



# Mobile Market Study – Preliminary Findings

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## Executive Summary

Mobile services play a critical role today in New Zealanders' everyday lives and in New Zealand's economy. And as New Zealanders' lives and New Zealand businesses become increasingly mobile, they will play an even more important role tomorrow. Ensuring we have healthy, competitive, mobile markets that encourage innovation and investment will be critical if New Zealand is to meet the social and economic aspirations we have set for ourselves.

### Continuing development of the mobile market

In this context, we support the Commission findings that competition is delivering lower prices, increasing quality and greater choice of retail mobile telecommunications services for consumers.

- **Prices:** New Zealand's retail prices for mobile telecommunications services continue to be below OECD averages;
- **Network quality:** New Zealand's 4G speeds continue to be in the top tier of international comparisons;
- **Network investment:** Even though New Zealand mobile network operators' EBITDA margins are below international averages New Zealand's mobile network operators are engaged in detailed preparations to invest in the next generation of mobile network innovations over new, 5G, networks as soon as 5G spectrum is made available. In direct contrast to many of the markets the Commission oversees in its role as an economic regulator, it is clear that competition in mobile markets is driving efficient investment by market participants.
- **Innovation and choice:** New Zealand mobile operators' innovation rates are high. Even in the short period between the release of the Commission's paper and this submission we have seen further developments in the market, with Spark increasing the threshold at which maximum speeds reduce on its Unlimited and Unlimited Group plans from 22GB per line to 40GB per line, Skinny adding a \$77 Unlimited plan, and 2degrees offering three months half-price for customers who sign up to pay monthly plans over \$40 per month including its Unlimited plans. Prospective new owners have also been announced for Vodafone, who have indicated that they will be more focussed on the New Zealand market than the current owners, and more willing to back Vodafone to innovate in New Zealand.

These are all characteristics of healthy mobile markets that are continuing to deliver excellent outcomes for New Zealand.

### Focus issues

The Commission paper identifies three key issues likely to influence further development of competition in the mobile market:

- **Access to spectrum:** The Commission rightly identifies radio spectrum as a critical input in the development of mobile networks and notes that significant asymmetries in spectrum holdings may affect competition and that new entrants and smaller operators should be permitted to compete with existing mobile network operators for that spectrum. We agree in principle with each of these propositions but note that no conclusion on the effect of spectrum asymmetries should be made without considering the utilisation of existing spectrum holdings. All of Spark's core spectrum holdings are heavily used. None of our existing spectrum holdings could feasibly be considered to be ready substitutes for an 80MHz-100MHz block of 3.5GHz 5G spectrum in delivering low latency 5G services. In

that context we do not consider an aggregate spectrum cap to be at all appropriate for the upcoming auction.

- **MVNOs:** The market for MVNO services continues to evolve, with increasing interest from new and prospective MVNO customers despite the challenges identified by the Commission's experts with the traditional MVNO business model in a small market like New Zealand. As 5G thinking develops though we expect the range of MVNOs, and our understanding of what an MVNO looks like, will shift radically as industry-specific 5G use cases emerge.
- **Consumer engagement:** The paper concludes that New Zealanders are able to access information on mobile services, assess alternatives, and switch between plans and providers, relatively easily. It asks whether behavioural biases or mobile plan features may explain the high proportion of customers who have remained with their current supplier for five years or more. We believe the Commission has structurally underestimated the underlying level of customer consideration activity in our market, and we believe the simplest answer to the Commission's question is the right one – that the year-on-year increases in value, network quality, and ancillary benefits that mobile service providers are delivering to our customers means many customers are content to stay with the same provider of what is a critical service in their day to day lives.

We support the Commission's conclusions that there is no evidence to support any regulatory interventions in mobile markets by the Commission.

## Introduction

1. Thank you for the opportunity to comment on the Commission's *Study of mobile telecommunications markets in New Zealand* preliminary findings paper (**the paper**).
2. The process the Commission undertook to obtain evidence on the New Zealand mobile market's performance has enabled the Commission to reach a meaningful preliminary view on key characteristics of the mobile market:
  - a. Evidence relating to the development of the retail mobile market indicates this is a competitive market delivering prices, capacity, innovation and investment comparable to or better than OECD averages;
  - b. Spectrum is important. Mobile network operators will require access to large contiguous holdings of new 5G bands in order to economically provide innovative, next generation mobile services. Substantial investments will be required to release the full potential of the spectrum which is expected to deliver new services and ways of doing business to New Zealanders;
  - c. Improved network parity and recent entry indicate that the foundations are in place for more competitive wholesale services to mobile virtual network operators (**MVNOs**). The economics for MVNO may understandably be different in the NZ market compared to other markets overseas but that does not evidence a structural problem in a market warranting intervention;
  - d. Consumers can easily access information relating to their usage of services, can easily compare plans and the process of switching between providers is relatively easy.
3. We largely support the Commission's preliminary findings. In this submission we focus on the key issues raised by the Commission in the paper, specifically spectrum, MVNOs, consumer engagement, and 4G availability. We have also asked NERA to review the Red Dawn MVNO recommendations and to provide an update on further evidence relating to MVNOs (attached).
4. The Commission's study has focused on mainstream mobile services and customers and we appreciate that the study is focused for good reason. However, there are significant changes occurring in mobile markets with networks increasingly being used for fixed and new IOT services, and the possibility of providing new services is a key driver for investment in new 5G capability.
5. Accordingly, in making any recommendations, the Commission should be conscious of the wider and potentially significant implications of any intervention on investment and future performance of the sector.

## Development of the mobile market

### The paper highlights that the market is delivering good outcomes for end users

6. The paper considers a range of indicators - price, demand, capacity, investment and innovation –all of which support our conclusion that mobile markets are working well and delivering good outcomes for end users.
7. The Commission highlights in the paper that:
  - a. Market shares have evolved over time;

- b. Prices are below the average of OECD countries;
  - c. Mobile data per connection has been increasing strongly;
  - d. Networks perform well on most technical measures of quality; and
  - e. OECD price benchmarking indicates that the New Zealand market consistently delivers prices that compare well to other OECD countries.
8. This is also consistent with the findings of the Commission's annual market monitoring reports. These show that there has been substantial demand growth, with corresponding investment in additional network capability and capacity, while mobile revenues are increasing only modestly, up 3% on the previous year in the most recent report. The amount of data consumed by customers has increased on average by around 77% year on year since 2010.
9. And this is also consistent with what we see in the market. Since the issues paper, we've seen further indicators of a dynamic market, for example:
- a. We've continued to see significant growth on our network - network reporting shows that mobile data demand has increased by [ ]SPKCI from this time last year - and average mobile data usage per active consumer is around [ ]SPKCI per month;
  - b. Operators are continuing to invest to meet demand and for new services. We are investing in capacity to meet this growth - we are currently in the middle of an investment programme to augment network capacity to 100s of cell sites, and new voice core, VoLTE and 5G investment programmes are also underway;
  - c. We are seeing increasing activity in larger data bundle offers. All MNOs have launched attractive group and large data bundle plans. We have recently increased the level at which speeds reduce on our Unlimited and Unlimited Group plans from 22GB to 40GB per month. Group plans are available for as low as \$40 per person for unlimited service, which compares favourably internationally, even to the most comparable Australian plans.
10. This is a rapidly changing market and it's difficult to predict where it will be at any stage, but we know that outcomes are improving for consumers.
11. In these circumstances of rapid change, it's even more important that any market analysis considers a range of market indicators as the Commission has done in the preliminary view paper. Likewise, the OECD notes that all statistical country comparisons should be undertaken with caution:<sup>1</sup>
- a. There is a breadth of market, regulatory and geographic factors which help determine penetration rates, prices, and speeds. Therefore, the OECD note it is important that policy makers examine a wide range of broadband indicators when considering key policy decisions;
  - b. Further, movements in rankings can be the result of improved population estimates, more reliable data sources or seasonal adjustments; and
  - c. Comparisons should therefore focus on why some countries are at the end, middle or near the top of one or more indicators. Another valid comparison would be

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<sup>1</sup> See OECD broadband portal <https://www.oecd.org/sti/broadband/broadband-methodology.htm>

highlighting countries which seem to exhibit a trend over an extended period of time.

12. The preliminary findings paper rightly concluded, looking across a range of indicators, that they point to a competitive market that is delivering outcomes for end users. Everything we see continues to support this view.

#### 4G availability and coverage

13. One area we are seeing different outcomes to those reported by the Commission is in 4G service availability. The paper concludes – based on Opensignal reporting – that the quality of coverage for 4G services is relatively low compared to other countries.
14. While we are always looking to improve our coverage, our reporting does not suggest the same level of 4G coverage concerns.
15. Opensignal does not measure coverage as such, it measures the period that a 4G capable device is connected to 4G network relative to the 3G network. Opensignal defines the metric, 4G Availability as showing the proportion of time Opensignal users with a 4G device have a 4G connection. Opensignal emphasise that the measure is not a measure of coverage or the geographic extent of a network.<sup>2</sup>
16. We would consider coverage as indicating where end users have the option to connect to the relevant network. However, the Opensignal measure records when a device is connected to a network – i.e. measures when devices are connected, not necessarily used - and this can be influenced by operator settings and the end user devices, i.e:
  - a. Mobile network operators (MNOs) can configure the network so that the device prefers to attach to particular network or remain on a network until the end user starts a new session. This means that, if the operator has set the network to prefer the 3G network, the device will remain connected to the 3G network even though 4G service is available (the device will then connect to 4G as required). [ **JSPKCI**;
  - b. MNOs further configure the network so that devices switch to the 3G network when 4G signal levels are low for service performance reasons, and these settings vary;
  - c. The Opensignal measure can also be influenced by the extent to which voice calls are provided using the 3G network, rather than VoLTE. Markets where VoLTE has been deployed will indicate longer periods over which customers are connected to 4G; and
  - d. The reporting can be impacted by the end user devices. Not all end user devices are capable of connecting to all 4G bands. For example, some 4G devices can only connect to higher 1800MHz bands, which means they will not have the same coverage as a device with 4G capability at 700MHz band.
17. These parameters vary across operators and their respective customer device population, and the reported results.

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<sup>2</sup> [reference]

18. We monitor the service experience of our customers. We cannot speak to the overall market view, but our reporting indicates that Spark customers are connected to Spark's 4G network for a significantly higher proportion of the time than suggested by Opensignal reporting.
19. The graph below shows the proportion of time that 4G capable handsets are connected to the Spark 4G network relative to the 3G network. This indicates that compatible handsets are connected to the 4G network around [ ]SPKCI of time – a significantly higher proportion than the 76% reported by Opensignal in its latest report. Our reporting also includes the [ ]SPKCI of end user devices that can only connect to the 1800MHz 4G network, and periods where handsets are used for making 3G voice calls (the 3G network carries around [ ]SPKCI call hours per week).

Figure 1: Proportion of time handsets use 4G relative to 3G

[ ]SPKCI

20. Further, the vast bulk of our traffic is carried over the 4G network. This suggests that our customers are predominantly connected to the 4G network. The graph below shows that 3G data traffic through May 2019 comprises less than [ ]SPKCI of broadband traffic

Figure 2: Proportion of data traffic carried by 4G

[ ]SPKCI

21. These results are as expected - we have invested heavily in base-stations to ensure our customers have a seamless mobile data experience. Further, 4G at 700MHz has been deployed to almost all 3G base-station sites and, with the same or better propagation characteristics as 850Mhz, we would expect 4G to have the same or better coverage than the 3G network.
22. Measures of actual 4G coverage suggest that 4G network coverage is widespread and easily accessible by customers.

## Spectrum

23. The paper notes that spectrum is a critical input to the supply of mobile services and that significant asymmetries in spectrum holdings can affect competition, and that the design of future allocation processes for spectrum should have regard to such asymmetries. Further, the paper proposes that, while there is no case for regulatory intervention to facilitate a fourth national MNO to enter the market, the design of the upcoming 3.5GHz spectrum auction shouldn't foreclose the possible of new parties acquiring spectrum.
24. The Commission proposes to continue to monitor the design of the spectrum auction, and the timing and amount of spectrum that is able to be released.
25. Spark agrees with the Commission's preliminary view that the design of the upcoming 3.5GHz spectrum auction, or indeed of any future spectrum auction, should not foreclose possible entry from new operators.
26. However, we would be very concerned if the Commission were to adopt – out of this review - a principle that an aggregate spectrum cap should apply to that auction. Any spectrum auction cap should be circumstance-specific and consider: utilisation of existing spectrum holdings and their substitutability for the spectrum being auctioned; and the amount of available spectrum to be auctioned. In the case of the upcoming 3.5GHz spectrum auction, we do not expect the circumstances would support an aggregate spectrum cap.



## **We use all of our current management rights to meet customer demand and for new services, and do not “squat” on spectrum**

27. Spark has invested heavily over the past 15 years in spectrum management rights that have enabled us to cost effectively add network capacity to efficiently meet customer demand, and lead the market in providing commercial options for competitive new services such as wireless broadband.
28. There is not a deterministic relationship between spectrum holdings and network capacity and performance as parts of the Commission’s paper imply. In practice, while some spectrum is of course needed in order to operate a mobile network, network performance and capacity can be provided by either investing in additional spectrum or investing in additional sites. We deliberately chose to direct capital into spectrum rather than into in-fill sites to meet capacity requirements, and we make extensive use of our current management rights.
29. As Table 1 shows, [ ]SPKCI.

Table 1: number of sectors bands are deployed in following augmentation

### **[ ]SPKCI**

As a result, we will have almost [ ]SPKCI sites with 5 or more spectrum bands deployed on them. With demand continuing to grow, this number will increase rapidly over the next few years. And as we start to reach this “spectrum saturation” limit at sites, we are left with only two options: invest in additional spectrum or additional sites.

Table 2: bands used by sites following augmentation

### **[ ]SPKCI**

30. As communities are already expressing concern at increasing cellsite numbers, it is likely that an aggregate spectrum cap that limited Spark’s ability to obtain additional spectrum would result in capacity constraints at a significant number of sites with limited ability to economically meet underlying demand. This would have significant implications for consumers and competition in the market.
31. Spark is clearly making substantial use of all of its current spectrum management rights, with the exception of a very small holding of 2x7MHz in the 3.5GHz band which is below the minimum viable scale for meaningful deployment. Accordingly, the Commission should be cautious forming any firm views on spectrum allocation ahead of the detailed analysis undertaken for a specific allocation proposal.

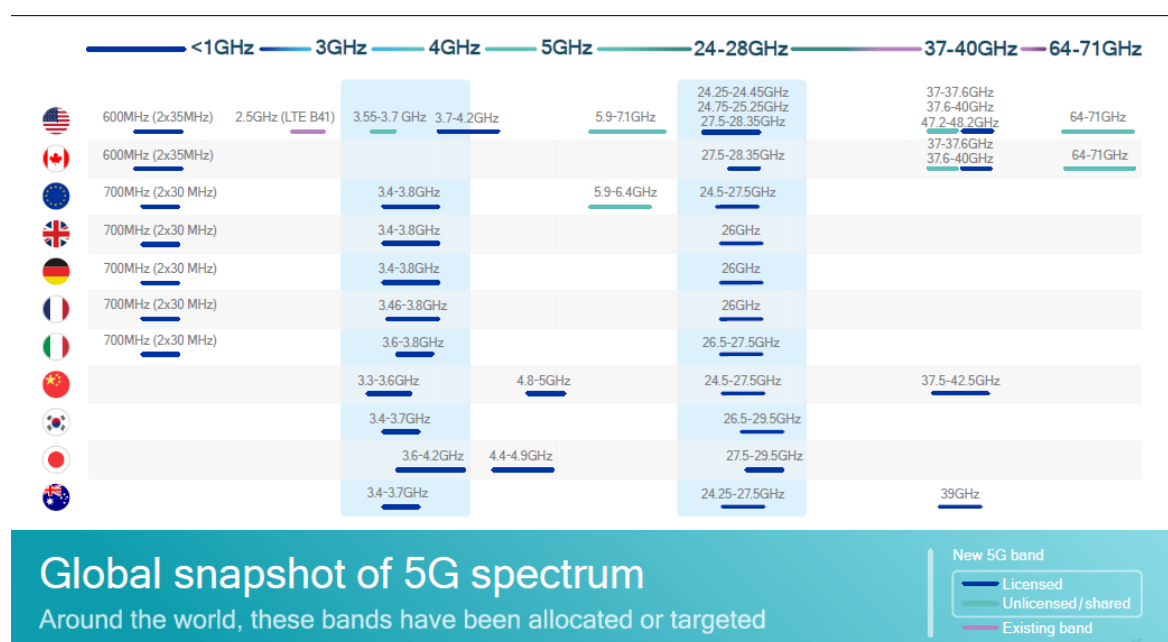
## **Our existing spectrum bands are not well suited to act as substitutes for the 3.5GHz band**

32. Further, as noted in the paper, an aggregate cap assumes that bands are substitutable. However, spectrum bands have different characteristics and not all bands are strong substitutes for each other. For example, lower spectrum bands have better coverage and in premises characteristics, while higher bands add significantly more capacity. A national operator will likely require a mix of spectrum for services.
33. In the case of the 5G services, operators will require access to specific 5G spectrum bands. This is because 5G is to be deployed in a TDD configuration (whereas we predominantly

deliver 3G and 4G in FDD configurations) and needs large contiguous spectrum blocks of approximately 100MHz to support 5G service requirements<sup>3</sup>.

34. While 5G will support an increasing number of bands over time, spectrum authorities and vendors are initially focused on key “pioneer” 5G bands at the 3.5GHz band and in the mmWave bands. The 3.5GHz band is intended to be used to provide widespread 5G coverage and capacity and this will be supplemented shortly by higher mmWave bands for indoor and high capacity uses (called 26GHz and 28GHz bands).
35. There will be significantly more options for re-deploying spectrum over time and authorities are developing plans that would see more spectrum available for mobile applications, but for the foreseeable future global equipment vendors will be concentrating on producing 5G equipment and handsets that operate in these 5G pioneer bands. Figure 3 shows the narrow range of bands in major markets that have either been allocated or targeted to be allocated for licensed 5G deployments in the near future. New Zealand is not large enough to ignore these overseas trends.

Figure 3: Snapshot of current and planned 5G spectrum releases<sup>4</sup>



36. At present, the 3.5GHz band is the only band with widespread equipment availability and large bandwidths available to economically support widespread 5G services. Operators are limited in their ability to redeploy existing bands as bands are already planned, in use with FDD/TDD and cannot be redeployed for new applications for some time. Therefore, existing holdings can have little practical implementations when considering acquisition of spectrum.
37. We therefore plan to acquire 5G spectrum in the 3.5GHz band in order to deploy 5G equipment that more efficiently meets data growth and support new 5G services that require improved network performance. And our target holding in that band is 80MHz-100MHz.

<sup>3</sup> The IMT-2020 standard used for 5G specifies high peak data rates across a cell, and this requires large contiguous spectrum blocks of 100MHz to achieve this. See Annex 1 of the European Commission recommendation which describes this requirement. *ECC Report 287*

<sup>4</sup> Graphic from <https://www.everythingrf.com/community/5g-frequency-bands>

### 3.5GHz band auction

38. A key attribute of the IMT 2020 5G standard is that large bandwidths are required to support high peak speeds and latency needs for anticipated downstream services that rely on this level of network performance. In other words, while it is possible to deploy 5G networks using less bandwidth, these deployments won't support the service performance and economic benefits promised by 5G deployments. The ITU/3GPP standard, the European Electronics Communications Committee, and the GSA all recommend 80-100MHz contiguous blocks of 5G spectrum because the efficiencies of a larger block size enable more effective capacity and higher peak data rates.
39. This means that, in practice, we expect all MNOs will seek to acquire between 80MHz and 100MHz of 3.5GHz spectrum.
40. We believe that the acquisition and holding of spectrum and the options this creates is another aspect of competition between operators. MNOs can adopt different approaches and this has led to market innovation and greater efficiency. For example, as noted in the paper, we have successfully migrated customers from poorly performing copper lines to our wireless broadband service.
41. Ill-advised spectrum caps create a real risk of suppressing or distorting competition. Limiting a provider's ability to purchase spectrum will hold back a competitor in the market, distorting business models and decisions. Accordingly, the Commission would need to be confident that it was the right thing prior to unwinding this aspect of competition.
42. Further, while there will be different business models in the future 5G environment and this likely includes third party providers of network, a spectrum cap shouldn't seek to drive a particular approach. We expect that these business models will emerge over a number of different bands and over time. For example, the 3.5GHz band is becoming the key band for nationwide 5G deployments as it provides both widespread coverage and capacity. But a number of other licenced and shared bands are to be released and may well be better suited to the predicted geographically-specific 5G service models, such as indoor, campus or industrial park services.

## MVNOs

### Market developments

43. We support the Commission's proposed approach to further monitor the development of wholesale arrangements as the market evolves. This is a market where MNOs are competing for wholesale MVNO customers and where further MVNO customers are continuing to emerge.
44. In particular, since the issues paper, the wholesale market has continued to develop:
  - a. [ ]SPKCI
45. As set out in the Red Dawn report, the size of the New Zealand market means that the MVNO opportunity may well be limited here and is likely to be at the reseller end of the MVNO. In this context, it is promising that we are seeing material activity and a number of large, well-resourced, firms considering this space.

## Red Dawn report

46. The Red Dawn report provides a cautionary message that the size of the NZ market means that MVNOs are unlikely to develop. Red Dawn acknowledges that a full MVNO is unlikely to emerge in the NZ market, and that growth potential is limited.
47. What surprised us about the Red Dawn report was the extent to which it sought to explore possible regulatory interventions, without a finding of market failure, a case for intervention, or a meaningful costs-benefit analysis of intervention.
48. Regulatory intervention to support possible growth of MVNO will send a strong signal to investors in 5G and other emerging mobile technologies. It may chill risk appetite at a time when the opposite is crucial to enable consumers to participate more fully in the digital economy.
49. We don't know what commercial models will develop with 5G, nor whether the traditional MVNO model that applied in the past will feature going forward. But we do anticipate these to evolve more rapidly, iteratively and broadly across a wider ecosystem of providers. There will be wholesale sharing of some form, but it's too early to know what that will look like.
50. What this tells us is that the scale of the New Zealand market is a key determinant of the economics of providing MVNO services. Seeking to increase the number of MVNOs operating in the market for its own sake is unlikely to meaningfully improve consumer outcomes.
51. We further asked NERA to review the Red Dawn report relating to MVNOs in the NZ market. NERA report that:
  - a. While the Red Dawn report provides a useful overview of the different potential MVNO business models and the MVNO business case, it is not a cost benefit analysis of regulatory intervention - it does not rigorously identify benefits and it essentially ignores costs of intervention;
  - b. The Red Dawn report has not identified or defined a problem with respect to consumer outcomes that increased MVNO participation in the market would solve. Instead, the report observes that MVNOs have a low market share in New Zealand relative to a comparator group (Australia, the UK and the Netherlands) and then asserts that pricing or innovation benefits would therefore flow from having greater MVNO participation in the market;
  - c. However, the Red Dawn report hasn't established - nor provides any evidence - that these outcomes are currently poor (and therefore can be improved) and that there is a causal link between MVNO participation in the market and the consumer outcomes in question. In contrast, the Commission's draft report finds that market outcomes are trending in the right direction and that it would require compelling evidence of a competition problem or market failure to consider this further;
  - d. NERA further tested suggestions that MVNOs influence consumer outcomes. It analysed the relationship between 4G uptake, mobile data speed and mobile data use and MVNO market share and found no statistically significant relationship between MVNO share and these outcomes.
52. As there are no known benefits from regulating for MVNOs, any regulatory invention is a cost.
53. We agree that if MVNO models are efficient and economic, they will develop.

## Consumer engagement

54. The paper sets out that consumers have a great basis for engaging with their providers and the market:
- a. Most consumers can easily access their mobile usage information;
  - b. Most consumers find it easy to compare; and
  - c. The process for residential consumers to switch between providers is relatively easy.
55. However, in spite of all these beneficial enablers, the paper notes that significant numbers of residential consumers report that they only compare plans infrequently and remain with their providers for extended periods. The paper notes that this may suggest there is a degree of consumer inertia. The Behavioural Insights report outlines a number of factors or reasons for potential customer inertia.
56. We are not convinced that the analysis reflects the complexity of customer behaviour, for example:
- a. Consumers purchase mobile telecommunications services for a variety of reasons beyond the headline price, including the added value services that might come in a bundle with the mobile telecommunications services;
  - b. Decisions to change providers are taken over a longer term, considering the value over time across multiple dimensions and multiple interactions with the provider; and
  - c. Consumers get their information from a variety of sources, including formal performance reports and discussions around the barbeque.
57. We shouldn't expect to see direct relationships or fine consumer optimisation within a short period. Considerably more longitudinal evidence would be required before the Commission could be confident that a problem exists.
58. We expect that further analysis will confirm the opposite: that New Zealand consumers are well-informed and are not handicapped in making sensible purchasing decisions in any significant way. We see consumers making conscious purchase decisions frequently through their interactions with us, either to add additional functionality or to change plans.
59. At an industry level, the Commission reports that around 13% of on account customers and 50% of pre-paid customers change their service each year. This measures the proportion of customers that relinquish their plan, or of pre-paid accounts that become inactive. However, customers are considering their purchase decisions significantly more frequently than this, for example:
- a. Around [ ] **SPKCI** on average of our on-account customers change plan, move from post-paid to pre-paid, leave, or join us every month. This would suggest that customers consider their purchases or consumption on a regular basis;
  - b. In addition, Spark pre-paid customers make multiple purchase decisions over any given period. For example, of Spark pre-paid who have been active over the past year, around [ ] **SPKCI** of them have purchased an addition service within that period.

60. We believe that customers are significantly more active, and aware, than the measures considered by the paper suggest.
61. Commission staff have requested data from MNOs that will allow them to consider whether consumers are, in practice, selecting the bundle of services that best meets their actual demand. We are participating in that study which will provide further information on consumer behaviour.

**END**

## **Attachment: NERA report**

Attachment provided as a separate document.