees, October 2017.

28. The situation is shown in a stylised way in Figure 1, which shows marginal and average cost curves for the mobile industry. These are drawn to leave a wide range of output levels that are consistent with MES, from Y_{\min} to Y_{\max} . Each network needs to at least achieve output of Y_{\min} if it is to compete on level terms with its rivals. The sustainable structure is then determined by the position of the demand curve. If the left-most demand curve applies, this is a natural monopoly: costs are minimised with only one network. However, if demand is greater there could be space for two, three or more networks, all operating at MES.

Figure 1: Sustainable Industry Structure



2.2 Inefficient Structures

29. The fundamentally sustainable structure of the MNO industry cannot be changed by regulation: it depends on cost structures and demand patterns, neither of which can be decided by regulation. The same applies to the MVNO sector: these firms have different cost structures to MNOs (much lower sunk/fixed costs) but there is also a limit to the number of MVNOs a market can sustain, as will be discussed further below.
30. There are two ways an MNO industry could be structurally inefficient. There may be too few firms, in which case competition will be weaker than it could be. Or there may be too many firms, in which case competition will likely be fierce but relatively short-lived: eventually one firm will exit (probably via a merger).
31. There is a strong economic argument for policy makers and regulators to avoid measures that induce excessive entry into the highly capital-intensive MNO sector. From the perspective of a hypothetical social/industry planner, the capital invested in such networks is wasteful if it has no realistic commercial prospect of being recovered over time. Even the prospect of such policies may tend to defer investment in existing MNOs.
32. The recent history of the meat processing industry in New Zealand offers a graphic illustration of how difficult it is to rationalise capital allocations once excess processing capacity has been created. Those difficulties were mainly caused by an unexpected slump in demand as farmers shifted to dairying, but some investors sunk capital into meat

processing plants even as the tide was turning against them. Arguably, the same incentives are now creating excess capacity in dairy processing.

33. There are also mobile sector examples of investment in excess capacity. In the balance of this section I discuss the evidence from Australia and then outline the relevant policy issues.

2.2.1 Australian Evidence on Sustainable Mobile Network Investment

34. In Australia, there were four mobile network operators providing services between 2001/02 and 2009: Hutchinson, Vodafone, Optus and Telstra. However, this shrank to three following a merger in 2009 between Vodafone and Hutchinson into VHA. This indicates that the Australian market, which is five times the size of New Zealand in population terms, could not sustain four mobile networks at that time.
35. More recently, it was reported that a new fourth mobile network was being built by TPG, an existing fixed operator (and also an MVNO), at a cost of A\$1.9bn and due to launch services in main centres by “mid-2018”⁶.
36. This fourth network now seems unlikely to be built however, provided antitrust approval is given for the recently announced merger between VHA and TPG, which the parties say will “create a more effective challenger to Telstra and Optus”⁷ and provide “increased scale to support future growth and an enhanced ability to invest and innovate in a highly competitive telco market”⁸. While merger approval cannot be guaranteed, the previous approval of the Vodafone-Hutchinson merger suggests it is reasonably likely.
37. Overall, this Australian experience casts doubt on the idea that a fourth mobile network could be sustained in that country. With around one-fifth of the Australian population, the New Zealand mobile market has a much smaller customer base to support a fourth entrant. Mobile sector revenues were estimated at AU\$22bn for Australia in the 2015/16 year,⁹ which is around eight times the latest estimate of mobile sector revenue in New Zealand (see ¶54 below), even without adjusting for the higher value of the Australian dollar. These facts suggest that since Australia apparently cannot support a fourth network it would be surprising if New Zealand could.

Australia’s Market Structure and MVNO Sector

38. Network market shares (of subscribers) were reported as being quite balanced in early 2013, with Vodafone/Hutchinson having 23%, Optus 31% and Telstra leading the market on 46%.¹⁰ These figures appear to include MNO fighting brands and MVNOs using the

⁶ <https://www.zdnet.com/article/telstra-and-vodafone-were-ready-for-tpg/>

⁷ <https://www.zdnet.com/article/tpg-and-vodafone-australia-to-merge-into-au15b-telco-named-tpg/>

⁸ TPG Telecom & Vodafone Hutchison Australia, Merger of equals, 30 August 2018.

⁹ Bureau of Communications Research, 2016, The communications sector: recent trends and developments, p13.

¹⁰ Deloitte Access Economics, 2013, Mobile nation: The economic and social impacts of mobile technology, Report to AMTA, February 2013, page 16.

primary MNO network. Late last year, a more detailed breakdown split out the other brands as follows.¹¹

Table 1: Mobile Operator Market Shares, September 2017

Operator	% at Sept 2017
Telstra	37.9
Optus	24.2
Vodafone	15.7
Virgin (Optus)	4.0
Boost	0.7
Amaysim	5.2
Aldi	2.7
TPG	2.2
Other MVNOs	7.5

39. While the number of market participants by themselves do not indicate market competitiveness, the MVNO sector in Australia appears to be very active on the basis of the above figures.

2.2.2 Policy Issues

40. It is one thing for private investors to get caught up in an investment race that turns sour as a consequence of their collective efforts. It is quite another for government policy and/or regulatory action to promote or accommodate such conduct. There are two ways in which this potentially bears on the Issues Paper:

- Spectrum allocation; and
- Wholesale Roaming and MVNO access regulation.

41. In both of these cases, regulatory decisions have the potential to add costs to existing networks in order to create a more favourable environment for *de novo* investment in a fourth network. In considering these issues, two things to keep in mind are differences between any fourth network and the situation previously faced by the third network, namely:

- Only 4G/5G technology would be installed, whereas the third network initially built 2G and 3G networks and now 4G, and is facing the prospect of further investment in 5G; and
- The wholesale market in which roaming access is acquired is materially more competitive now than when the third network was being planned and built.

¹¹ <https://www.zdnet.com/article/vodafone-gains-market-share-at-expense-of-telstra-and-optus-kantar/>

42. A third area of potential policy focus, also considered below, concerns the wholesale arrangements for MVNOs.

Spectrum Allocation

43. There is a limited amount of spectrum available to the mobile industry. As the Issues Paper notes, high and low frequency spectrum bands have different uses. However, both are scarce resources. Up to a point, network operators can economically substitute sunk physical capital (in the form of extra cell sites and associated radio equipment) for spectrum. However, from a national perspective it is clearly important that the available spectrum be allocated efficiently.
44. Consequently, there are important policy issues about who should be able to purchase rights to use spectrum of different frequencies. These are not decisions made by the Commerce Commission, but its stance on the economic case for accommodating a fourth MNO entrant may influence spectrum policy decisions. If policy makers believe there is a strong case for accommodating a fourth entrant, they will seek to reserve and allocate spectrum for that purpose. Otherwise, the relevant spectrum bands will be made available to existing MNOs.
45. This is a reason for the Commission to seriously contemplate the sustainable industry structure of New Zealand's mobile network sector as discussed above. In doing so, the cost and investment impacts on existing MNOs should be considered. Future allocations of spectrum to a fourth network will tend to increase capital costs for existing networks, particularly 2degrees which as the Issues Paper notes (at ¶138) has an asymmetrically smaller allocation of spectrum than its larger rivals.

Roaming Regulation

46. Another way that policy could potentially stimulate a fourth MNO entrant is through regulation of the national roaming service, or some new variant of that service, such as a designated roaming service or a designated infrastructure sharing service.
47. In considering this issue, it is relevant that the existing arrangements for national roaming have been successful.
48. Now that 2degrees roll-out is substantially complete, it is a third national potential provider of roaming services. Moreover, 2degrees appears to have stronger incentives to wholesale than the two more established networks, since it has lower usage and hence needs more volume to achieve MES. This can be inferred from figures 5 and 6 and table 4 in the Issues Paper. 2degrees is well behind Spark (incl Skinny) and Vodafone in total subscriber shares and the most reliant of the three on pre-paid subscribers, which is the lowest revenue segment.
49. For 2degrees, one very obvious way of achieving, or getting closer to, MES is by selling wholesale access. Wholesale access is a very attractive strategy for a challenger network that needs to generate network volumes. It would be much less attractive to established networks already at MES, because for those established firms wholesale volumes would be "nice to have" rather than "essential to achieve scale".

MVNO Access

50. If the business case for a fourth network is weak and or would need significant assistance from regulation in order to be viable, the policy focus would naturally shift to whether there was a lack of competition (prices, innovation, investment), and if so, towards promoting access-based competition by attracting MVNOs. Indeed, this is a reasonable line of enquiry even irrespective of the business case for a fourth MNO.
51. I discuss MVNO issues in more detail in section 3.1.1 below. However at this point it is worth noting that from an MNO's perspective, selling wholesale access has essentially the same motives whether that access is by roaming or MVNO: either way the MNO is supplying network services to another retail brand.
52. The incentives for doing so depend in part on the extent of existing network utilisation: a new network like 2degrees that is operating below MES will tend to have stronger incentives to sell wholesale access to an MVNO than its more established competitors.
53. 2degrees informs me that as its network build is largely completed (reducing reliance on roaming) it has been more actively working with potential MVNO partners and it is seeing increased competition in response. This sounds like an increase in competitive intensity in the wholesale market. 2degrees also says that the Warehouse Mobile brand that operates over the 2degrees network is the largest MVNO in New Zealand and indicative of its commitment to increasing its MVNO business.

2.3 Empirical Analysis

54. The regular monitoring reports published by the Commerce Commission show that total retail revenues for the mobile sector are now around \$2.75bn per annum, just slightly more than the fixed-line sector. It is not clear whether this figure includes GST but I will assume it does not and apply the same assumption to the investment data discussed below.
55. Using data from Spark's latest financial reporting, it seems that the gross margin in the mobile sector is around 64% of revenue, which on an industry-wide basis amounts to a total annual gross margin of \$1.76bn. This is the amount available to cover all overheads, depreciation, a return on capital, and any investment capital.
56. The data for investment in "mobile access" is somewhat lumpy due to occasional needs for spectrum purchases and/or technology upgrades, but on average over the last nine years this investment is around \$240m per annum. In addition, mobile networks can be expected to be responsible for a share of other investment components, such as "IT and other", core network and backhaul. To get a sense for the overall economics of mobile network operation, I allocate to the mobile sector a revenue-based share (i.e. 50%) of the investment in these two components, which amounts to around \$200m per annum for "IT and other" investment and \$60m for core network and backhaul. On this basis, the total annual capital investment by MNOs is running at around \$500m per annum.

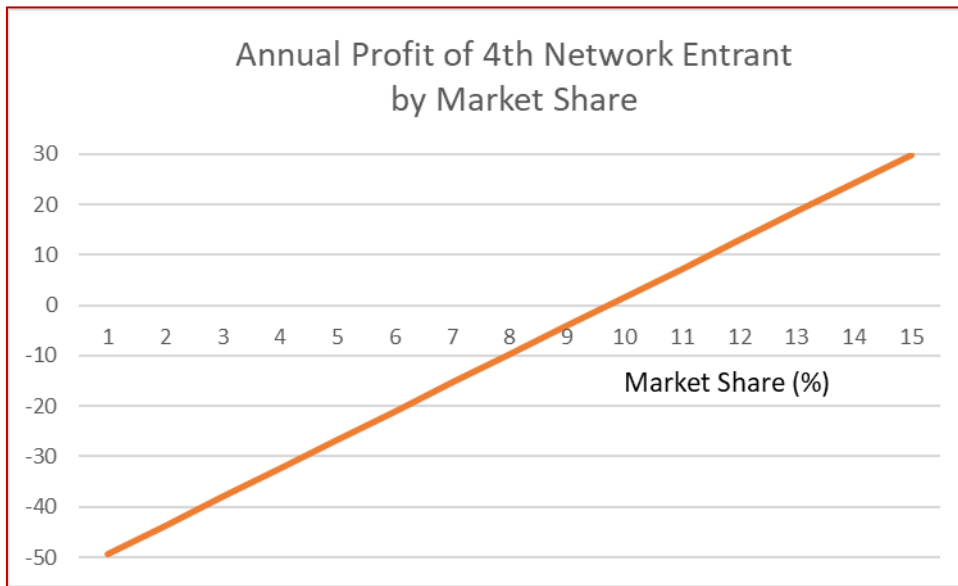
57. Tax must be paid on investment capital gathered from retained earnings, so from a cash perspective, \$694m needs to be set aside from annual revenues to make annual capital investments of \$500m. If we subtract this investment from the total gross margin calculated above, we get \$1.066bn per annum to cover overheads, depreciation and a return on capital.
58. In Spark's financials, broadly the same amounts are allocated to depreciation and new investment each year. This is consistent with a steady-state operation where new investment just matches depreciation recovered each year. Depreciation expenses are not taxed, so we can allocate just the \$500m per annum to this item, industry wide. Deducting this from \$1.066bn gives \$566m to cover overheads and a return on capital across the whole sector. To be conservative in the sense of favouring the business case for a new network I will ignore overhead costs. The cost of capital for Spark was estimated at 10% as at December 2016.¹²
59. In what follows, I use the above information to derive insight into whether a fourth network is likely to be sustainable in New Zealand. There is one missing element however, which is the capital cost of building a new network, as distinct from maintaining an existing network in a steady-state. For analysis, a figure of \$550m will be used for this capital cost which I believe to be a very conservative estimate of the actual outlays. It is much less than the A\$1.9bn that TPG is reported to be investing in Australia, but the land-mass to be covered is smaller in New Zealand, albeit more difficult from a terrain perspective.

2.3.1 Financial Prospects for a Fourth Network

60. The question to be addressed here is from the perspective of a potential investor in a new mobile network. The basic calculation involves asking whether an investment of \$550m in a new fourth network is likely to be profitable. Obviously, the answer to this question depends on the market share achieved by a fourth entrant.
61. The calculations underlying Figure 2 below assume that the fourth network will need to spend \$550m in capital, the cost of which is \$55m per annum. It will then receive a share of the \$566m available to service capital (and overheads which have been ignored) across the mobile industry. No account has been taken of the capital cost of start-up losses: these would tend to push the line downwards.

¹² PWC, Deals Insights, New Zealand, Winter 2017, page 28.

Figure 2: Summary of Business Case for 4th Network



62. This implies a fourth entrant would require 10% market share quickly, with very low overheads, and little ongoing capital investment in order for it to have a business case. Even on my cursory analysis above, the entrant would need to have low overheads, a modest capital investment programme and aggressive marketing to gain at least 10% market share quite quickly. But there are also some other obvious hurdles and caveats.

- Variations in the capital cost. It is unclear whether the figure used above (\$550m) would be sufficient to pay for spectrum and a 4G/5G network rollout, including time-to-build considerations and the associated central office overheads.
- The risk premium that would be attached to a large capital outlay in this context, which could well push the cost of funds above the level enjoyed by Spark, which are assumed in the above analysis.
- Existing competitors can be expected to continue to invest in marketing, new value in products and new capital investment programmes as part of the competitive market.

3 Conduct of Suppliers

63. As discussed in the previous section, the structure of the NZ mobile industry is still evolving. The third network is now substantially completed, giving its owner the ability to avoid most roaming charges and consequently greater pricing freedom.
64. This change is likely to affect competitive conduct in the wholesale market for roaming access, an issue discussed in more detail below. Other conduct-related issues considered in this section are:
 - The role of bundling; and
 - Challenges in the on-account business segment.

3.1 Competitive Tension in the Wholesale Market

65. In the market for access to wholesale MNO services, competitive conditions have changed materially now that 2degrees is essentially a full coverage network but sub-scale.
66. Because of its lower volumes, 2degrees is more like a maverick operator in the sense of tending to be disruptive. It seeks to achieve peer status with Vodafone and Spark but will not achieve that status unless it can load up its network with enough volume to achieve MES, thereby reducing its marginal and average costs. This is why selling wholesale access is more attractive to 2degrees than it is to Vodafone or Spark.
67. In this context, competition for the supply of national roaming services seems likely to be unambiguously more effective than it was ten years ago, five or even two years ago. This is partly because of the change in 2degrees incentives resulting from the completion of its network. However, it is also related to the potential ability of suppliers to sustain profitable industry outcomes without explicit collusion. When there are two main suppliers, each only has one main rival to monitor, which makes it easier to achieve more profitable outcomes.
68. As an example of this potential effect, the general insurance markets in New Zealand are highly concentrated, with just two large insurers (each operating through several brands). Comparator markets, such as Australia and the UK are much less concentrated. Price comparison websites for insurance are commonplace in comparator jurisdictions but are absent from New Zealand because the two main suppliers declined to provide the necessary information. This is an example of market structure giving rise to certain conduct (declining to supply information to price comparison websites) resulting in weaker price competition.¹³
69. In the case of the market for national roaming services, the above conceptual considerations need to be set alongside the recent near-completion of the third network and the fact that network is sub-scale. Taken together, these factors suggest that the

¹³ Further discussion on this point is available in the following document
https://comcom.govt.nz/__data/assets/pdf_file/0033/76992/Cover-Report-on-behalf-of-AIG-14-June-2017.PDF

market for roaming services may already be materially more competitive than it was at the time 2degrees was seeking roaming access.

3.1.1 Prospects for more MVNO activity

70. While 2degrees has informed me that it is actively seeking to recruit MVNOs and believes there are good prospects for doing so, I consider it important to be realistic about expected MVNO activity and the resulting consumer value.
71. The Australian experience (see Table 1 above) indicates that with three competing MNOs, it is possible for a tier of reasonably significant MVNOs to emerge. The resulting extra competition can be presumed to be of benefit to end-users provided it supports ongoing industry investment costs.
72. Niche marketing is the key to MVNO success however, as the presence of general retailers in this market shows (Aldi in Australia, Warehouse in New Zealand). These firms are expanding into adjacent markets where they have a key existing customer relationship. The MVNO concept works for such organisations because most of the technical aspects of service delivery can be handled by the MNO, leaving them to concentrate on sales and marketing.
73. However, the merits of any niche that exists in Australia for MVNOs need to be assessed for New Zealand, given it is also likely to be a materially smaller pool of demand, simply because of population size and density differences. There are substantial fixed costs to establish an MVNO, the exact costs depending on the form of the MVNO. If these costs are similar in Australia, which seems likely, then we should expect that some potential MVNO strategies would be commercially viable in Australia but not in New Zealand. For this reason, I consider it would be unrealistic for the Commission to expect similar levels of MVNO activity to Australia, especially given existing competitive conditions.
74. That said, there does seem to be potential for a clear increase in MVNO activity in New Zealand now that the structure of the wholesale market has improved.

3.2 Product Bundling

75. There are references in the Issues Paper to potential competition concerns arising from product bundling. I agree with the Commission's characterisation (at ¶187) of the situations in which bundling might raise a genuine competition problem: a threshold question is whether all competing firms have access to any "must have" components of the bundle.
76. The definition of a "must have" service is likely to change over time and by customer segment and with the commercial conduct of companies. A fact-intensive investigation would be required to define such a service. However, for it to materially affect competition, such a service must be common to all, or almost all, relevant bundles observed for sale.
77. In what follows, I focus on bundling between mobile and fixed services (including broadband). In the Issues Paper, the potential competition concern is that some firms bundle fixed-line services with other services, but not with mobile services.

78. The relevant question here is whether any relevant service bundles must, for commercial reasons include mobile services.
79. The following facts are noted in the Issues Paper (at ¶90 – 91):
- The three MNOs already offer bundle discounts for customers who purchase fixed and qualifying mobile services, but
 - Less than 20% of their sales of fixed broadband services qualify for a bundle discount.
80. In addition, I understand that Vocus, which has no mobile has greater fixed market share than 2degrees.
81. These facts clearly show that fixed broadband is not a “must have” service in a mobile service bundle, but the Commission’s concern is the reverse question: whether mobile is a “must have” service in a fixed-line broadband bundle. That question can be informed by figure 9 in the Commission’s most recent Telecommunications Monitoring report, which shows that the three MNOs collectively have 75% of the fixed broadband market.¹⁴
82. With this extra information, we can be confident that mobile is not a “must have” service in a fixed-line broadband bundle. This is because most (75%) of the fixed-line broadband services are supplied by MNOs, who are obviously well placed to bundle mobile services, yet only 20% of that demand receives a bundle discount from including mobile service.
83. As a final point, the discussion of MVNOs (at ¶72 above) indicated that niche marketing is of critical importance to these business plans and cited two “bricks and mortar” retailers that operate MVNOs, one each in New Zealand and Australia. It is not difficult to imagine that such firms might offer bundle discounts on mobile services for customers that are loyal to the core retail offering. There are other opportunities for this kind of bundling: between telecommunications services and non-telecommunications services. All of these activities expand consumer choice and broaden the scope of competition.

3.3 On-Account Business Segment

84. It is obviously important for business customers to benefit from effective mobile competition. Equally, it is rational for 2degrees to be working towards increase its share of this market, partly just for volume reasons but also because of the economic value of this segment. In the Issues Paper the Commission asks whether 2degrees has been able to increase competitive tension in this market segment.
85. A finding from the Commission’s 2015 study was that business customers were wary of patronising a new network until it had been in business for ten years. This hurdle will be passed by 2degrees within 12 months. However, it would be unwise to expect a significant step-change in market shares as an immediate consequence.

¹⁴ Commerce Commission, Annual Telecommunications Monitoring Report: Key Facts, 20 December 2017, p16.

86. Business users have relatively demanding service requirements including IT integration and PABX-based call forwarding. These require investment by the MNO and the customer, so they are often relationship-specific investments and accordingly will tend to constrain switching, even at the end of contract periods. Identifying the time at which users become competitive (i.e. in the lead-up to contract renewal) is itself a challenge for a new entrant but is only the starting point in a sales process.
87. I am informed that 2degrees is investing in capability and product development for the business segment. However, it seems likely that success in this market segment will require ongoing efforts over a moderately long period of time.

4 Market Performance

88. While competition in the mobile sector has developed well in recent years and consumer outcomes are generally good, it is natural to desire ongoing improvements, including considering whether any tailored intervention is warranted.
89. Rather than review the recent performance of the mobile sector, which is already known to the Commission, in this section I consider the benefits and costs of two potential interventions that might be contemplated for the purpose of improving sector performance. These concern wholesale access regulation and vertical integration.

4.1 Access Regulation

90. There are suggestions in the Issues Paper that further regulation of access to mobile network infrastructure might be warranted to support a fourth mobile network. Obviously, any such initiatives would be subject to further development and consultation, but at this stage the case for further measures seems weak.
91. The reasons are derivable from section 3.1 above which discussed competitive tension in the wholesale markets for access to mobile networks. The competitive and outcome benefits observed in the mobile sector over the last decade have resulted from essentially the same set of regulatory measures, including the specified service status of national roaming and mobile co-location. These measures have been sufficient to bring forth enough capital investment to install a full scale third network.
92. Having done so, the wholesale market for access to mobile infrastructure is now (but only recently) materially more competitive, for the reasons discussed in section 3.1. The question of whether to now impose more stringent access regulation, especially designated access, therefore seems premature.
93. The market structure has changed and wholesale market conduct is changing in response. The prospects for co-ordinated effects to deny or degrade wholesale access have greatly diminished, including because 2degrees is so different in scale to its larger and more-established rivals.
94. In this context, forbearance seems like a prudent regulatory strategy. If the new wholesale MNO market structure is allowed some time and space to operate, many of the concerns raised in the Issues Paper may be resolved commercially. If not, the option to take further measures remains in place.
95. By contrast, a move to designate wholesale access services now would remove the option to pursue commercial agreements. At the same time, it would penalise the third network the existence of which is the reason commercial wholesale agreements have become more likely.
96. This analysis suggests that, unless strong reasons emerge to the contrary, forbearance (combined with ongoing monitoring) is an appropriate regulatory strategy.

4.2 Vertical Integration

97. The structural separation of Telecom was one of the most fundamental changes in the telecommunications industry over the last two decades. It was based on sound economics and has proven successful in promoting competition in the presence of a single fixed access network. There are nevertheless commercial pressures for re-integration, for example in challenges to the line-of business restrictions imposed on UFB networks.
98. The development of 5G networks is another area where pressure for re-integration may intensify and the Commission should be alive to this risk.
99. There is expected to be an increased demand for wholesale access to fibre-based backhaul services as 5G networks develop. I note that the Commission is currently reviewing the state of competition in backhaul markets and that it considers that competition is closer in some locations than others.
100. A potential concern is that Chorus, as the largest owner of fibre in New Zealand, but with monopoly local backhaul assets, might seek to develop its own 5G network. If that were to occur, equivalent-of-inputs regulation of fibre backhaul access would be required to protect mobile sector competition. If this is a real prospect, there will be a policy question over whether a structural solution (such as excluding Chorus from retailing 5G) would be preferable to ongoing intensive EOI regulation.