VODAFONE NEW ZEALAND LIMITED

SUBMISSION TO THE NEW ZEALAND PRODUCTIVITY COMMISSION

Submission to the New Zealand Productivity into boosting productivity in the services sector

2 May 2013

Executive summary

1. Vodafone welcomes the opportunity to comment on the Productivity Commission's review into "boosting productivity in the services sector". Vodafone is both a service business and also a communications partner for New Zealand's service businesses.

2. We believe there is significant opportunity for growth in the services sector and to remove unnecessary impediments to realising that growth potential.

3. As a communications business, Vodafone considers the current timing of the review into the service sector's productivity coincides with the tipping point for transformative communications technology.

4. Faster bandwidth is removing traditional costs and barriers such as addressable market, location, advertising, invoicing and mundane functions such as paper-filing for businesses to "start-up" and for existing businesses to operate more efficiently.

5. We have provided both communications industry trend analysis and business case studies to support the content discussed in our submission.

1 RESPONSES TO SPECIFIC QUESTIONS

1. Vodafone has chosen only to respond only to select questions raised in the Productivity Commission discussion paper. This approach ensures our comments are limited to our industry expertise and acumen as a New Zealand communications provider and partner for other service businesses operating in New Zealand's service sector.

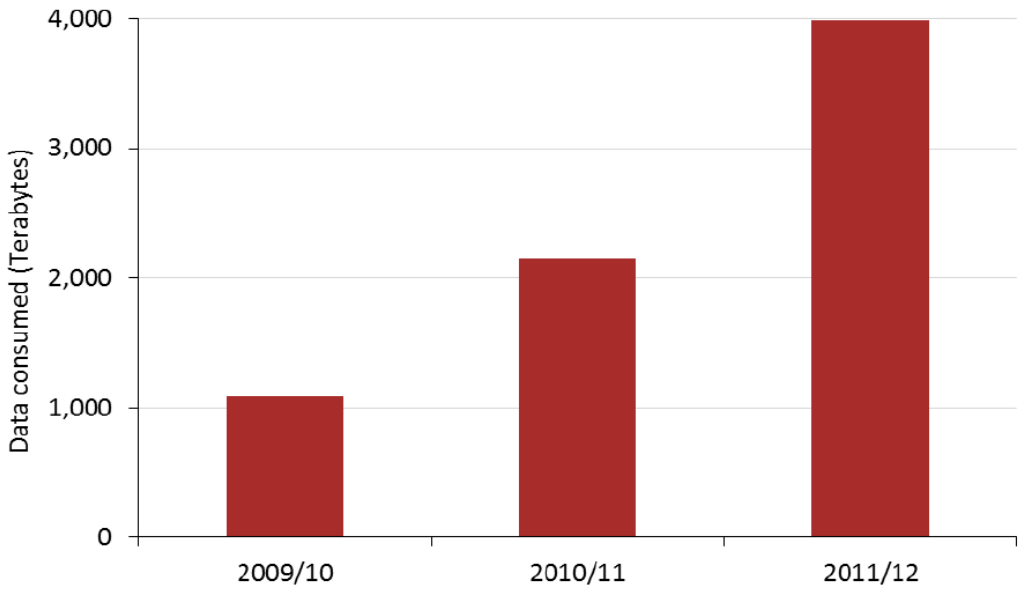
What is the potential for productivity and growth in service industries that you are familiar with? What the impediments to improved productivity and growth in those industries?

2. The New Zealand communications service industry is experiencing unprecedented growth in usage. The high sustained growth is being driven principally by Internet data applications.

3. According to the New Zealand Commerce Commission Market Monitoring Report for 2011-12 noted broadband usage increased from 10 gigabytes[1] (GBs) per user from June 2011 to 19 GBs in June 2012.[2]

4. The trend with increased consumption is not limited to DSL connections. The Commerce Commission's annual market monitoring report summarised **year-on-year** aggregate data consumed over mobile networks. Graph 1 below is the Commerce Commission's reported total data traffic in terabytes[3] for the years (July-June) 2009-10, 2010-11 and 2011-12.

Graph 1: Annual Total Mobile Data Consumption in Terabytes from 2009-10 to 2011-12



Source: New Zealand Commerce Commission Annual Telecommunications Monitoring Report, April 2013

5. The Commerce Commission's data shows that New Zealand's mobile data traffic has approximately doubled for each year from 2009-10 to 2011-12. This is an extraordinary rate of growth in usage.

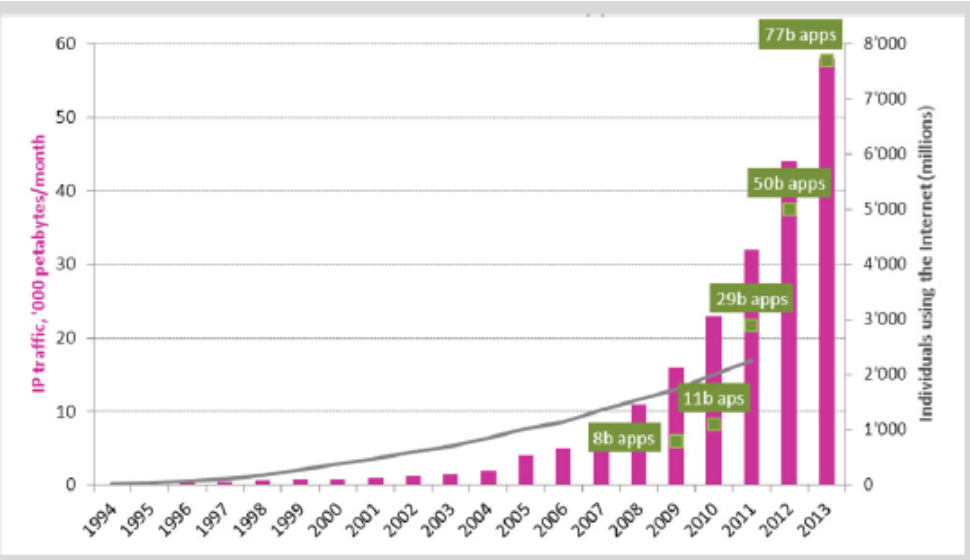
[1] 1024 megabytes equals one gigabyte

[2] ComCom , Annual Telecommunications Monitoring Report 2012, April 2013

[3] 1024 gigabytes equals one terabyte

6. The New Zealand experience is not unique. Graph 2 below from the ITU shows: global monthly data (internet-protocol, IP) traffic in petabytes[4] per month (in pink, bar graph), individuals using the Internet in millions (line graph), and applications downloaded (green plot).

Graph 2: Growth in IP Traffic, Internet Users and Apps Downloads (1994-2013)



Source: International Telecommunications Union (ITU) Trends in Telecommunications Reform 2013 Transnational Aspects of Regulation in a Networked Society

7. The pink bar graph shows the growth in global data traffic. The ITU observed global monthly data traffic grew from 1 petabyte two decades ago to 44 000 petabytes per month in 2012. It has suggested "the sky does not seem to be the limit for future IP traffic growth; in 2013, IP traffic is expected to grow by some 14 000 petabytes/month."

8. There is also a clear identifiable trend for ownership of multiple connected devices, which according to the ITU "is here to stay, in both developed and developing countries."

9. The ITU also noted "while those with access to a single device may benefit, at least to some extent, from the ubiquity of broadband networks, only those having multiple devices connected to the Internet can fully realise the promise of a hyper connected world."

10. Accordingly, ubiquity and accessibility are fundamental to realising the benefits that data can provide for New Zealand service businesses. Vodafone notes the importance of mobile networks in providing continuous connectivity to multiple devices and ensuring New Zealand service businesses can realise the benefits of ubiquitous high bandwidth connectivity.

11. The US government has also recognised the importance of mobility in its National Broadband Plan:

> *The contribution of wireless services to overall gross domestic product grew over 16% annually from 1992-2007 compared with less than 3% annual growth for the remainder of the economy. Given these growth rates, wireless communications—and mobile broadband in particular—promises to continue to be a significant contributor to U.S. economic growth in the coming decade.*
>
> *Disruptive technology transformations happen once every 10 to 15 years. Mobile broadband represents the convergence of the last two great disruptive technologies—Internet computing and mobile communications—and may be more transformative than either of these previous breakthroughs. Mobile broadband is scaling faster and presents a bigger opportunity. This revolution is being led not only by domestic [US] wireless carriers, who are investing billions in network upgrades,*

[4] 1024 Terabytes equals 1 Petabyte

but also by American companies such as Amazon, Apple, Intel, Google, Qualcomm and numerous entrepreneurial enterprises that export innovation globally.[5]

12. Vodafone is the first New Zealand mobile operator to invest in the next generation of mobile technology and commercially rollout "4G" or long term evolution (LTE) services to New Zealand mobile users with LTE service available in part of Auckland. Vodafone will complete further rollouts of this network to Christchurch and Wellington by September 2013.

13. LTE represents the triumph of data communications for mobile technology. As opposed to the previous generations of mobile communications technology, LTE is a data only network. LTE is designed to improve mobile data transmission to enhance the mobile data experience. It is more efficient for delivering data services than previous technologies such as 3G and it is capable of delivering speeds significantly higher than those delivered by previous generation of technologies.

14. Current LTE networks are capable of delivering speeds better than those delivered by DSL technologies. Future evolutions of LTE are being developed that are capable of delivering headline speeds around 1Gbps.

15. To meet the demands for data ubiquity Vodafone supports the timely access to necessary communications service inputs to meet the needs of an addressable market and avoids the unnecessary hoarding/warehousing of finite resources. Timely access to necessary inputs and closely correlated and timed investment in enabling communications technology will maximise the growth potential for New Zealand's service sector and for the wider economy.

What are the barriers to the export of services? What are the economic impacts of those barriers? What can be done to reduce them?

16. Connectivity is part and parcel of innovation in both the services and goods sector. The delineation between traditional goods and services is blurring as customers demand service functionality (such as customer care) with physical goods and hardware with their services.

17. Increasingly consumers are demanding global connectivity with their service relationship or with their physical goods. Connectivity is becoming a requirement for the delivery of physical goods. Accordingly, exports that appear to have the characteristics of physical goods are now increasingly being bundled with a service relationship.

18. Vodafone's global Machine-2-Machine (M2M) service leverages a global connected footprint and allows New Zealand businesses the opportunity to market goods and services to a global market. The Vodafone M2M SIM operates internationally on any Vodafone network or Vodafone partner network around the world using a centrally hosted secure platform. The Vodafone M2M SIM obviates the need for businesses to negotiate agreements with mobile service providers in different countries around the world.

Mi5/iDefigo

19. Vodafone has already assisted the New Zealand owned businesses Mi5 and iDefigo launch their products and services to a global market. Mi5 created an award winning unique lightweight, wire free, easy to install security camera that was very different to similar products on the market.

20. With the benefit of global connectivity iDefigo has been able to provide a video surveillance service (video surveillance as a service, VSaaS) with the Mi5 product and are able to sell this service to a global market.

21. iDefigo market themselves as a "relaxed typically Kiwi group." They personify New Zealand culturally as they have not had to relocate their business to market to a larger addressable

[5] Federal Communications Commission (FCC), (United States) *National Broadband Plan*, p. 75

market. Global connectivity means they can market their product/service to a global addressable market from New Zealand.

22. Customers of the Mi5/iDefigo service can access and use their cloud based surveillance service anywhere leveraging the capabilities of public mobile networks around the world.

Bandwidth constraints

23. Increasing data use does pose a challenge for resources dedicated to the transmission of data. New Zealand's geographic location and relative population size has meant it has been poorly served historically by international cables for the transmission of data globally.

24. To meet the growing demand for data and global connectivity Vodafone, Telstra and Telecom New Zealand have committed to jointly investing in a second under-sea cable between New Zealand and Australia.

25. The trans-Tasman international cable will enable New Zealand to better leverage the four additional international cable systems serving Australia (with several more proposed or in development) and providing important redundancy (a second cable pathway) for New Zealand international traffic.

26. The second undersea cable underscores the commitment by communications providers on both sides of the Tasman to supporting data bandwidth growth. The joint venture capital commitment will future proof data growth for New Zealand instead of curbing growth when current resources become capacity constrained.

International roaming

27. While not traditionally considered in the context of export services, international mobile roaming is an export service for New Zealand mobile operators. However, international mobile roaming does not easily fit within the general agreements on trade (GATS) in services modes of international trade.

28. Rather, New Zealand mobile operators generate export revenue from roaming when foreigners come to New Zealand and use their mobile service with their local provider's SIM. In this instance, the traveller's local network will have a relationship with one or more New Zealand mobile networks to *host* their customer for international roaming. Accordingly export dollars for New Zealand mobile operators are generated from the hosting service they provide to foreign operators.

29. Similarly when New Zealanders travel abroad and use their mobile phone abroad (using their New Zealand provider's SIM) then the foreign network will levy New Zealand mobile operators for providing a hosting service to their New Zealand subscriber.

30. Competition between New Zealand providers is making international roaming services challenging for growing the revenue of this service. This is because unlike other competitive markets when competition unlocks new volume growth for services, international roaming volumes are, in part, dependent in part on the roaming tariffs the foreign operator offers their subscribers for roaming in New Zealand.

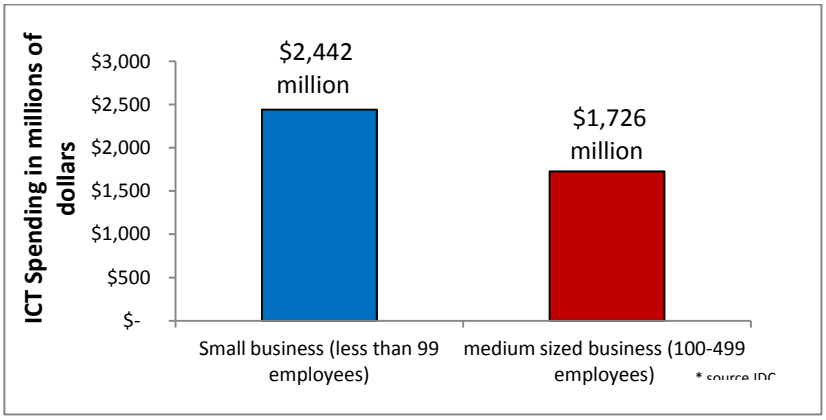
To what extent do New Zealand service businesses invest in, and make effective use of, ICT? What are the barriers to them doing so?

New Zealand Business ICT Spending

31. New Zealand small and medium businesses spent a combined $ 4167.9 million on information communications technology (ICT) for the 2011 period (February 2011 to February 2012).[6] This reflects a significant commitment to embedding ICT for innovating, supporting and improving their businesses.

32. Graph 3 below provides a breakdown of firm spending on: telecommunications connectivity for voice and data; hardware (such as mobile handsets, laptops, PABXs and other physical equipment); software; and information technology (IT) services.

Graph 3: ICT Spending by Small and Medium New Zealand Businesses for 2011



Source: IDC Market Analysis: New Zealand Small and Medium Sized Companies Forecast and Analysis, 2011-2016: The Untapped Opportunity.

33. Graph 3 highlights the importance of ICT to New Zealand small and medium businesses with small business investing approximately $2.4 billion into ICT during 2011 while medium businesses invested up to $1.7 billion during the same period.[7]

34. IDC observed that small business spending increased by 4.4% year-on-year from 2010 while medium sized business spending increased by 4.1 % from the preceding period.[8] Indeed ICT investment has been integral to the recovery strategy for businesses from the global financial crisis.

ICT spending composition

35. The growth in ICT spending is also reflected in Statistics New Zealand's ICT Supply Survey for 2012. Of the $12.6 billion generated by ICT services last year, two thirds came from communications services.[9] Statistics New Zealand considered the largest contributors for ICT services to be telephony, internet and subscription television. However all facets of IT services experienced growth during 2012. Statistics New Zealand further categorises IT services into the following classifications: support services; design, consulting and development; and hosting and infrastructure (including "cloud" hosted services). Each of these categories all experienced

[6] Louise Francis, IDC, *Market Analysis: New Zealand Small and Medium Sized Companies Forecast and Analysis, 2011-2016: The Untapped Opportunity*, October 2012

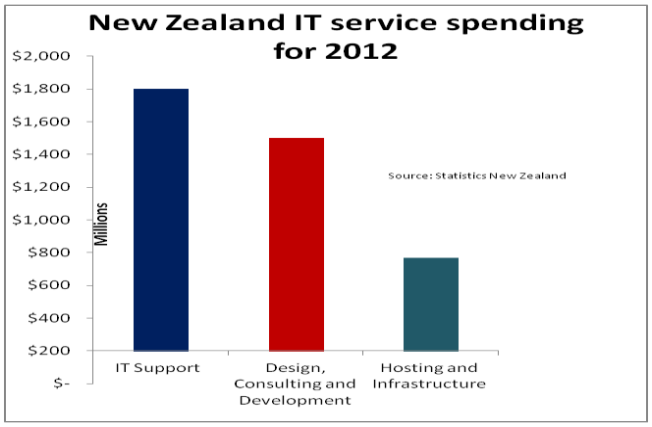
[7] Louise Francis, IDC, *Market Analysis: New Zealand small and medium sized companies forecast and analysis, 2011-2016: the untapped opportunity,* October 2012

[8] *Ibid*

[9] Includes non-business consumption

growth 2012. Graph 4 shows the amount New Zealand spent on the three categories of IT services:

Graph 4: New Zealand Information Technology Spending 2012



Source: Statistics New Zealand, Information and Communications Technology Supply Survey for 2012

36. Each of the categories of IT service in Graph 4 experienced growth from the previous period. IT support services experienced 18% growth to total $1.3 billion for 2012 while design consulting and development experienced 15% growth to $1.5 billion and hosting and infrastructure experienced 5% growth to become a $767 million dollar service. [10]

37. Of the different categories of ICT spending, telecommunications is still the fundamental driver for business ICT spend. IDC indicated that almost 58% of business ICT expenditure is dedicated to telecommunications.

38. While the Statistics New Zealand ICT Supply Survey captures both business and consumer spending, it does identify a broad trend for ICT demand by New Zealand businesses. In particular it highlights that connectivity is critical to small-medium businesses which have thrived on the wave of technological opportunities, particularly those provided through mobile platforms.

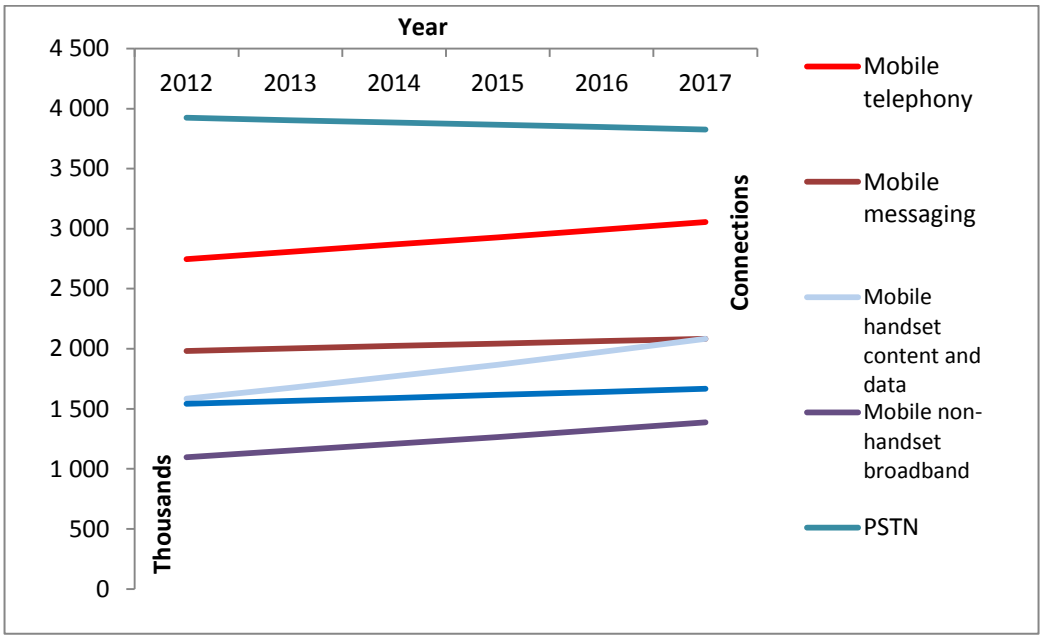
Micro-Small business and ICT

39. In terms of considering the productivity benefits it is most appropriate to consider the impact on the smallest part of the business sector given a significant proportion of the service sector is comprised of diffuse small businesses.

40. Graph 5 shows forecasts by different telecommunications service connections such as traditional telephone lines, mobile telephones and also for other communications services such as DSL, mobile data and mobile broadband for small-micro businesses (0-9 employees) in the developed Asia-Pacific for 2012 to 2017. The developed Asia-Pacific region was defined to include Australia, Hong-Kong, Japan, New Zealand, Singapore, South Korea and Taiwan.

[10] Statistics New Zealand, *Information and Communication Technology Supply Survey: 2012*, 19 March 2013

Graph 5: Developed Asia-Pacific region forecast connections for different telecommunications services for micro-businesses (0-9 employees)



Source: Analysys Mason, ICT Services for Small and Medium Businesses Worldwide Forecasts and Analysis 2012-2017

41. While New Zealand data is embedded within the wider defined region, the above graph does highlight broad trends for micro-small business use of communications services.

42. In particular the above data demonstrates that micro-businesses have always had a strong dependence on traditional telephone lines being the most utilised service for micro-business connections (illustrated by the high number of PSTN connections). The data suggests that traditional telephone lines will remain a fundamental part of how micro-businesses "do business" for the foreseeable future. Analysys Mason forecasts that there will still be approximately 3.8 million PSTN connections for micro-businesses in the developed Asia-Pacific region in 2017. Nonetheless, PSTN connections do reflect a "service in decline" with the expected number of connections to decline by 2% over the five year forecast.

43. The other noteworthy trends to observe are the sustained growth in mobile connections for both mobile telephony and mobile broadband and in particular the very strong growth in *mobile handset content and data*. Indeed *mobile handset content and data connections* are expected to experience 6% year-on-year growth for the five years. The demand for mobile data is also reflected in mobile broadband connections which also indicate a year-on-year 5% growth rate.[11]

44. Accordingly, mobility and reliable mobile data are providing enabling growth for micro-businesses across the region. This growth is not driving significant telecommunications substitution given the contrasting growth rates between the new services and relative decline

[11] Patrick Rusby and Steve Hilton, Analysys Mason, *ICT Services for Small and Medium Businesses World-Wide Forecasts and Analysis 2012-2017*, September 2012.

in PSTN connections. Instead mobility and better mobile bandwidth is unlocking business opportunities as micro-businesses realise the opportunities that mobility and reliable mobile data can complement and enhance their business operations.

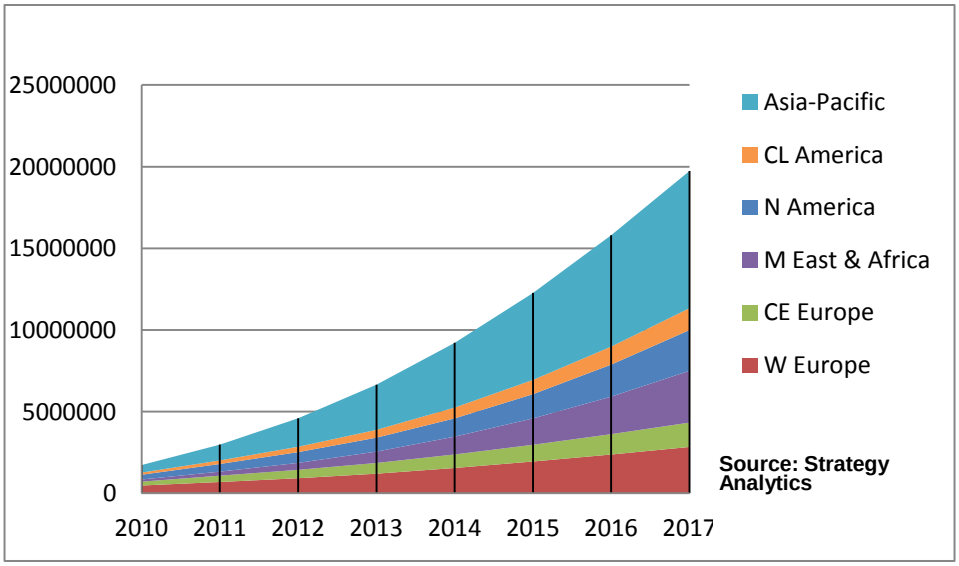
The importance of mobility

45. Demand for mobility and mobile bandwidth is an undeniable global trend and is redefining assumptions and requirements for communications. No longer are businesses just demanding mobile telephony but are instead relying on mobility for continuous online access.

46. Strategy Analytics forecasts that total mobile subscriptions globally will grow by almost 2 billion from 2012 to 2017, from around 6.6 billion subs to nearly 8.5 billion subscriptions. Within this total of mobile subscriptions, mobile broadband data subscriptions on mobile PC/modems (external modems, including portable WiFi hotspots, and notebooks and netbooks with embedded 3G and/or 4G connectivity) will account for 474 million subscriptions by 2017, up from 191 million in 2012, representing a compound annual growth rate (CAGR) of 19.9%. These subscriptions will grow from only 2.9% penetration of global population in 2012 to 7.2% in 2017.[12]

47. The Graph below provides a forecast from 2012-2017 for global demand for mobile data traffic contributed by non-telephony data devices such as mobile notebooks and mobile broadband connections.

Graph 6: Mobile Broadband Data Traffic Forecast in Terabytes (Tbytes)



Source: Strategy Analytics, Global Active Mobile Broadband (PC/modem) Subscription Forecast 2007-2017

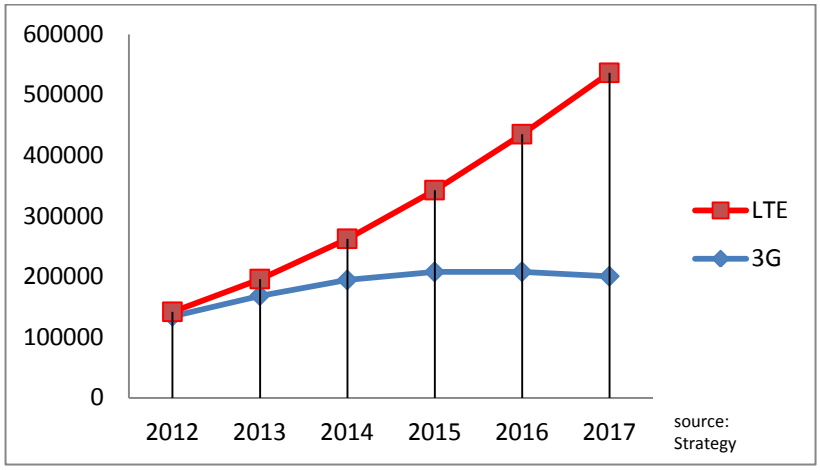
48. Data consumed by mobile broadband represents only a portion of global data traffic as it excludes data consumption from telephony capable devices such as smartphones (the single biggest driver for mobile network data). However, the Strategy Analytics research into mobile broadband demonstrates compelling global demand for mobile data bandwidth.

49. Accordingly, communications service providers are being forced to meet the demand for data consumption by investing in more efficient means for delivering reliable mobile data bandwidth.

[12] Strategy Analytics, *Global Active Mobile Broadband (PC/Modem) Subscription Forecast 2007-2017*, December 2017

50. Strategy Analytics also provide a breakdown of forecast mobile broadband traffic flowing over different networks across the world. Graph 7 below is Strategy Analytics forecast for mobile broadband traffic growth forecasts for 3G networks and LTE networks in the Asia-Pacific.[13]

Graph 7: Mobile Broadband over Different Mobile Networks in Tbytes for Rest of Asia-Pacific



Source: Strategy Analytics, Global Active Mobile Broadband PC/Modem Subscription Forecast 2007-2017

51. The above graph 7 highlights the growing importance efficient data delivery is for communications users, and is requiring communications providers globally to continue to invest in technology to meet users' demands for reliable mobile data bandwidth. LTE represents a "step change" in the mobile data experience and users will have the ability to do an increasing range of tasks over mobile technology that they were previously unable to do over slower 3G networks.

Mobile smartphones

52. Google's "Our Mobile Planet" research New Zealand had a 44% smartphone penetration in early 2012. Vodafone believes this percentage has tipped over half of the New Zealand population by early 2013. Nonetheless, the Google research also noted other prevailing trends in New Zealand smartphone user behaviour:

    a) 53% have researched for products using their smartphone

    b) 80% have looked for local information using their smartphone and more importantly 39% search for local information on a weekly basis

    c) 47% of respondents looked at online maps as part of their purchase journey

    d) 11% of respondents wrote a review about their purchase experience.[14]

53. Accordingly, smartphones are changing the behaviour of the purchasing journey and empowering the customer both with researching their range of choices and with dealing with their service experience. New Zealand service businesses must be prepared for the smartphone customer in order to maintain parity with counterparts both locally and internationally.

54. Fundamental to meeting the smartphone customer is for businesses is to have coverage and connectivity.

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[13] Strategy Analytics definition of "rest of Asia-Pacific excludes: Australia, China, India, Philippines, Indonesia, Japan, South Korea, Singapore, Hong Kong and Malaysia.

[14] Google, *Our Mobile Planet: New Zealand Understanding the Mobile Consumer*, May 2012

Unified communications and "the cloud"

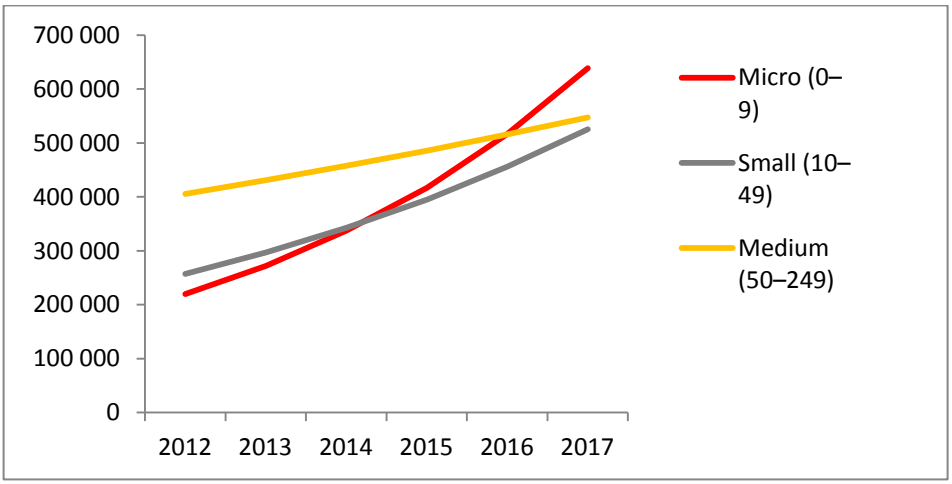
55. Unified communications is the next evolution in improving business productivity communications. However, it appears that New Zealand businesses still lag behind global counterparts in terms of harnessing the benefits of this innovation.

56. Unified communications refers to providing a consistent interface across devices, services and platforms rather than having communications devices and services operating individually "in silos". A unified communications environment enables applications such as audio/video conferencing, enterprise instant messaging, TXT email and personal information functions (PIM) are all seamlessly available across desktop and mobile devices and are interoperable and enable one-to-one communications and one-to-many communications.

57. According to IDC "when compared internationally, it appears New Zealand still lags other regions in terms of adoption and usage among small and medium sized enterprises."[15]

58. Analysys Mason in graph 8 has provided its forecast for adoption of cloud communications for 2012 to 2017 for the developed Asia-Pacific region for micro-businesses (0-9 employees), small businesses (10-49 employees) and medium businesses (49-249 employees).

Graph 8: Cloud Unified Communications for Small and Medium Enterprises for the Developed Asia-Pacific region



Source: Analysys Mason, ICT services for small and medium businesses worldwide forecasts and analysis 2012-2017

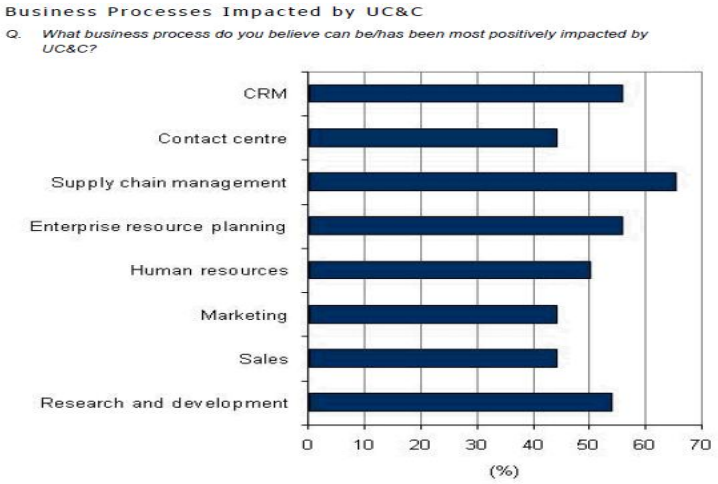
59. The above graph 8 highlights that over the medium term micro-businesses will be the largest adopters of cloud unified communications in the developed Asia-Pacific region.

60. The benefits of seamless connectivity and security will enable New Zealand service businesses to engage with their staff, clients and suppliers irrespective of location or device.

61. These benefits are also observed in IDC's research on unified communications. IDC's research on business processes that could be positively impacted by unified communications noted that respondents were largely positive of the impact that unified communications could have on their businesses. Graph 9 below shows responses to IDC's question on business process positively impacted by unified communications and collaboration:

[15] Shane Minogue, Adam Dodds and Dustin Kehoe, IDC, Unified Communications and Collaboration is Primed for Cloud: New Zealand Results of IDC's Annual Asia-Pacific Survey,

Graph 9: Business Processes that would be positively impacted by Unified Communications (more than one response allowed)



Source: IDC Unified Communications and Collaboration is primed for cloud: New Zealand Results of IDC's Annual Asia/Pacific Survey.

62. However, IDC also noted that 62% of New Zealand respondents considered a consistent level of service in remote locations as a major technical challenge for unified communications. This reason was the highest of all the Asia/Pacific countries surveyed by IDC. "The remoteness of some areas in New Zealand has persisted to be an issue in many areas of telecommunications and continue to cause delays".

63. Accordingly, the opportunities for innovating with ICT are abundant for New Zealand service businesses. The rapid rate of technological innovation with connectivity and IT mean businesses are no longer tied to traditional means of communicating with customers, colleagues and suppliers. Indeed, on the other side consumers are actively embracing the "online" environment to seek out services and to report their service experience.

Which service industries are significantly affected by industry-specific regulation? Are there opportunities for improvement? What other policy issues have an important impact on productivity in the services sector?

64. The New Zealand telecommunications industry formerly a public utility service was an early mover internationally to commercialise its former state owned telecommunications service provider in 1987 and then undertake partial privatisation in 1990 as a means of facilitating competition in the telecommunications sector.

65. The initial privatisation of Telecom New Zealand was criticised for not adequately separating out between "natural monopoly" elements of the business with potentially competitive activities. The 1993 independent review into Australian Competition Policy, commonly referred to as the *Hilmer Report* made the following observation of the New Zealand telecommunications market:

> *The potential difficulties that may arise where such separation is not carried out before the introduction of competition are illustrated by the New Zealand telecommunications market. New Zealand Telecom continues to*

perform various regulatory and quasi-regulatory functions and this is one factor which has hampered the achievement of effective competition in that market.[16]

66. Since then the New Zealand telecommunications sector has undertaken two further substantial reforms of the sector. The final iteration completed in 2012 resulted in Telecom New Zealand voluntary agreeing to de-merge its business into a network arm and retailer.

67. According to Ovum "this is the most radical separation possible and is what now makes the New Zealand market different from all others." New Zealand is now the forerunner in structural reform.

68. Telecom's de-merger means third parties and Telecom all have transparency and confidence with acquiring access to essential facilities from a non-integrated third party provider, Chorus. We are in the very infancy of this radical change. At the same time the New Zealand government has partnered with Chorus and local fibre companies to modernise its monopoly infrastructure to an all optical fibre network. Vodafone supports all of these reforms.

69. Any radical changes to the industry framework under the recently initiated Government review into the *Telecommunications Act* following such new radical changes to the operating environment may unnecessarily de-stable the current competitive environment and the consumer benefits from structural reform.

[16] Frederick Hilmer, Mark Rayer and Geoffery Taperall, *National Competition Policy Review Report – Report to Heads of Government* (Australia), August 1993 p. 217-218 footnote 2