A REVIEW OF CELLULAR MOBILE MARKET ENTRY ISSUES

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Introduction

(i) Cellular mobile services were launched in New Zealand by Telecom in 1987. BellSouth began offering a competitive service in 1993. Vodafone acquired the BellSouth network in 1998. Customer acceptance has grown rapidly and today the number of active mobile subscribers is close to 3.8 million. This level of penetration is consistent with leading European and US markets.

(ii) The range and quality of mobile voice and data services available in New Zealand compare favourably with other OECD countries. Both Telecom and Vodafone provide 3G services in major population centres and have announced plans for further network upgrades to increase data rates in areas of 3G coverage. These plans seem to be consistent with the major trends observed in mobile markets in other OECD countries.

(iii) New Zealand is unusual amongst OECD countries in having only two competing mobile networks. Most countries have at least three networks, with some having four or more. Telecom and Vodafone have also taken different technology paths, with Telecom using CDMA and Vodafone using GSM. The implications of these technology choices have relevance to the conditions for further entry, primarily in relation to the incentives facing those operators to provide domestic roaming services required to support new network build.

(iv) Telecom and Vodafone compete for market and revenue share. Network capabilities, handsets, and service bundles are all used as points of differentiation. Levels of customer churn appear to be at least as high as in other countries and may spike following the introduction of cellular number portability in early 2007.

(v) Notwithstanding these indicators of competition between Telecom and Vodafone (and to a markedly lesser extent, TelstraClear as a reseller of Vodafone retail plans), there are features of the mobile market that suggest that competition in this market is limited. While there is some dispute as to comparative pricing data, retail prices for mobile voice calls remain significantly above the midpoint of other OECD countries across all user types.

(vi) In a competitive market, a scenario of low usage and high prices, along with high fixed and low variable costs, would be self-correcting. Competitors would reduce prices towards marginal cost to drive utilization of their networks and thereby spread fixed costs over the higher volume of traffic.

(vii) The fact that this has not occurred suggests that there is room for enhancing competition through new entry. Yet new entry has not occurred to any material extent. This review has examined the reasons for the absence of entry and the nature and extent of entry barriers. This has helped the Commission to decide

whether a further investigation of regulatory changes is warranted to promote competition. In the course of the review, the Commission has also identified other areas where governmental action could be warranted, and in such cases will provide its views to the relevant ministries.

Executive Summary

1. During its investigation into mobile termination rates, the Commission identified several features that suggested a lack of effective competition in the cellular mobile services market, including a highly concentrated market structure, significant barriers to entry, and high pricing in comparison with other OECD countries.

2. On 10 May 2006, the Commission announced that it would examine the reasons for lack of new entry into the cellular mobile services market as a prelude to deciding whether or not to commence an investigation into possible changes to the regulatory framework

3. The Commission held a series of meetings with parties who have a material interest in the mobile market and reviewed the state of competition in the market for mobile services.

4. The mobile services market is characterised by significant fixed costs and, in relation to voice calls, relatively high prices and low usage compared to most other OECD countries. In such a market, competition would be expected to lead to existing operators seeking to increase usage on their networks in order to benefit from economies of scale. In the prevailing market conditions we would ordinarily expect new entry.

5. The fact that entry has not occurred suggests that there may be barriers preventing or constraining entry into the market. The Commission therefore examined the nature and height of possible entry barriers to the mobile services market.

6. The need for new entrants to offer nationwide coverage to compete effectively in the mobile services market with incumbents who already provide national coverage is a barrier to entry. The current regulated roaming and co-location services have a role to play in overcoming this barrier, but may not be fully suitable for this purpose.

7. The Commission has therefore decided that there are reasonable grounds to use its powers to investigate:

   (i) amending the terms of the national roaming service;
   (ii) moving the national roaming service from a specified to a designated service; and
   (iii) moving the co-location service from a specified to a designated service.

8. The Commission will commence an investigation under Schedule 3 of the Act into whether or not to amend the terms of the current roaming service. The

investigation will consider amending or clarifying aspects of the service description dealing with matters such as, roll-out obligations, roaming on 3G networks and inter-network roaming. The investigation will also consider whether the service should be moved from a specified service dealing only with non-price terms to a designated service dealing with both price and non-price terms.

9. The Commission will also commence a Schedule 3 investigation into whether or not to amend the co-location service. The investigation will consider whether the service should change to become a designated service, which will allow the Commission to set price terms. Should the Commission's current review of the co-location code submitted by the Telecommunications Carriers Forum reveal unresolved issues with non-price terms, the Commission may decide to expand the scope of its investigation to include those issues.

10. The Commission considers that there are reasonable grounds to commence an investigation under Schedule 3 of the Act into whether or not to regulate wholesale access to capacity on mobile networks, but has decided not to begin such an investigation at this time. Instead, the Commission will monitor the commercial developments that are taking place around wholesale access and will wait to see if there is entry at the network level. If facilities-based entry does not occur in the near term, the Commission will reassess whether to commence such an investigation.

11. The practice of mobile operators setting different prices for on-net (calls within the same network) and off-net (calls between different networks) may in certain circumstances be a barrier to entry by a competitor. However, so long as mobile-to-mobile termination rates do not diverge significantly from the prevailing fixed-to-mobile termination rate, the on-net/off-net pricing differential is not likely to be a significant competitive concern.

12. "Pocket" pricing (differential pricing to geographic or customer segments) by an incumbent operator in response to potential entry by a competitor may under certain circumstances be anti-competitive and therefore a deterrent to entry. If such a situation were to occur, it would be examined on a case-by-case basis by the Commission under the Commerce Act.

13. The unavailability of spectrum in the 850/900 MHz range for new entrants is a barrier to entry as it raises the cost of entry. The Commission will discuss the concerns raised by the industry with the MED and will invite the MED to give weight to the benefits of new entry in its review of cellular spectrum renewal.

14. The Commission will advise the Ministry for the Environment of the concerns raised in relation to the Resource Management Act and its impact on the roll-out of cellular networks.

Background

15. The Telecommunications Act 2001 ("the Act") regulates the supply of telecommunications services in New Zealand.[1]

16. In carrying out its functions under the Act, the Commission seeks to promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.

17. Schedule 1 of the Act provides for the regulation of certain mobile services, namely cellular number portability, national roaming and co-location on cellular mobile transmission sites.

18. During its investigation into mobile termination rates, the Commission identified several features that suggested a lack of effective competition in the mobile services market[2], including a highly concentrated market structure, significant barriers to entry, and high pricing in comparison with other OECD countries.[3]

19. Further concerns as to barriers to entry were raised during the Commission's investigation into the extension of the period of regulation of various designated and specified services. The Commission received several submissions seeking changes to the specified services of national roaming and cellsite co-location. Submissions argued that new entrants into the mobile services market face significant barriers to entry and that enhancements to the roaming and co-location services are required to lower those barriers and thereby promote competition in that market.

20. On 10 May 2006, the Commission announced that it would examine the reasons for lack of new entry into the mobile services market as a prelude to deciding whether or not to commence an investigation into possible changes to the regulatory framework.

21. The Commission held a series of meetings with parties who have a material interest in the mobile market. The purpose of these meetings was to gather information on the state of competition in the mobile services market and on barriers to entry by new competitors.

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[1] Section 5 of the Telecommunications Act 2001 defines telecommunication to mean (a) the conveyance by electromagnetic means from one device to another of any encrypted or non-encrypted sign, signal, impulse, writing, image, sound, instruction, information, or intelligence of any nature, whether for the information of any person using the device or not; but (b) does not include any conveyance that constitutes broadcasting.
[2] For the avoidance of doubt, the mobile services market and the cellular mobile market are used interchangeably throughout this report.
[3] Commerce Commission, Schedule 3 Investigation into Regulation of Mobile Termination, Final Report, 9 June 2005.

22. In order to assess the reasons for the lack of entry into the mobile services market, the Commission reviewed the state of competition in the market, both in terms of existing competition and the potential for new entry. This analysis updates the competition assessment undertaken as part of the Commission's investigation into mobile termination rates.

23. The Commission has received a substantial amount of commercially sensitive information concerning the business models of current and potential mobile operators. Though that information is not described in this report, it has served to deepen the Commission's understanding of the mobile market and the factors likely to affect the entry case.

24. The discussion below on the mobile market is at a high level and draws on prior work done by the Commission. It should not be understood to be a definitive treatment of the full range of competition issues, but rather to present an overview of the state of competition and the barriers to entry. It does not aim to comprehensively describe the entrant business case, nor the possible retail responses of existing operators to such entry.

The Retail Mobile Services Market

25. The mobile market has expanded rapidly over the last decade. It is estimated that the number of mobile subscribers in June 1997 was 509,000, or 13.5% of the population.[4] At the end of June 2006, there were just over 3.8 million mobile subscribers in New Zealand, representing a penetration rate of 91.8%. The total number of mobile subscribers grew by 7.7% in the year to June 2006, compared with annual growth of just over 16% for each of 2003/04 and 2004/05, and annual growth of around 6% in each of 2001/02 and 2002/03. Prior to 2001/02, mobile subscription growth had been considerably higher (with annual increases of up to 70%) as the mobile networks signed up new subscribers from a low base.

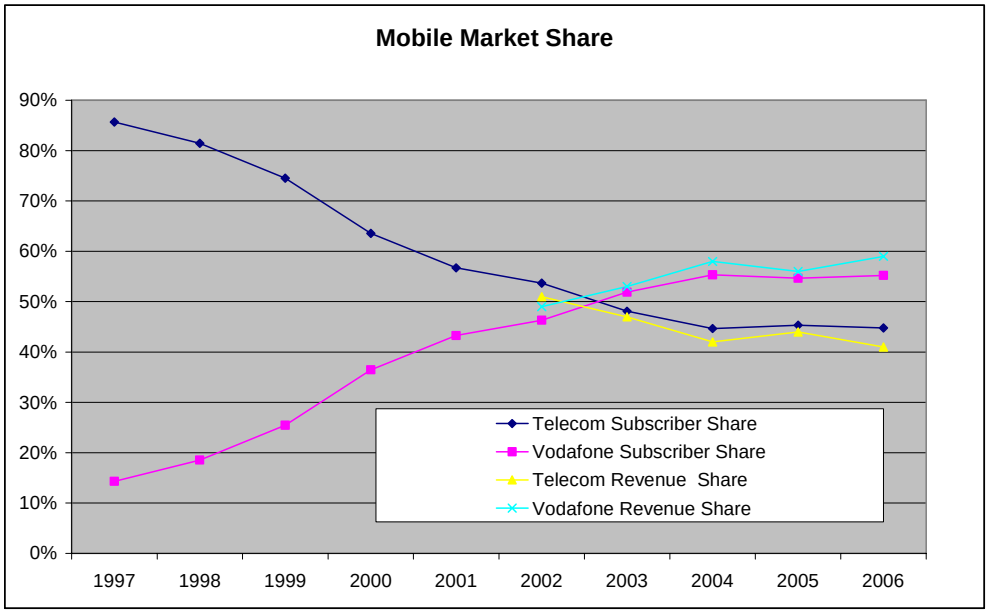
26. There have been significant changes in the subscriber market shares of the two mobile network operators over the same period, as indicated in Figure 1. Vodafone's share of mobile subscribers increased significantly from around 20%[5] in 1998 to exceed 50% by 2003,[6] and is currently around 55%.

27. There have also been changes in the mobile revenue shares of the two networks, with Vodafone's revenue share increasing in the period 2002-2006 from 50% to

[4] Commerce Commission, Schedule 3 Investigation into Regulation of Mobile Termination, Final Report, 9 June 2005, paragraph 167.
[5] Bell South launched its mobile network in New Zealand in 1993. It had achieved a market share of 20% when it sold its network to Vodafone in 1998.
[6] The retail mobile customer base of TelstraClear is not included in the following discussion of market shares.

around 60% whereas Telecom has seen a decline in revenue share from 50% in 2002 to around 40% in 2006.

28. In a Ministry of Economic Development report in December 2005, New Zealand's relative cellular pricing performance was ranked in the bottom half of the OECD for pricing. For cellular usage greater than about 30 call minutes per week, New Zealand's relative performance ranking was amongst the poorest in the OECD.[7]



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Telecom Subscribers	436150	509375	677000	980000	1298000	1308000	1250000	1352000	1601000	1703000
Vodafone Subscribers	72856	115811	231400	562000	990000	1128000	1349000	1675000	1929000	2100000
Telecom Revenue Share						51%	47%	42%	44%	41%
Vodafone Revenue Share						49%	53%	58%	56%	59%

Source: Commission estimates based on publicly available data

Figure 1: Mobile Market Shares

29. More recent OECD data indicates that New Zealand continues to perform unevenly in terms of mobile prices. Based on that data, the Commission estimates that New Zealand mobile prices remain in the bottom half of OECD countries. New Zealand's performance over time has varied, depending on the level of usage, although the margin by which New Zealand mobile prices exceed the OECD average has narrowed in recent years (Table 1).

[7] Ministry of Economic Development, *Benchmarking the Comparative Performance of New Zealand's Telecommunications Regime*, 20 December 2005

	2006		2004		2002	
	Rank	Margin	Rank	Margin	Rank	Margin
Low	20	118	28	146	25	126
Medium	24	126	29	162	28	161
High	21	110	29	178	28	157

Rank out of 30; "Margin" is New Zealand mobile price as a % of OECD average. Figures for 2002 and 2004 are taken from Mobile Termination Report (June 2005) (Table 1).

Table 1: OECD mobile pricing (2002-2006)

30. The OECD benchmarking selects the best available plan in each country. The Commission notes, however, that the most recent OECD ranking for low users is based on Vodafone's new 'Base 20' plan which has a number of restrictive conditions, including a three year contract term. It is also unclear how many customers have subscribed to this contract plan. The vast majority of low users in New Zealand are expected to continue to use pre-pay plans, and pre-pay calling prices in New Zealand are around 150 percent of the OECD low user average.

31. A view presented to the Commission was that mobile usage tends to be influenced by levels of per capita GDP and consequently disposable income, amongst other things, and that New Zealand's relatively low level of GDP may explain the relatively low levels of mobile voice usage.[8] While not dismissing this possibility, the Commission does note it is not consistent with usage patterns in some European countries.

32. It was also argued that there are other features of the New Zealand mobile market that contribute to low usage. Comparatively speaking, pre-pay customers are a high proportion of the subscriber base, and are, on average, lower users than post-pay customers. Text usage is also said to be much higher in New Zealand than in most other OECD countries and represents a low cost substitute for voice calls. The Commission agrees that both these factors may be correlated with low voice usage. The Commission considers however that the relationship between retail prices for mobile voice calls and the propensity to make such calls is more likely to explain New Zealand's low level of mobile voice usage.

33. During its mobile termination investigation, the Commission considered whether the costs of building and operating a mobile network in New Zealand might be higher than in other countries, and whether such a cost differential might explain New Zealand price levels. The Commission's Final Report[9] noted that little evidence was provided on relative costs, although submissions did refer to the likely drivers of mobile costs. Parties generally agreed that the key mobile network cost drivers include population density and distribution, population size,

[8] Call minutes on the Telecom and Vodafone mobile networks are growing modestly from a low base.
[9] Commerce Commission, Schedule 3 Investigation into Regulation of Mobile Termination, Final Report, 9 June 2005

and geography.[10] Vodafone submitted that the unit cost of mobile services was likely to be higher in New Zealand than in other OECD countries, and has repeated this view in recent discussions with the Commission. In particular, Vodafone considers that the level of network coverage relative to levels of demand is likely to be high in New Zealand.

34. However, Network Strategies (on behalf of TelstraClear) argued that costs in New Zealand were unlikely to be higher overall than in other comparable countries such as Norway, Denmark, and Ireland.

35. The Commission has previously[11] noted that it is unlikely that cost differences between New Zealand and other countries explain New Zealand's relatively high retail prices for mobile services. The Commission concluded that New Zealand's high prices were likely to be indicative of lower competitive pressures than in other OECD countries with lower price levels.

36. In a market with significant fixed costs, relatively high prices when compared to other OECD countries and low usage[12], competition would be expected to lead to existing operators seeking to increase usage on their networks, in order to be able to benefit from economies of scale. The prevailing market conditions could also be expected to lead to new entry into the market. It does not appear however that competition has been driving significantly increasing levels of usage of mobile services in New Zealand, neither has there been new entry.

37. The fact that entry has not occurred suggests that there may be barriers preventing or constraining entry into the market. If barriers were low, there would likely have been entry given the high price/low usage characteristics of the market described above.

Barriers to Entry

38. A barrier to entry in economic terms is a cost or disadvantage that a business has to face to enter a market that an established incumbent does not face. A barrier to entry reflects the extent to which an incumbent can, in the long run, raise prices above the competitive level without inducing potential competitors to enter and expand in the market. The assessment focuses on the time of entry, and the cost or disadvantage faced by the entrant compared with the incumbent at that time.

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[10] While population density is often discussed as a cost driver, the concentration of population is particularly important. For example, according to Telecom and Vodafone, their respective mobile networks cover around 97% of New Zealand by population (in terms of where the population resides or works), but considerably less by total area (reflecting the high proportion of the population in urban areas).

[11] Commerce Commission, Schedule 3 Investigation into Regulation of Mobile Termination, Final Report, 9 June 2005

[12] In the mobile termination investigation, the mobile operators submitted that New Zealand usage is significantly lower than the standard 'medium' and 'high' OECD mobile baskets.

39. Entry barriers can be classified into three main types: structural (or natural), strategic, and regulatory (or legal).[13]

40. Structural barriers arise from the nature of the technology, resources or inputs required to establish a business. This may include the sunk costs of building not easily duplicated infrastructure. It may also include the existence of any first mover advantages for the incumbent businesses which make it difficult for new entrants to the market to gain market share.

41. Strategic barriers may arise from the established positions of incumbent businesses, and their intentional acts such that they discourage prospective entrants. This may include advertising heavily to raise customer loyalty and brand reputation, and raising switching costs by, for example, offering long-term contracts with penalties for early termination.

42. Regulatory barriers arise from legislation. Potential regulatory barriers could be quality standards or environmental controls that new entrants are required to meet.

43. In order to provide retail mobile services, an entrant could enter at one of a number of different vertical levels, including resale of existing retail services, wholesale access (such as a mobile virtual network operator (MVNO) model)[14], or facilities-based entry (with possible roaming access onto existing networks).[15] The nature and height of entry barriers are likely to differ in respect of entry at different levels.

44. Parties consulted by the Commission have contended that there are a range of barriers to entry into the mobile services market at all of these levels. The following section discusses the key entry barriers identified by parties.

Structural barriers

Spectrum

45. For facilities-based entry, access to radio spectrum is essential for the operation of cellular mobile networks.

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[13] Commerce Commission, Mergers and Acquisitions Guidelines, pages 27-28.
[14] An operator selling mobile services without having the entire infrastructure required to run a mobile network is generally known as an MVNO.
[15] These levels of entry generally (but not always) rely on some form of access to an existing mobile network.

46. It is likely that any entrant today would employ third generation (3G) mobile technology, utilising 2 GHz spectrum.[16] This spectrum was the subject of an auction run by MED in 2000/01, in which a number of parties purchased blocks of 3G spectrum. The auction was for a total of 45 MHz, with no one party able to purchase more than 15 MHz. A further 15 MHz block was reserved for the pan-Maori Hautaki Trust, which was established to administer Maori telecommunications spectrum assets.[17]

47. Econet Wireless New Zealand (Econet)[18] and TelstraClear have rights to unused frequency in the 1800 MHz and 2 GHz band capable of providing mobile telephony services.

48. In order to provide cellular coverage in remote/rural areas, access to spectrum in the 850 MHz and the 900 MHz range is important to minimise site costs. Because of its propagation qualities spectrum in these bands require a lesser number of cell sites than higher frequencies to provide a given level of coverage. The entire spectrum in this range is held either by Telecom or Vodafone. Vodafone has said that it is willing to sell a block of 900 MHz spectrum to Econet. Econet considers however that the Vodafone offer does not meet its needs.

49. Some parties noted that as the technology underpinning mobile systems converges, the availability of spectrum in other frequency bands becomes crucial. Companies wishing to offer converged services utilising the WiMax technology platform need access to radio spectrum in various frequency bands depending on whether fixed or mobile WiMax is being provided.

50. The view was advanced that contiguous blocks of spectrum were required to offer converged services (especially triple and quad play services). These parties noted that the usual practice in New Zealand is to carve up spectrum and offer it to a myriad of users. It was suggested that this practice inhibits the deployment of efficient wireless/mobile systems.

51. It was argued that spectrum auctions, though appropriate to test the market, may result in larger players overbidding and having access to spectrum they have no immediate plans for. Niche operators, due to their size, may be unable to compete.

52. The Commission accepts that the availability of spectrum is essential for facilities-based entry into the mobile services market and lack of access to spectrum in the required frequency bands is a barrier to entry for a potential facilities-based operator.

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[16] 3G coverage may be supplemented with second-generation technology (typically spectrum in the 850-900 MHz range).

[17] Commerce Commission, Schedule 3 Investigation into Regulation of Mobile Termination, Final Report, June 2005

[18] Econet is owned by Econet Wireless Ltd and the Hautaki Trust.

53. While lack of spectrum in the 850/900MHz range may increase costs, its significance may diminish in the presence of effective regulation of co-location and roaming as it may reduce the extent of the entrant's network build.

Coverage

54. New entrants may be required to offer nationwide coverage to compete effectively in the mobile services market, as the incumbents already provide national coverage.

55. While a new entrant may choose to concentrate on regional markets with regional coverage alone, comprehensive coverage would be important for a new entrant as a significant proportion of its potential mobile customers would value it. Consumers are unlikely to value subscription to a mobile network which limits the regions in which they can make and receive calls, particularly when other competing networks can offer full national coverage at the same or similar prices. In New Zealand, Vodafone's GSM coverage extends to around 97% of the population, and Telecom provides similar coverage levels through its CDMA network.

56. There are strong indications that national coverage is important to a significant portion of the mobile market. In Australia, the ACCC has similarly found that:[19]

> ... national geographic coverage is an important competitive dimension of the market for retail mobile services. Domestic inter-carrier roaming provides a means by which the impact of barriers to national network deployment (spectrum, economies of scale, sunk costs) can be ameliorated, thereby improving competitive conditions.

57. The significance of national coverage is greater where an entrant is competing against established national mobile operators, as opposed to entry into a market with low penetration. Consumers are likely to prefer a mobile service which is available nationally to one which only offers regional coverage.

58. Building a nationwide network gives rise to substantial sunk costs. The significance of sunk costs is that exit from the market is not costless. Hence, a potential competitor contemplating entry may be deterred from entering, if it believes that market incumbents may aggressively respond to entry, particularly where there are economies of scale and/or scope which lower the unit costs of the incumbents. The combination of such economies and sunk costs may increase the risk of costly exit, which may in turn deter entry in the first place.

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[19] ACCC, *Mobile Services Review: Mobile Domestic Inter-Carrier Roaming Service*, December 2004, page 57.

59. A new entrant may avoid the high sunk costs associated with deploying a national mobile network by offering retail services based on a wholesale agreement with a network operator (i.e. by becoming an MVNO). The extent of MVNO entry as a competitive constraint on mobile network operators will be restricted, as such entry will be heavily reliant on the terms of wholesale access. The mobile network host will retain considerable influence over the cost base of MVNOs and other resellers, and will continue to retain market power at the network level.

60. Exposure to substantial sunk costs involved in building a national network may be a barrier to entry if there are no commercial strategies available to ameliorate the risks.

61. The costs involved in building a nationwide mobile network may be reduced if the new entrant can obtain the right for its customers to roam in areas where it does not yet have a network, or access to co-location of equipment in areas where it intends to build a network. Roaming, co-location and wholesale access are forms of access to existing mobile network infrastructure, which potentially surmount or at least reduce the extent to which national coverage represents a barrier to entry for a potential entrant.

Strategic barriers

62. Strategic barriers arise from the established positions of incumbent businesses and their acting intentionally in such a way as to discourage prospective entrants. The Commission has examined whether subscriber acquisition costs and incumbent pricing practices may be barriers to entry.

Switching Costs - subscriber acquisition costs

63. Cellular operators can incur substantial costs in acquiring new customers, including costs relating to advertising, the employment of sales staff, the payment of commission and the subsidised provision of handsets. These costs are generally referred to as subscriber acquisition costs (SAC). In a highly penetrated market, these will be the costs incurred by the operator to entice the customer to switch providers.

64. The level of mobile SAC is likely to differ according to the level of penetration. Where penetration is low, subscriber growth generally comes from attracting new customers who do not yet own a mobile phone. The associated costs are likely to relate to encouraging prospective mobile subscribers to use and become familiar with a new technology. However, in a highly penetrated market, SAC are likely to relate more to acquiring existing customers from a competing mobile network i.e. switching costs and customer retention.

65. The level of SAC may also be influenced by the mix of mobile subscribers between pre-pay and contract services. Pre-pay customers may be more contestable, in that they are not tied to an existing mobile operator for a contracted period, and hence would face no penalty for contract termination if they wanted to switch to a competitor. Evidence has been presented to the Commission which suggests that the level of churn is higher in those markets with a higher proportion of pre-pay customers. In New Zealand, approximately 68% of total mobile subscribers are pre-pay subscribers, who would be more readily accessible by a new entrant.

66. However, pre-pay subscribers are considerably lower value than contract customers. For example, the monthly average revenue per user (ARPU) of Telecom's pre-pay customers is $11.30, while for contract customers, Telecom's monthly ARPU is $68.20.[20] To the extent that an entrant gains predominantly pre-pay mobile subscribers, the competitive impact in terms of revenue share may be modest.[21]

67. At current levels of mobile penetration in New Zealand, a new entrant may need to offer handset subsidies to attract new customers whose existing phones are not supported by the new entrant's technology. The incumbents may be better able to sustain such subsidies because of purchasing power and may have better access to customers as a result of existing exclusive dealership arrangements.

68. Because the existing mobile operators use differing technologies, no matter which technology a new entrant chooses it will only be possible to address a portion of the market with ease.[22] For example, if a new entrant chooses GSM technology, there is the possibility of simply providing new SIM (Subscriber Information Module) cards to existing GSM users who wish to churn to the new entrant's network. This avoids the need for the customer to purchase a new handset. SIM card locking, though not currently practiced in New Zealand, could increase the SAC of an entrant if it were to be introduced.

Switching Costs – on-net/off-net differential pricing

69. The differential between retail prices for off-net (between different networks) and on-net (between same network) calls referred to as 'closed network pricing' could potentially increase the switching costs of a new entrant as the incumbents

[20] Telecom annual report, year to 30 June 2006.

[21] In assessing the competitive impact of new entry in Ireland, ComReg noted that Meteor had gained 8% of the pre-pay market, but only 1% of the more lucrative post-paid market, over three years. Consequently, although Meteor had reached a market share of 6% in terms of subscribers, its revenue share was only 3%. ComReg found it difficult to see how Meteor's subscriber-based market share could "translate into effective market pressure", given its low share of post-paid customers. ComReg, *Market Analysis – Wholesale Mobile Access and Call Origination*, 9 December 2004, Section 4 F.1.

[22] The remainder of the market may only become accessible as those customers look to replace their existing handsets.

currently offer these prices to build 'communities of interest'. Both incumbents have plans that charge pre-pay customers a substantially cheaper price for calling customers on the same network compared to the rate for calling customers on other networks. It was argued that this pricing behaviour would represent a significant challenge to a new entrant's ability to entice customers to switch from the incumbent networks.

70. The incumbents argue that closed network pricing is a competitive tool to differentiate their products in an otherwise competitive market. They pointed out that such practices are common and not outlawed in other jurisdictions.

71. New entrants into the mobile services market may be able to respond with their own pricing strategy to compete with the incumbents' closed network pricing strategy. For example, they could price at a single rate, below the average incumbent price of on-net and off-net calls. However, the viability of such a response is potentially constrained by differential traffic levels between the entrant and the incumbents and the underlying mobile-to-mobile termination rate.

72. Often traffic between networks will be roughly balanced (i.e. the outgoing calls roughly equals the incoming calls), so that the revenues and costs from mobile-to-mobile interconnection will also be roughly balanced irrespective of the absolute value of the mobile-to-mobile termination rate, as long as reciprocal rates are charged between networks. However, if a new entrant prices at a single rate to compete with incumbent closed network pricing, its customers will have more incentive to make off-net calls than the incumbent's customers. In these circumstances, there is likely to be a traffic imbalance in favour of the incumbent network.

73. Given that mobile-to-mobile termination is not a regulated service, incumbents might use their countervailing power to negotiate above-cost mobile-to-mobile interconnection rates with new entrants. This would maintain a high on-net/off-net price differential and increase switching costs. The ability of a new entrant to efficiently respond to the incumbent pricing strategy of charging less for an on-net call than an off-net call would be considerably limited by such an outcome.

74. Pricing differentiation between on-net and off-net calls is justifiable where such differentiation reflects underlying cost differentials for off-net and on-net calls. However closed network pricing may be a barrier to entry in the event of unbalanced traffic and unregulated above-cost mobile-to-mobile termination rates.

Differential pricing by region or customer group

75. Another concern raised was the ability of incumbents to offer differential pricing to certain customer groups – either geographical or by segment. This was referred

to as ‘pocket pricing’ and it was argued that such a practice would affect a new entrant’s ability to compete.

76. Entry or expansion into a market could be constrained by an incumbent’s differential customer pricing. However, a response by incumbents to new entry in the form of improved price or non-price terms is also consistent with an increasingly competitive market. Whether such responses are anti-competitive or predatory will depend on a number of factors, including the extent of the incumbent’s response, and in particular whether prices are set below the relevant measure of cost.

77. This assessment is usually undertaken *ex post*. For example, in 1998, Telecom began discounting its fixed line prices to its Lower Hutt customers, including the offer of a "loyalty rebate", purportedly in response to the entry of Saturn Communications Limited (Saturn) into the local telephony market in that region. The Commission was concerned that Telecom’s conduct in lowering its prices in only Lower Hutt may have been a use of a dominant position in contravention of section 36 of the Commerce Act, or constituted an arrangement that substantially lessened competition in breach of section 27 of that Act. The Commission concluded that it was unlikely that Telecom’s conduct had the purpose, or effect, or was likely to have the effect of substantially lessening competition for fixed telephony services and as such did not breach sections 27 or 36 of the Commerce Act.[23]

78. There are various other forms of incumbent pricing that may constrain potential new entrants. The incumbents may offer other telecommunications products to business customers in bundles allowing them to combine their usage of mobile and fixed services and to lower the overall cost of telecommunications. These offers are generally tailored for large corporate customers.

79. At this stage, the Commission has insufficient information about the customer segments, whether business or geographic, in the mobile services market to assess the probability and extent of potentially anti-competitive incumbent behaviour in the competition for these customer segments. It is in any event inappropriate to consider a ‘bright line’ standard such as a prohibition on targeted pricing by incumbents, as there may be welfare benefits from such lower pricing. The Commission considers that it has adequate powers under the Commerce Act to respond to any pricing practices by incumbents with market power that are intended to restrict entry or deter competitive conduct.

[23] Commerce Commission, Telecom/Saturn Report, Media Release No. 61issued 30 July 1998,

Regulatory barriers

80. Regulatory barriers arise from legislation or regulations that may add to the costs of starting a business. Some of the parties interviewed contend that there are regulatory barriers to entry into the mobile services market. These are discussed below.

Mobile Termination Rates

81. The Commission has recommended to the Minister of Communications that the termination of fixed network calls on a mobile network be regulated at a cost-based price.

82. The mobile termination rate received by a new entrant for the termination of fixed-to-mobile calls could be seen as a barrier to entry if this rate is close to cost and, therefore, does not allow the operator to earn a premium that can be used for purposes such as subscriber acquisition. Existing operators have, in the past, been able to use the premium earned for growing their subscriber base. To counter this effect, it has been argued that a new entrant should receive a higher termination rate for fixed-to-mobile calls terminated on its network than the corresponding charge received by the incumbents.

83. Some European regulators have allowed new entrant mobile operators to have higher termination rates (for both mobile-to-mobile and fixed-to-mobile calls) than established operators for an interim period. The justification given is that a new entrant will face higher per-minute costs while it has a relatively low volume of calls. Another reason advanced for allowing new entrants higher termination rates is to combat the effect of established networks setting higher retail prices for off-net calls.

84. The Commission considers that lowering fixed-to-mobile termination rates is likely to decrease fixed-to-mobile retail prices, which suggests that the converse is also likely to be true. Therefore, a proposal for two tier termination rates, leading similarly to differential fixed-to-mobile calling costs, would need to be supported by clear evidence that overall there would be longer term benefits from increased competition and lower prices for end-users of telecommunication services.

85. The Commission does not consider regulated fixed-to-mobile termination rates to be a barrier to entry into the mobile services market. In the event that mobile termination rates for fixed-to-mobile calls are regulated, it is conceivable that higher termination rates for a new entrant could be justified on the grounds that it is not appropriate to impose an efficient, full scale operator standard on a new entrant with fewer subscribers. Taking such a stand would allow a cost-based fixed-to-mobile termination rate for a new entrant to be higher than for established operators, at least for some interim period. Such a decision, however,

would have to be made in the context of fixed-to-mobile regulation rather than as an intervention to promote entry in the mobile services market.

86. The Commission's investigation into mobile termination rates did not include the termination of mobile-to-mobile calls. Given the opportunities for arbitrage and the history of operators setting the price of all mobile termination at the same or similar rates, the Commission expects that the price of terminating mobile-to-mobile calls will follow any regulated reduction of fixed-to-mobile termination rates. If such a fall does not occur then this could be a sign that the incumbents are using their market power to make new entry more difficult to sustain.

87. Accordingly, the Commission will monitor mobile-to-mobile termination rates to observe whether those rates decline in line with reductions in fixed-to-mobile termination rates.

Resource Management Act (RMA)

88. The purpose of the RMA is to promote the sustainable management of New Zealand's natural and physical resources. The RMA governs the use and development of land, air and water resources, concentrating on managing the environmental effects of human activities.

89. The construction of a new cell site will usually require applying for resource consent under the RMA. Visual, landscape, and amenity effects will be assessed against the relevant objectives and policies in the relevant district plan, and the assessment of environmental effects.

90. All parties noted that the RMA could affect the expeditious roll-out of mobile networks in New Zealand, and in particular it could prevent or delay the ability for access seekers to gain access to cell sites to co-locate their equipment. It has been argued that the RMA imposes significant time delays and expenses on a rollout as operators are required to seek consent for almost any installation of equipment on a cell site.

91. It was argued that although land use regulations should apply to network rollouts, this should be balanced with the national requirement for competition at the mobile network level. It was noted that in Australia there are limited immunities granted to telecommunications carriers when rolling out their network generally – e.g. carriers are exempted from State and Territory land management laws where they are installing "low impact facilities". It has been argued that New Zealand should, at a minimum, adopt concessions from compliance with the RMA where carriers are co-locating their networks.

92. The Commission accepts that the consent process under the RMA can cause significant time delays and costs in relation to network rollout and co-location.

However, this is a condition faced by both incumbents and new entrants, and is therefore not a barrier to entry.

Potential Network Builders

93. Though there are barriers to entry into the mobile services market, both TelstraClear and Econet have announced their intentions to launch mobile networks in the next year or so.

TelstraClear

94. TelstraClear intends to build a regional network in Tauranga over the next 12 months and provide voice, broadband and mobile services.[24] Its $50 million investment to provide the 'Unplugged' service will use 3G technology in the 2 GHz range, and will be available to over 100,000 residential and business customers.

95. TelstraClear has an interest in obtaining management rights for 800 MHZ and 900 MHz spectrum as this spectrum is desirable for deployment of new networks because its non line-of-site performance and reach means a given level of coverage can be achieved at much lower cost than higher frequencies.[25]

96. TelstraClear's entry strategy may differ from that of a pure mobile entrant. TelstraClear's strategy appears to include fixed-to-mobile substitution, as its 'unplugged' service will offer personal voice, broadband and mobile service. The service includes a high-speed wireless network that TelstraClear says will allow customers to make voice calls and use broadband wherever they are, whenever they want.[26]

97. The availability of national roaming is likely to be important for TelstraClear, as customers may travel out of the initial network footprint and will require the ability to make and receive calls.

98. The Commission understands that TelstraClear is currently in negotiation with Vodafone regarding roaming.

99. The geographic coverage of TelstraClear's network is initially limited to Tauranga. TelstraClear's entry could result in effective competition across a range of services within that geographic market. However, outside of the

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[24] TelstraClear Media Release, 19 July 2006
[25] TelstraClear Ltd. Submission on Ministry of Economic Development Discussion Paper: Renewal of Management Rights for Cellular Services. 11 September 2006
[26] TelstraClear Media Release, 19 July 2006

Tauranga region, the competitive impact of TelstraClear's entry may be minimal. Consumers in other regions will not be able to access the TelstraClear services.[27] It is not clear at this stage whether TelstraClear's entry will go beyond the initial footprint, and, if so, how far beyond and when.

Econet

100. In December 2005 Econet announced that it intended to launch a pilot mobile network in Auckland in 2006,[28] but was unlikely to extend its pilot absent regulatory change in the mobile market.

101. Econet has 1800 MHz spectrum and has access to 2 GHz spectrum through its partner the Hautaki Trust. Econet has indicated that to enter the market it would need access to 900 MHz spectrum. The entire spectrum in this band is currently held by Vodafone.

102. Econet has, for some time, been in negotiation with Vodafone for a roaming agreement to enable it to provide nationwide coverage while it rolls out its network.

103. Econet has also expressed concern that closed network pricing practices of the incumbents would raise SAC and would affect its ability to compete. Econet has made submissions to MED that the Telecommunications Act should be amended to cater for behavioural issues currently dealt with under the Commerce Act.

104. More recently, Econet has announced that it has put its plans to launch a pilot network on hold. According to Econet, its priority is now to secure the capital that would enable the roll-out of not just the pilot network but a national network as soon as possible.[29]

Potential Facilities-Based Entry - Conclusion

105. TelstraClear has indicated that it is deploying a localised network. Econet had earlier planned to build a pilot network in Auckland. However, it appears that consideration is being given to a full national roll-out.

106. It is likely that an entrant would increase the level of competition with current players only within the entrant's network footprint. It is not expected that new localised entry would markedly increase competition on a national basis as the cost of national price reductions for the incumbents is likely to be greater than the

[27] The extent to which this will remain the case will obviously depend on TelstraClear's plans for expansion beyond Tauranga.
[28] Econet Press Release, December 2 2005
[29] Dominion Post, September 25 2006

cost of any local loss of market share. Therefore, the degree to which competition is promoted by new entry is likely in the longer term to depend on the scale of any expansion beyond the initial footprint. It is possible that an incumbent might launch a national response to new entry to lessen the chances of expansion.

107. Based on the announced plans of Econet and TelstraClear, entry within a limited geographic footprint is likely to emerge within the 2-3 year timeframe typically used by the Commission to assess new entry.[30]

108. A number of operators have indicated to the Commission that a set of emerging mobile wireless technologies is poised to greatly increase the range of mobile high-speed wireless broadband and will compete with traditional cellular mobile services. They note that the technologies behind mobile WiMax should allow for wireless data speeds of up to 40 Mbit/s, considerably faster than is possible over current 3G mobile networks. A number of operators have begun testing fixed WiMax systems with a view to deploying this technology and introducing mobile WiMax.

109. WiMax is essentially a next-generation wireless technology that enhances broadband wireless access. Fixed WiMax is now in the early adoption phase, and is expected to enable multimedia applications with wireless connections with a range of up to 50 kilometres. Fixed WiMax will likely be used to bring broadband connectivity to business and residential users.[31] Mobile WiMax, or 802.16e, is not yet commercially available but it is expected that the technology could be utilised in devices such as laptops, phones and PDAs.

110. The technologies behind WiMax will be capable of providing VoIP services to mobile and nomadic devices. While 3G technologies will however, remain much more efficient in the use of bandwidth for voice transport, WiMax subscribers may still choose to use voice services over their data connections.[32]

111. Mobile WiMax could compare favourably to 3G as a customer proposition, but adoption could be slow as the technology is not yet available commercially, and discussions are still ongoing around handover and substitutability.[33]

112. The success of either fixed or mobile WiMax will depend on the price and availability of WiMax-certified products. The success of the technology would also depend on the availability of spectrum as well as the price of WiMax capable devices. Spectrum in the 2.3 GHz band has been identified as suitable for mobile

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[30] The Commission uses a two-year timeframe in considering mergers and acquisitions. In *Commerce Commission v New Zealand Bus Ltd*, the court supported a three-year period.
[31] CallPlus has announced the launch of a WiMax network targeting consumers in Whangarei
[32] OECD, The Implications of WiMax for Competition and Regulation, DSTI/ICCP/TISP(2005)4/Final
[33] Sprint Nextel has announced plans to implement a nationwide mobile WiMax broadband network in the United States, covering 100 million potential subscribers by the end of 2008.

WiMax deployment. However, management rights to this band are to be reallocated and offered for auction when they expire in 2010.

113. The Commission concludes that the incumbent mobile providers would not be constrained by potential competition from mobile WiMax systems within the 2-3 year timeframe used to assess new entry.

114. Though the threat of further regulation in the mobile services market may have some effect in facilitating entry, the threat of regulation by itself is not an adequate mechanism for the promotion of competition in a market, as it lacks transparency and certainty for potential entrants.

115. The purpose of the Commission is to promote dynamic and responsive markets so that New Zealanders benefit from competitive prices, better quality and greater choice.[34] The Commission enforces and adjudicates laws that prohibit anti-competitive behaviour and lower barriers to entry in markets.

116. The mobile services market is characterised by high market concentration, strong symmetry in market shares, relatively high prices and low voice usage compared to other OECD countries and substantial barriers to entry. These factors are strongly suggestive of limited competition. The Commission has therefore evaluated possible regulatory actions that would be likely to promote competition in that market for the long term benefit of end users.

Possible Regulatory Actions

Coverage

117. The requirement to provide national coverage represents a barrier to entry for a potential entrant. To achieve nationwide coverage, an entrant could either build its own network or gain access in some form to an incumbent's network.

118. Roaming and co-location could mitigate the significance of national coverage as an entry barrier. Roaming and co-location are currently specified services within the Act[35]. Wholesale access to mobile networks is not currently a regulated service.

[34] Commerce Commission, Statement of Intent 2006-2009

[35] The efficacy of the current services has been questioned by several parties within the industry and the Commission has received submissions that these services should be amended

Roaming

119. Roaming allows mobile phone users to make or receive calls on other service providers' cellular networks when they are outside the coverage area of their own service provider's network.

120. The availability of roaming is critical to a new entrant's business case. Cellular phone users want certainty that they will be able to use their mobile phones wherever they are, even though most customers use their mobile phones in their local calling area.

121. Roaming therefore enables a potential entrant to provide nationwide coverage for its customers. Roaming also gives a potential entrant the opportunity to build a customer base while extending its network footprint.

122. In the absence of regulation, there may be insufficient incentive for existing mobile network operators to offer roaming services at a reasonable price to a potential entrant. These incentives will reflect effects that apply when an entrant seeks a roaming agreement as a basis for entering the retail mobile services market.

123. The first effect is that the entrant will compete for retail market share, and the share gained by the entrant is likely to be at the expense of existing incumbents, including the network operator providing roaming. This has been referred to as the "business stealing" effect.[36] From the point of view of the incumbents, this effect is likely to be detrimental, and be shared across all incumbents.

124. The second effect of entry will be a positive effect on the network that provides roaming. The new entrant will attract new customers (from its competitors, as well as possibly stimulating overall market growth), and this results in greater use of the roamed network (the OECD's "enhanced utilisation" effect). The benefits of this effect will accrue exclusively to the network operator providing roaming services.

125. In contemplating whether to provide roaming services on reasonable terms to an entrant, incumbent operators will implicitly weigh up the downside from providing roaming which facilitates new entry (loss of retail share) - a detriment which is shared with other retail competitors - with the upside from providing roaming (increased network utilisation) - a gain which is captured exclusively by the roaming provider. This could be regarded as a form of 'damage limitation'. It is probable that entry would have a net detrimental effect on incumbents, but this could be limited by gains arising from having the entrant's customers roaming onto its network.

[36] OECD, *Competition and Regulation Issues in Telecommunications*, February 2002, page 36.

126. The expectations of the incumbents will be important. If each incumbent mobile network operator considers that the entrant is likely to gain a roaming agreement from someone (for example, because there are several networks capable of offering roaming), then each has an incentive to compete to provide roaming in order to capture the benefits of increased utilisation.

127. If, however, it is unlikely that the entrant will obtain roaming from anyone else, there is little incentive to offer roaming on reasonable terms. Refusal to do so will not result in the benefits accruing to a competing network.

128. This has some relevance in the New Zealand context. While in theory there could be some competition in the supply of roaming services between Telecom and Vodafone *before* the entrant has revealed its choice of technology (CDMA or GSM), once the likely technology of choice becomes known, there is essentially a monopoly supplier of roaming services over that technology. In New Zealand, roaming onto 2G networks is a regulated service. In the face of an access dispute, the incumbent would ultimately be required to provide roaming. However, similar incentives may operate to delay the availability of roaming, or to offer it at a price that would undermine the entrant's business case.

129. Under the current regulated roaming service, non-price terms and conditions are regulated, and it can be argued that there is an implicit threat of price regulation. However, submissions have been made to the Commission that the current regulatory framework for roaming does not adequately deal with incentives to delay and undermine entry. The lack of competition in the provision of roaming suggests that commercial roaming would not be available unless there was a regulatory alternative.

130. Similarly, in discussing the provision of national roaming, the OECD concluded that:[37]

> ... private commercial arrangements for roaming are possible and are more likely *(a)* the larger the number of incumbent operators; *(b)* when the new entrant offers a service which is not directly a competitive threat to an existing service (perhaps by targeting an unreached niche of customers) and *(c)* the greater the likelihood that the government will intervene to enforce roaming.

131. The presence of two different network technologies hinders entry into the market. There is no competition to provide roaming services as each incumbent has a monopoly over roaming on its network. In terms of the OECD's condition *(a)*, neither of the existing mobile network operators in New Zealand has a strong incentive to offer a commercial roaming service on reasonable terms to an entrant. Once the entrant has committed to a particular technology, the existing network operator using that technology will face little or no risk of the entrant gaining access on reasonable terms to the competing network. In other words, there will

[37] ibid.

be little commercial downside for the operator to delay providing roaming access, or to provide it at a price that is not commercially viable.

132. Assessment of condition *(b)* is difficult *ex ante*, and so no conclusion is drawn at this stage. However, the OECD does make reference to a number of instances where the threat of regulatory intervention may have been a factor. For example, according to the OECD, it appears that commercial roaming agreements were reached in Australia and Finland at least in part as a result of a threat of regulatory intervention.[38] ComReg has also noted that the national roaming agreement between O_2 and Meteor in Ireland was concluded largely due to regulatory pressure.[39] Finally, experience in New Zealand suggests that the likelihood of regulatory intervention does provide some incentives for parties to negotiate and conclude roaming agreements.

133. It is also important to consider the significance of roaming in the decision of an entrant to build a mobile network. That is, if roaming was unlikely to be provided on reasonable terms under the counterfactual of current regulation, would modifying the regulated roaming service materially improve the likelihood of such entry?

134. Under current regulatory settings, the Commission expects that access to roaming will be offered, notwithstanding the commercial incentives of the parties. If negotiations are delayed unreasonably by the potential access provider, the Act provides regulatory relief, although it does not provide for the regulator to determine the price for access to the service.

135. Given that the requirement for national coverage is a major barrier to entry, it is important that regulatory settings address the barrier in a way that is transparent, and which provides a high degree of certainty to potential new entrants.

136. Potential entrants have identified several areas of the current roaming regulation that they felt are deficient and add to the difficulty of entering the mobile market. These are discussed below.

Price

137. Several parties said that the main problem with the current roaming regulation is the inability of the Commission to set the price. The parties noted that this puts incumbents in a strong position as the access seeker could only get non-price terms determined by the Commission and would still be reliant on the incumbent to fix the roaming price.

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[38] OECD, page 36.
[39] ComReg, *Market Analysis – Wholesale Mobile Access and Call Origination*, December 2004, footnote 76.

138. It was therefore argued that superior competitive outcomes would be likely to be achieved if the roaming service was changed to a designated service where the Commission could set a cost-based roaming price. This would encourage network operators to offer roaming on reasonable price and non-price terms. Regulated access would only be required if commercial negotiations failed.

139. In Australia, the ACCC decided that regulation of roaming would not promote the long-term interests of end-users in the mobile market.[40] In respect of GSM inter-carrier roaming, the ACCC noted that both Telstra and Vodafone currently compete, while Optus (and possibly Hutchison) also represented a potential supplier of GSM roaming. The ACCC noted that current GSM roaming arrangements appeared to be satisfactory, and that there has been an absence of complaints regarding GSM roaming.[41]

140. However, the ACCC noted that Telstra was the only supplier of CDMA roaming services in Australia, and that it was unlikely that further entry would emerge to constrain Telstra. The ACCC also acknowledged a number of complaints from access seekers, and concluded that competition in this market was unlikely to be effective. In respect of CDMA roaming, the ACCC concluded that it had insufficient information to form a view on whether declaration of CDMA roaming would promote competition, and that it would therefore monitor the terms and conditions of supply of CDMA roaming over the following 12-24 months.

141. In Ireland, the regulator ComReg views roaming as a critical factor to support operators during the build out phase of network development. ComReg therefore included a mandatory roaming condition in the 3G licence conditions of existing GSM networks. This places an obligation on Vodafone and O_2 to provide '3' with national roaming on their 2G networks once '3' had covered 20% of the Irish population with its 3G network.

142. The roaming condition provided ComReg with the power to intervene and, where necessary, impose a national roaming agreement where commercial negotiations failed. Should intervention be required:[42]

> it is envisaged that the Director will set a price for national roaming based on the price charged by the licensee for the provision of a service to end users, less any elements of cost that are not incurred in providing the same services to the new entrant, plus any elements of cost reasonably incurred solely to provide roaming services.

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[40] ACCC, *Mobile Services Review: Mobile Domestic Inter-carrier Roaming Service, Final report on whether or not the Commission should declare a mobile domestic inter-carrier roaming service*, December 2004.

[41] The ACCC had reached a similar conclusion from an earlier investigation in 1998 on whether to declare a mobile domestic inter-carrier roaming service.

[42] Office of the Director of telecommunications Regulation, *Extending Choice: Opening the Market for third generation Mobile Services (3G mobile), Response to the Consultation ODTR 00/92*, December 2000

143. A similar roaming condition was put in place in the United Kingdom. The regulator Oftel hoped that the parties could arrive at a commercially negotiated settlement. However, Oftel reserved the right to set a charge if necessary when called upon to resolve a dispute.

Commercial agreements and regulatory backstop

144. In the United Kingdom, Oftel considered doing away with the national roaming condition after Hutchinson commercially negotiated a roaming agreement with O_2. Oftel considered that retaining the requirement to offer national roaming has significant advantages. It offers a regulatory backstop that helps to ensure sustainable market entry by a new entrant, to the benefit of consumers. The fact that a condition was in place may have been a significant factor in motivating O_2 to agree terms in commercial negotiations and may also be a motivation to continue to maintain the agreement. The condition also offers benefit in terms of regulatory certainty.[43]

145. Oftel's view was that retaining the condition maintains the progress made in sustainable market entry and avoids the potential disruption of existing business plans and access to funding. According to Oftel:[44]

> Despite the reduction in regulation which the removal of the current national roaming condition would offer, the Director considers that there are disproportionate risks in this particular case in relying solely on competitive pressures to deliver the regulatory objective and that therefore national roaming should be ensured in an obligation placed on all four of the 2G mobile network operators.

146. The Commission notes that possible new entrants to the mobile market may have different business cases for entry. The requirements to access any regulated service may differ according to the new entrant's business case. Any regulatory system must be flexible enough to cater for differences in entry strategies. Therefore, the fact that commercial negotiations may be concluded under the threat of regulation does not mean that barriers to entry have been lowered for all credible potential entrants. The business case for entry may differ from one potential entrant to another, and access to the same terms and conditions offered to one entrant may not suit another entrant's business case. Without access to a regulated roaming service, a potential entrant may not be able to enter the mobile services market.

147. The Commission considers that such a scenario may arise in the mobile market without a robust regulatory backstop. Other possible new entrants to the mobile services market who may rely on roaming to offer nationwide service may be unable to gain commercial access to reasonable roaming terms and conditions to

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[43] Oftel, National roaming condition: A consultation on proposals to set a national roaming condition after 25 July 2003, 15 May 2003
[44] Ibid

suit their entry strategy. It is generally agreed by access seekers that the current roaming regulation is deficient in a number of areas and, without amendment, potential new entrants may be constrained by these deficiencies.

148. Regulation should not support inefficient entry, or be required to support all possible business cases. However, in the Commission's view, the absence of price regulation for this service may limit its effectiveness as a tool for dealing with national coverage issues. While the potential for further regulation has provided incentives for parties to reach agreements on reasonable terms, it does so in an ad hoc way that lacks transparency and certainty for potential market entrants.

Roll-out requirements

149. Several parties said that another problem with the current roaming regulation is the requirement on access seekers to roll out a national network as a condition of access to the regulated roaming service.

150. It was argued that a national roll-out requirement is unnecessary because correctly setting the roaming price will determine whether a new entrant undertakes a full network roll-out or instead rolls out in a more limited manner. If the roaming price were to be set too low, new entrants would not extend their infrastructure but would be incentivised to roam. However, if the roaming price is set at a high rate, this may encourage a faster network roll-out to reduce reliance on roaming. A higher roaming rate may also provide compensation to the host networks for having initially rolled out a network in areas with low traffic volumes.

151. Coverage requirements are typical in other jurisdictions where roaming is a regulated service. One of the conditions of the 3G licences issued in the UK was for the provision of cellular coverage to 80% of the UK population by 31 December 2007.

152. During the auction process for 3G licences in Ireland, ComReg issued one class A Licence and three class B licences. The class A licence had the requirement to provide minimum coverage to 80% of the Irish population. The class B licences had lower coverage requirements with a minimum of 53% coverage.[45]

153. The class A licence involved a roll out requirement on a phased basis of 53% of the population (all 5 major cities) by mid 2004 and the fulfillment of the minimum requirement of 80% by the end of 2005. The class B licence required a minimum phased roll-out but on a less stringent basis and will cover 33% of the population by the end of 2004.[46]

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[45] Office of the Director of Telecommunications Regulation, Media Release "Telecoms Regulator outlines licence framework for 3G mobile Telecommunications Services in Ireland, December 2000
[46] Ibid

154. The Commission considers that the requirement for a time-bound national roll-out plan as a condition of the regulated roaming service may be unnecessarily stringent, and may preclude regional entry on a more limited scale. Though limited entry does not offer the same competition benefits, there is at least an arguable case that incentives for an ultimate national roll-out can be generated in a somewhat more flexible manner than is envisaged by the current regulated service.

Other roaming issues

155. The current roaming regulation only makes provision for roaming on 2G networks.

156. Some parties said that it was inappropriate to distinguish between 2G and 3G because regulation should be technology agnostic. They noted that this requirement inhibits effective competition, as new entrants requiring regulated roaming would not be able to support 3G services for their customers when roaming.

157. The global convergence of technologies and the ubiquitous presence of mobile devices has made the development of new mobile applications and services possible for a wide variety of different users in different situations. More sophisticated mobile applications are beginning to emerge with greater data rates. Distinctions between the different types of mobile devices are fading as convergence takes place between fixed and mobile services. Hybrid devices are also developing that enable devices to access more than one type of network. Consumers in the near future may be able to access consistent services easily regardless of the device they are using (e.g. phone, PDA, laptop) or the type of network that is being accessed (e.g. HSPDA, 3G, WiMax and Wi-Fi).

158. A number of parties suggested that the Commission should consider facilitating an environment where inter-network roaming (i.e. between different network technology types) may be able to occur. They pointed out that mobility across multiple networks will be a mainstream reality in the very near future. They suggested that it may be appropriate for the Commission to examine whether roaming ought to be broadened to include other forms of technology apart from cellular mobile technologies.

Roaming – conclusion

159. Given the importance of being able to offer comprehensive coverage to retail mobile subscribers, the availability of national roaming either commercially or through regulatory intervention is required to support entry.

160. The Commission accepts that price is a key component of a commercial roaming agreement. The absence of an opportunity to request a regulated roaming price may be a significant constraint on the ability of an entrant to secure a reasonable commercial agreement, or to obtain a comprehensive regulatory solution should negotiation fail.

161. The potential for regulatory intervention appears to have had some influence on negotiations over roaming terms. However, a more transparent regulatory scheme may promote competition more effectively.

162. The Commission considers that the inability to obtain a regulated roaming price as well as the nature and extent of the requirements relating to a national network roll-out may limit the effectiveness of the current regulated roaming service. The Commission considers therefore that there are reasonable grounds to commence an investigation under Schedule 3 into whether or not to amend the terms of the roaming service. The Commission also considers that there are reasonable grounds to commence an investigation under Schedule 3 into whether or not to move the roaming service from a specified to a designated service.

163. As different mobile standards develop, it will become increasingly important for users to be able to roam on different types of networks (inter-network roaming). Mobile WiMax operators may require the ability to roam on an existing mobile network to permit them to provide competitive services.

164. Telecommunications regulation should be forward looking. The Commission considers that any investigation into the roaming service should also consider inter-network roaming, and roaming on 3G networks.

165. The Commission has decided to commence a Schedule 3 investigation into whether or not to amend the terms of the current roaming service and whether to move the service from a specified to a designated service. The investigation will consider amending or clarifying aspects of the service description dealing with matters such as price, roll-out obligations, roaming on 3G networks and inter-network roaming. Further details of the scope and timing of the investigation will be announced shortly.

Co-location

166. Co-location is the co-existence of radio transmission and reception equipment at sites controlled by other providers. Co-location can reduce the costs associated with the setting up of cell sites and associated infrastructure for a mobile network by the sharing of facilities with other network operators. An option for existing mobile providers and new entrants to the cellular market is to co-locate their radio access equipment. The supply of co-location services is particularly important to an access seeker where there is no viable alternative for the access seeker to place

cellular radio access equipment other than at the exact location of the access provider's site.

167. Co-location also has potential environmental benefits in reducing the visual impact of cell sites.

168. Co-location on cellular mobile transmission sites is currently a specified service under the Act. Industry participants were asked to respond to a number of questions concerning the effectiveness of the currently regulated service, the constraints on commercial co-location, whether they considered amendments to this service would lead to new entry, and the interplay between co-location and national roaming. Parties were also asked to describe their experiences to date with commercial negotiation of agreements for co-location.

Effectiveness of the currently regulated co-location service

169. The view was advanced that voluntary co-location is not working successfully and that the specified co-location service does not provide sufficient incentives for incumbent operators to reach commercial agreements with potential new entrants.

170. Several parties suggested that the regulated co-location service may be more effective if it were a designated service as this would give the Commission the ability to ensure that pricing was efficient and was not used to raise entry costs and as a result to deter or delay entry.

171. Price was regarded by some parties as the most important and controversial term of access. Regulation without the ability to regulate price was regarded by some parties as meaningless. Other parties argued that the mere threat of further regulation may send the right signals to industry to encourage more co-location.

172. Others felt that a regulated co-location price is not important, particularly if the roaming service is improved. It was also suggested that co-location is different for each site (for example, co-location may be relatively straightforward at some sites, but may require structural changes to strengthen towers at other sites), and this would make regulation of price a particularly difficult issue.

173. Vodafone said that they had developed a transparent methodology for pricing of co-location on its sites and that the methodology had been accepted by a number of parties in the telecommunications industry. This was evidence that commercial co-location is working in the industry.

174. Vodafone said that it regards co-location as valuable to it both as an access provider and as an access seeker. In either capacity, co-location reduces its capital and operating costs.

Current commercial agreements for co-location

175. Sharing of facilities (power and access tracks) with a few exceptions, is the form of co-location used by cellular operators. Some parties that are currently co-locating stated that coming to an agreement on the price of co-location has never been a major issue, although co-located sites were usually expensive compared to their own sites.

Constraints on commercial co-location of equipment

176. The Commission was informed that the consent process under the RMA is a major cause for delay during negotiations for co-location, and can actually prevent co-location from occurring. There was general agreement that the RMA process, along with obtaining building consents and negotiating lease agreements with the landowners, can be very time-consuming. Commonly, the operator will control the site as a result of a lease from the landowner. It appears that typically these leases do not allow another operator to co-locate on the site without the permission of the landowner.

177. Local councils do not always allow for the building of roadside towers despite the fact that the Telecommunications Act provides for the installation of equipment on the roadside, subject to certain conditions (including the requirement that no rental be charged).

Access Code for Co-location

178. The Telecommunications Carriers' Forum has prepared an access code for co-location which has been lodged with the Commission for approval. The code aims to facilitate co-location through principles and processes that are consistent with the purposes and provisions of the Telecommunications Act. The code sets out a process for dealing with requests to co-locate and covers such matters as identification of relevant sites, feasibility studies, queuing policy and a number of operational issues. Access codes are a supplement to regulated access services, must be consistent with the access principles under the Act, and must not set prices.

179. The Commission is considering whether the co-location code meets the requirements of the Act for approval. Should the Commission approve the code, any subsequent determination by the Commission of non-price terms on an application for the co-location service must comply with that code.

Interplay between co-location and roaming

180. There is general agreement that there is some interplay between roaming and co-location and that the price of these services is related. Roaming and co-location are related through the "build or buy" decision of an entrant: geographic coverage

can be offered by an entrant to retail customers, either by buying capacity on an existing mobile network (i.e. roaming), or by the entrant building or extending its own network (with these build costs to some extent influenced by the ability to co-locate equipment on another party's sites). An incumbent offering roaming services is likely to be aware, in setting the roaming price, of the time and cost features of the alternatives available to the new entrant (i.e. build own infrastructure and/or co-locate). Conversely, the willingness of an incumbent to co-locate with a new entrant may be affected by the knowledge that the entrant has a roaming alternative.

181. The roaming price could impact the decision of a new entrant to either build its own network or to roam. A high roaming price might incentivise an entrant to build, using co-location to bring down the costs. On the other hand, if the roaming price was low, a new entrant may prefer to roam rather than expand its own network.

Co-location – conclusion

182. Co-location on reasonable terms can facilitate network roll out by lowering construction costs faced by new entrants. While questions have been raised as to the effectiveness of the current regulated co-location service in dealing with non-price matters, the Commission has yet to complete its review of the co-location code and therefore to assess whether the code adequately meets those concerns.

183. The concerns raised regarding access to co-location fall into two broad categories: non-price and price terms of access. As noted earlier, some of the non-price issues surrounding access to co-location are beyond the control of the access seeker and access provider, such as constraints imposed by the RMA.

184. While it appears that the consent process under the RMA can cause significant time delays in relation to network rollout and co-location, this is a constraint faced by both incumbents and new entrants to the mobile market. It is likely that more constraints may arise with the consent process when an access seeker wishes to place its antennas on an access provider's mast (co-masting). However, the consent issues that arise with co-siting (placing two masts on the same site) may not be significantly different from those which would be encountered in setting up a 'greenfield' site.

185. The Commission considers that the inability to obtain a regulated co-location price may limit the effectiveness of the current regulated co-location service. The Commission therefore considers that there are reasonable grounds to commence a Schedule 3 investigation into whether or not to move the co-location service from a specified to a designated service.

186. The Commission has decided to commence a schedule 3 investigation into whether or not to amend the co-location service. The investigation will examine whether the service should change to become a designated service, which will allow the Commission to set price terms. Should the Commission's review of the co-location code reveal unresolved issues with non-price terms, the Commission may decide to expand the scope of its investigation. Further details covering this investigation will be announced shortly.

Wholesale Access

187. In order to provide retail mobile services an entrant would not necessarily need to build a network. The sale of wholesale minutes or wholesale access by mobile operators to other operators for resale would assist operators without mobile networks to enter the retail mobile services market.

188. An operator selling mobile services without having the entire infrastructure required to run a mobile network is generally known as an MVNO[47]. An entity categorised as an MVNO can range from a "thin" MVNO, that is little more than a reseller concentrating on sales and marketing and has no infrastructure whatsoever, to a "thick" MVNO with its own billing platform, central office systems and mobile switching equipment. MVNOs typically also own, issue and activate their own SIM cards. Some European regulators regard a mobile services provider as an MVNO only if it has its own interconnection links.

189. An MVNO would usually have its own brand and billing plans. The "thicker" the MVNO operation, the more it can differentiate itself to offer new services and increase competition in the mobile services market.

190. Some parties advised the Commission that the incumbent mobile operators are reluctant to make any sort of MVNO deal, especially deals that would provide for a 'thick' MVNO, despite repeated attempts to negotiate. The incumbents responded that they are willing to consider MVNOs, so long as there are sufficient commercial benefits.

191. In the UK, OfCom believes that MVNOs have allowed the host operators to participate in strategies aimed at specific customer segments, to potentially reduce churn through affinity marketing, to access wholesale incremental revenue streams, or to further leverage fixed investments.[48]

192. Compass Communications, Orcon and M2 Communications have recently announced that they have signed heads of agreement with Vodafone to wholesale Vodafone retail services. Compass Communications has indicated that its

[47] MVNO's do not have access to radio frequency spectrum.
[48] OfCom, The Communications Market: Interim Report, February 2006.

agreement with Vodafone is for a 'thin' MVNO[49] while Vodafone describes the agreements as wholesale deals similar to those it has with TelstraClear, rather than MVNOs.[50] TeamTalk has also recently signed an agreement to resell Vodafone services.[51]

193. An MVNO may put some pressure on retail margins, but is not likely to increase competition in the retail mobile services market to the same extent as a new mobile network operator. The European Commission has noted that retail markets where there are MVNO access agreements tend to be more competitive. It is unclear though whether greater competition between networks tends to deliver voluntary wholesale access as a natural outcome or whether the introduction of MVNOs in itself brings more competition to the market. In either event, the MVNO model is widely regarded as an economically effective model for late market entry.

194. Some parties argued that the New Zealand market is too small to support another national operator, implying that MVNO entry is the only likely form of entry and should be encouraged.

195. There are suggestions that the "ladder of investment" concept theorised for fixed line services could also apply to mobile services, with operators progressing from simple resale to building their own mobile networks, as they build a customer base. The ladder of investment concept is based on the premise that infrastructural competition is more beneficial than services competition. Effective access regulation will prompt competitors to replicate facilities and progressively build their own networks.

196. The underlying feature of the ladder of investment concept is to ensure that there is no distortion between vertical levels or restriction of competition and that the design of the steps of the ladder is such as to promote innovation and encourage efficient investment.

197. The contrary view is that encouraging MVNO entry (for example, as an initial 'entry rung' on the investment ladder) would be counterproductive as it would discourage infrastructure entry.

198. The incumbents believe that, although there may be a progression from 'thin' to 'thick' MVNOs, the progression from MVNO to owning a mobile network is neither logical nor likely, and it appears it has not taken place anywhere in the world.

199. In the UK, most MVNOs have been associated with an established brand and have mainly concerned themselves with addressing niche markets which either

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[49] The Line – Wednesday 16 August 2006
[50] Computerworld NZ, 21 August 2006, page 4.
[51] TeamTalk media release, 18 September 2006

have specific brand relevance and appeal, or those which may be uneconomic to target with an infrastructure-based business model.[52] The owners of such brands (such as Virgin Mobile) may not be interested in becoming telecommunications network operators.

200. Some parties said that if there is infrastructure entry, MVNO entry would be likely to occur commercially without any need for regulation. A new entrant is likely to have surplus capacity and will be motivated to sell that surplus capacity. They point to experience overseas that healthy infrastructure competition in the mobile sector with a reasonable number of operators leads to commercial MVNO entry without any need for regulation. New entrants would therefore prefer that MVNO access is not regulated.

MVNOs and Convergence

201. There is increasing interest in converged fixed/mobile services and bundles that include fixed and mobile products. Some fixed line and fixed wireless operators have indicated that they are keen to resell mobile services to ensure that they are competitive with the integrated fixed and mobile providers. Both Vodafone and TelstraClear are also developing mobile offerings that will compete directly with fixed line voice and broadband services.

202. Some parties argued that regulated mobile resale would increase the range of services on offer, increase product innovation, promote convergence and reduce the monopoly rents being charged in the mobile services market. However, a thin MVNO service available only as a part of a bundle of services from a smaller operator may not enhance competition to the same extent as a "thicker" brand driven MVNO.

203. In an increasingly 'converged' environment, the ability for service providers to obtain a mobile product may become increasingly important to allow them to compete with the bundled offerings of the major players. Even though resale may be of limited value as a stand-alone business, the resale option may enhance competition across a wider range of telecommunications services.

Wholesale Access – conclusion

204. The lack of availability of wholesale access on reasonable terms may constrain access seekers from entering the mobile services market and providing nationwide coverage. However, depending on the access price, regulating MVNO entry could deter infrastructure entry. A cost-based price is likely to induce more resellers to enter, but may reduce the attractiveness of entry by a facilities-based operator.

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[52] OfCom, The Communications Market: Interim Report, February 2006.

205. The Commission considers that there are reasonable grounds to commence an investigation under Schedule 3 of the Act into whether or not to regulate wholesale access to capacity on mobile networks, but has decided not to begin such an investigation at this time. Instead, the Commission will monitor the commercial developments that are taking place around wholesale access and will wait to see if there is entry at the network level. If facilities-based entry does not occur in the near term, the Commission will reassess whether to commence such an investigation.

Other Entry Issues

Spectrum

206. The unavailability of spectrum in the 850/900 MHz range for new entrants is a barrier to entry as it raises the cost of entry. The Commission notes that incumbents appear to hold in excess of the requirements for providing actual current and future services, given New Zealand's characteristics. The problem could be rectified however, if a new entrant could gain access to spectrum without having to buy the spectrum from the incumbents, or if incumbents do not have access to more spectrum than they require. The Commission considers that incumbents for strategic reasons may want to restrict new entry and limit competition in the market for mobile services by restricting access to spectrum.

207. The Commission will inform the MED of the concerns raised by the industry about uncertainty with spectrum renewal and allocation rights, and invite MED to give weight to the benefits of new entry in its current review of the renewal of management rights for cellular services.

Resource Management Act

208. While it appears that the consent process under the RMA can cause significant time delays in relation to network rollout and co-location, this is a constraint faced by both incumbents and new entrants to the mobile market.

209. The Ministry for the Environment is proposing a National Environmental Standard for low impact telecommunications facilities and radiofrequency based on an industry reference group proposal. The objective is to provide for consistent and certain regulatory planning provisions that apply on a national basis, and a reduction in compliance costs and timeframes.

210. The Commission will discuss with the Ministry for the Environment the concerns that have been raised in relation to the RMA and its impact on the roll-out of cellular networks.