

UNITEC New Zealand

A thesis submitted in partial fulfilment of the requirements for the degree in Master of Computing

**Mobile internet user experience of
Small to Medium Enterprises (SMEs)
in New Zealand**

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Abstract

This study is about SMEs (Small to medium enterprises) customers' mobile internet experience in relation to its key attributes such as speed, security, cost, coverage, reliability and smart phones used. This study is essential as mobile internet's speed has increased substantially over the past few years in New Zealand especially with the launch of 3G (3rd Generation Network) and 4G (also known as LTE- Long Term Evolution) by Vodafone New Zealand followed by Telecom and 2degrees Mobile lowering the prices on account of competition. Long Term Evolution (LTE) provided 10 times faster speed than on existing network infrastructure for Vodafone New Zealand. Faster speed of 3G and 4G networks has also driven change in the way many businesses operate. It has also made an impact on users' experience and behaviour towards business gadgets and use of business applications on the go.

TAM (Technology Acceptance Model) has been put in perspective while designing questionnaire for surveys on user/customer experiences of mobile internet. TAM provided proven foundation and framework to understand acceptance of a technology by end users and gain their perspective on it. Therefore, there are two surveys conducted, one on sales team (Business Channel) of service provider and second one on SMEs (Small to Medium Enterprises) decision makers. Interviews were also conducted on service provider's SMT (Senior Management Team) to get an overall perspective of customer/user experience to identify and evaluate some gaps.

Even though interviews are conducted on single service provider's leadership team but the feedback sheds light and provides a perspective on user experience from cross functional team heads. In relation to survey on single service provider's sales team (which includes different roles and divisions within) helps us to understand user experience from many roles' view point within sales team. Further research can be conducted to include other service providers and functions within the business however single service provider is chosen in this case to limit the research within the scope of this study.

The results of this study show in survey-2 on SMEs that when it comes to most important attribute of mobile internet for them, it is reliability aspect, coverage and cost come later in terms of their importance to SMEs, in fact SME's are least concerned about 'Cost' in comparison with coverage and security of mobile internet. In relation to security aspect of mobile internet only 48.2 % of the SME respondents were concerned or very concerned about the security of information transmitted via mobile internet whereas there were further 27% SME respondents who were not sure about the security. It appears either they not concerned about security or they are yet to be educated on this issue.

According to "Business Channel" perspective in survey-1 only 29% of SMEs are concerned about security. This shows that there is a gap between two perspectives which could possibly lead to poor user experience. There is scope for more research to be conducted in order to reach an alignment on both perspectives. It has also come out in results proving/selling MDM- mobile device management solution to SME's is potentially a growing opportunity for some telecommunication companies in New Zealand as according to surey-2, 60% SME respondents are not using any MDM solution and 38% don't know about it. According to survey-1 about 20% respondents advised that MDM is a requirement for their business customers which again shows a gap to be investigated in further studies.

Acknowledgements

I would like to thank my family for supporting and helping me in every way possible from the beginning of my Master program to the handing in of this thesis report, especially to my brother Muhammed Zubair-ul-Hassan who funded my study in New Zealand and I came into this beautiful country which I now call “home away from home”. I dedicate this report to my brother Zubair who works relentlessly for his family- wife and six kids and during my schooling in Pakistan he nurtured me to the extent of me getting spoiled and he financially supported my college and post graduate education. He is a man with a vision for better future for his family and surely education is the only sustainable way to ensure better future for coming generations. I love my brother to the core of my heart for what he has achieved and done for family.

I would like to thank my wife and daughter Fajar for being my motivation to carry on this study. I appreciate my wife’s understanding and sacrifice with her time in looking after me- whether it was making meals for me in the kitchen or washing and ironing clothing but most importantly giving away family and recreation time for my studies. I owe you big time for this. I love you honey!

I would like to acknowledge all the help and support I received for this study from my principal supervisor Hira Sathu who provided both the technical and motivational support. There have been many instances when I couldn’t spare time for this project due to my family commitments and work challenges however Hira never gave up on me and told me that I have to bring this study to its logical conclusion.

A special thank you to Michael Friis- Regional Business Manager for 2Degrees Mobile for being such an inspiration and providing motivational leadership for my goal setting; his leadership and inspiration guided me to complete this project in 2014.

Michael also helped by sending an e-mail to Business Sales Consultants in Auckland, Hamilton, Taupo, Rotorua and Whangarei, and asked them for their participation in my project, this helped me to get credible data.

2Degrees and Percy Yang- my Sales Manager supported me to join Business Network International-BNI Mt Eden chapter, normally there are about 20 businesses as members in one chapter. BNI has got 126 chapter and 2650 members across New Zealand. It is a global networking organisation which provides a platform to generate business through word of mouth to local business owners and build relationship, credibility and trust with fellow entrepreneurs and chapter members'- representing their business category.

BNI membership provided me reach to over 200 business owners as I went to other chapters to attend their breakfast meetings as a visitor and asked members through chapters' presidents for participation in my study project. Thank you to all BNI members who participated and responded to my survey.

Keith Dignan my Chapter's Education Coordinator, a great human being, you will always be in my thoughts for your selfless help in conducting my survey.

Keith passed away on October 3, 2014 because of bowl cancer. May your soul rest in peace Keith!

I also want to thank my fellow students who shared their valuable ideas and knowledge to help me in this study.

Abbreviations

SME ('s)	Small to Medium sized Enterprise
SMT	Senior Management Team
MI	Mobile Internet
ISP	Internet Service Provider
TAM	Telephone Account Manager
BSC	Business Sales Consultant
BSM	Business Sales Manager
BI	Behavioural Intention
NZ	New Zealand
MB	Mega Byte
MT	Mobile Terminals
HSDPA	High Speed Downlink Packet Access
MDT	Mobile Data Technology
LTE	Long Term Evolution
GSM	Global System for Mobile
HSDPA	High Speed Downlink Packet Access
MVNO	Mobile Virtual Network Operator
OTT	Over The Top
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
OECD	Organisation for Economic Cooperation and development
VOIP	Voice Over Internet Protocol
TAM	Technology Acceptance Model
UMTS	Universal Mobile Telecommunication System
WAP	Wireless Application Protocol
XML	Extensible Markup Language

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Chapter1:

1.1 Research Background

In this study quantitative data is gathered from New Zealand small to medium size enterprises (SMEs) through a survey to understand, evaluate and measure different characteristics of mobile internet. In addition interviews are conducted on service provider's senior management team (SMT) and survey on business sales consultants called business channel to gain different perspective on above.

According to (Grelewicz, 2013) “ There is a tectonic shift underway which underpins an unprecedented growth in ecommerce”. There has been tremendous growth in the number and diversity of smart phones applications as well (Chin, Felt, Sekar, & Wagner, 2012). Technological environment in which small and medium size enterprises operate can only be described as dynamic and the change in technology tends to be exponential (Van Akkeren & Harker, 2003), and helping users understand security risks of mobile applications is still an ongoing challenge (Jing, Ahn, Zhao, & Hu, 2014).

Globally more that 500 million smart phones are said to be sold per year and in 2012 more than half of Australian population was using smart phones and mobiles revenues reached USD 651 billion for OECD up from USD 593 billion in 2009.

There has been 1.7 fold growth in mobile data globally between 2011 and 2012 and that usage has risen from 189 MB to 342 MB on average and tablet data usage has risen to 812 MB on average and by September 2012 64 LTE networks had been deployed in 19 OECD countries (OECD-communications, 2013). Cisco estimates that growth in the use of all mobile devices will result in a 13 fold increase in mobile data traffic between 2012 and 2017.

Long Term Evolution (LTE), standard has rapidly expanded in OECD countries has LTE promised higher bandwidth for my services moving towards convergence for instance 'IP based video on demand' Voice over IP provided more clarity and reliability

on 4G network. Other services and companies which had demand for this technology include streaming television services by cable companies, satellite providers, public broadcasters and cloud based and other “over the top” (OTT) providers, declined telecommunications revenue in 2009 bounced back in 2011(OECD-communications, 2013).

This study is aimed to evaluate not only Mobile Internet SMEs’ users’ experiences in New Zealand but also from other stakeholders’ perspective such as SMT- senior management team of mobile internet service provider.

According to Neilson Norman Group (2010)-

User experience encompasses all aspects of the end-user's interaction with the company, its services, and its products. The first requirement for an exemplary user experience is to meet the exact needs of the customer, without fuss or bother. Next comes simplicity and elegance that produce products that are a joy to own and a joy to use. True user experience goes far beyond giving customers what they say they want, or providing checklist features. In order to achieve high-quality user experience in a company's offerings there must be a seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design

It is important to have some understanding of demand for mobile internet data in New Zealand.

Telecom (2013) States:

The New Zealand mobile market is growing at approximately 2% p.a., which is primarily driven by growth in mobile data and handset sales. The increase in mobile data usage has been driven by the increased uptake of smartphones. Monetising data growth will continue to be challenging for operators as Vodafone and 2degrees (the primary competitors) compete aggressively for growth in this market. (p.31)

This appears to be a global phenomenon, for instance in neighbouring country Australia 12% of all web traffic is via mobile devices and 43% use smart phone to find product reviews before making a purchase, more than half of Australian population is forecasted to have tablets by 2016 that is more than 10 million tablets (Grelewicz, 2013).

This study would provide an interesting perspective from New Zealand standpoint on Mobile Internet, paragraph below covers some statistics on New Zealand business sector.

New Zealand, Ministry of Economic Development (2013) states, New Zealand is dominated by SMEs' since 97.2% of the economy comprises of businesses having less than 20 employees which account for 455,907 businesses and there are only 1 % businesses with more than 50 employees, which accounts for 4692 businesses, small enterprises are not officially defined in New Zealand however enterprises with fewer than 20 employees are traditionally referred as small enterprises, small enterprises create half of all jobs in NZ with annual revenue of 52,857 million.

Other OECD countries have similar proportions of small enterprises.

New Zealand telecommunication market is very competitive and unique with regards to mobile Internet and service providers. In this study an attempt is made to understand, what is more important to SMEs owners/decision makers in mobile Internet experience in relation to the key factors such as product, value for money, service, performance, security and reliability to name but a few. According to previous studies for a good user experience users perceptions towards a technology plays a great deal towards its success for instance people who would be concerned about mobile internet security are less likely to perform sensitive task on their smart phones and if the owner does not perceive technology in positive way he/she would be reluctant to adopt (Chin et al., 2012; Van Akkeren & Harker, 2003).

Building a great user experience and staying competitive is a constant challenge for any telecommunication company, keeping its customers happy is a key to organisational success, as happy customers would mean less churn and more revenue for the business, various functions of business such as product, marketing, logistics, IT, customer care and network etc., work in collaboration to ensure that delivery of end product is timely

and meets users' requirements. Delivery of innovative products and services also requires adequate funding, its finance department's responsibility to spend the money wisely to ensure that most critical projects get delivered first. It would be fair to say that to ascertain where money should be spent first, should come from the users' feedback. In this study we also attempt to understand and evaluate the level of satisfaction with different aspects of adopted technology.

1.2 Defining User Experience

Access to Internet using mobile devices is increasing but the number of new users adopting this technology is slow and therefore there is a need to understand users' needs, wants and requirements to improve the use of this technology.

There are many factors, which determine users experience and can have an influence on use of technology. These factors include devices and infrastructures such as networks, software and services.

We will explore and investigate different aspects of mobile internet (MI) that New Zealand Small Businesses consider for the use of mobile Internet.

This study helps us:

- To explore and evaluate security of mobile Internet
- To measure and evaluate performance of mobile Internet
- To evaluate cost and Billing of mobile Internet
- To evaluate reliability and coverage of mobile Internet
- To understand and evaluate management of mobile and smart devices

1.3 Research Objectives

This study explores and evaluates key attributes of mobile internet (MI) in relation to user/customer experience from SMEs' (Small to Medium Enterprises), business channel of service provider and SMT (Senior Management Team) perspective. Since we appreciate that in New Zealand's competitive telecommunication market, service providers fight for growth through innovation and being disruptive (doing business in a way different to competition, a term commonly used in telecommunication industry) therefore it's important to investigate and identify if there are any gaps in understanding what is important to customers, accordingly, in this study we explore and evaluate:

- Background of mobile internet (MI) and telecommunication landscape in NZ
- Major market players in telecommunication
- What is the challenge for service providers to stay competitive in this market?
- Security of mobile internet
- Speed/Performance of mobile internet
- Cost and billing
- Coverage/Reliability
- Management of devices

According to Duffy (1999) mobile internet solution should be tailored to customers' requirements as well as it should provide simplicity, intimacy, immediacy and transparency, customers device should also be personalised so that customers can reap the benefits of the bespoke solution the very reason they buy into new technology which is meant to not only reduce technology cost but also streamline the operational process. This will result in increased performance and better customer experience for their clients (Home, 2000). This is about ticking all the boxes of clients' requirements and paying attention to their needs.

Stakeholders' perspective on user experience has been highlighted and what in fact is import to SMEs business owners/decision makers as to succeed in the market place it's important for a service provider to have its strategy aligned with its customers' needs and requirements to deliver best user experience to its customers so that they have high

level of satisfaction and adoption of mobile internet and they are happy. As discussed this is an attempt to study and identify gaps in service provider's strategy for delivering SMEs user experience in relation to what is more important to customers, for instance is mobile internet (MI) security important to SME customers at all?

According to (Kaikkonen, 2009)

There are four aspects where mobile Internet user experience can be improved: understanding the users and usages of mobile Internet better, improving services, improving device hardware and software, and improving infrastructures such as connectivity, cost, service discovery, network proxies, guidelines and standards.

Table 1: Mobile Internet User Experience Components (Kaikkonen, 2011)

Areas	Description	Theme
Understanding users and their usage	Understanding users' context of usage	Personal or business usage
Improving Services	It is in relation to value added services and self-service options e.g. buy top up from your mobile, banking and location services etc.	Ease of use
Improving device hardware and software	Device processor and RAM, browser, Android and iOS operating systems	Device speed and security etc.
Improving infrastructure	2G, 3G, 4G and coverage	Robust and resilient network

We are in a midst of a transformation from world of screens and devices to a world of immersive experiences (Intel, 2014).

Intel's CEO Krzanich, B. in his keynote speech at consumer electronics show states that consumers' experience with gadgets in the past had been like something which sits in your pocket or on your desk but moving forward this is going to be transformed into something immersive, although new devices and gadgets are amazing however talking about experience and a broad ecosystem for devices makes more sense.

Cellular communications is an important part of the society and as such we rely on technology to conduct business, social interaction and emergency assistance. In New Zealand there has been frequent network outage of Telecom's XT network where the

users in the south of North Island were hugely impacted, and had no telecommunication service on their mobile phones. This also affected the users' ability to make calls to emergency calling number 111. The consequence of such outages and interruptions could be disastrous in some circumstances. It also raised concern to monitor the reliability of the cellular network as the commerce commission in New Zealand does monitor the speed of the broadband.

The number of telecommunication operators in New Zealand is on the rise with latest addition of 2degrees mobile network in the prepay market, pay monthly and business. Vodafone New Zealand through government intervention shares its infrastructure to provide a service to end-users but there is always a call termination charge by the service provider network. However, the NZ Government regulating agencies are working on doing away with the termination charges (TUANZ, 2010).

The number of mobile devices has increased and web browsing on mobiles has become more common in recent years; Strategy Analytics estimated that the global number of Mobile Internet users passes 400 million users by the end of year 2008 (Kaikkonen, 2009).

According to Neilson Norman Group (2010)-

User experience encompasses all aspects of the end-user's interaction with the company, its services, and its products. The first requirement for an exemplary user experience is to meet the exact needs of the customer, without fuss or bother. Next comes simplicity and elegance that produce products that are a joy to own and a joy to use. True user experience goes far beyond giving customers what they say they want, or providing checklist features. In order to achieve high-quality user experience in a company's offerings there must be a seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design.

The user experience is also defined as-

All the aspects of how people use an interactive product: the way it feels in their hands, how well they understand how it works, how they feel about it while they're using it, how well it serves their purposes, and how well it fits into the entire context in which they are using it (Law, Roto, Vermeeren, Kort, & Hassenzahl, 2008)

Evidently there are various aspects, which underpin a successful, and rich user experience and certainly it is not just a handset or PC which alone determines user experience.

1.4 Opportunities and Limitations

In above chapter we see that user experience is a term broadly used however it encompasses all aspects of the end-user's interaction with the company, its services, and its products. One of the limitations of this study is that survey response rate from SMEs (Small to Medium Enterprises) decision makers has been low as compared to business sales consultants (Business Channel) survey response, who are employees of the services provider. Ideally it would be better if both categories would have been on par in relation to response rate.

Mobile Internet service providers would be interested in the study as it can help them to meet their challenges in relation to mobile internet growth and improve user/customer experience of mobile internet.

As the nature of this study is quite broad and there are so many pertinent points for a telecommunication service provider's business, there are potentially few limitations that are listed below:

Geographic Area:

Majority of survey respondents are based in Auckland hence due to the lower representation of users from other areas of New Zealand, this study may only be relevant to Auckland market. However, the results could be extrapolated to cover other regions in New Zealand

Participants:

Survey was sent out to over 200 SMEs however 55 businesses responded. However, all the respondents are credible SMEs owners/decision makers. The numbers of participants still meet the research.

Research Outcomes:

The scope of research question is quite broad and there are many aspect of user/customer experience in relation to mobile internet that are covered. The interview

data is descriptive in nature and is mainly explored for themes; commonality and differences however the surveys conducted are quantitative in nature.

Chapter 2: Literature review

2.1 Mobile Internet Adoption and Acceptance

The mobile Internet access has become increasingly important and popular and mobile data usage is on the rise (Caragata, Assad, Tutanescu, Shoniregun, & Akmayeva, 2011; Roto & Kaasinen, 2008; Sambasivan et al., 2013; Vasa, 2013). Specific features of mobile internet have determined the academic research direction whether it's to do with its deployment, security, performance or its adoption and acceptance in general. As successful user experience requires improvement in devices and infrastructures, for instance even though in Japan a significant number of people use mobile internet however only 12.6% are very satisfied or satisfied with accessing internet on mobile device, so it is encouraged to discuss factors effecting mobile internet user experience (Roto & Kaasinen, 2008).

In this study we learn and evaluate that how important is reliability and security of mobile internet out of few other attributes for the business owners and decision makers as these factors can be perceived as a barrier and impediment towards usefulness and ease of use of mobile internet technology. More and easy access to mobile internet results in use of more cloud computing as well, which is becoming more and more important in business space, according to Pinheiro, Aparicio, and Costa (2014), perceived usefulness has a positive impact in the intention of using cloud computer systems and there has been paradigm shift in use and consumption of digital resources as we can easily share data from anywhere in the world by having an internet connection.

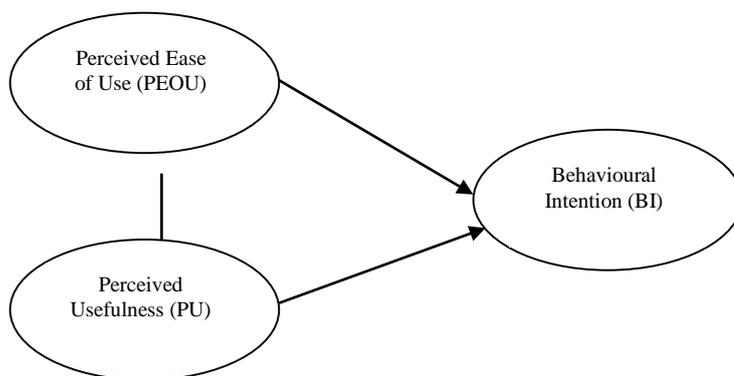
Even though MI (Mobile Internet) has made major breakthrough in array of value added services such as instant messaging, location based services, financial services (i.e., banking), mapping and many more but industry experts indicate that it's just a beginning and this technology is on its early stage of its evolution (Young Mee, Seung Chang, Bongsik, & Ho Geun, 2010). Some researchers have investigated on how cultural differences can affect the adoption of mobile internet. The perceived usefulness and perceived ease of use is affected by external variables such as system

characteristics, development process and training (Venkatesh, Morris, Davis, & Davis, 2003).

Literature on Technology Acceptance Model (TAM) by Davis (1989) has been also explored, TAM, is an information system theory which shed light on how user come to accept a technology and use it. There has been significant research done with regards to user acceptance and behaviour of information technology to validate TAM as –

“It stipulates a nomological network of three constructs (see Figure 1) — perceived usefulness (PU), perceived ease of use (PEOU), and behavioural intention (BI) — connected by the causal links that both PEOU and PU directly influence BI, and PEOU influences BI indirectly through PU” (Davis, 1989).

Figure 1: Technology Acceptance Model (Davis, 1989)



There was a remarkable achievement by Fishbein and Ajzen, and starting of a new era due to their structured work done in the area of human attitudes (Sheppard, Hartwick, & Warshaw, 1988).

TAM has been validated in substantial amount of literature and studies conducted on a broad range of topics from e-mail to workgroup applications. There has been only little evidence in the contrary. This model has been very successful to provide reference and guidance to SMT-Senior Management Team members for business decision making and understand consumer behaviour (Sheppard et al., 1988).

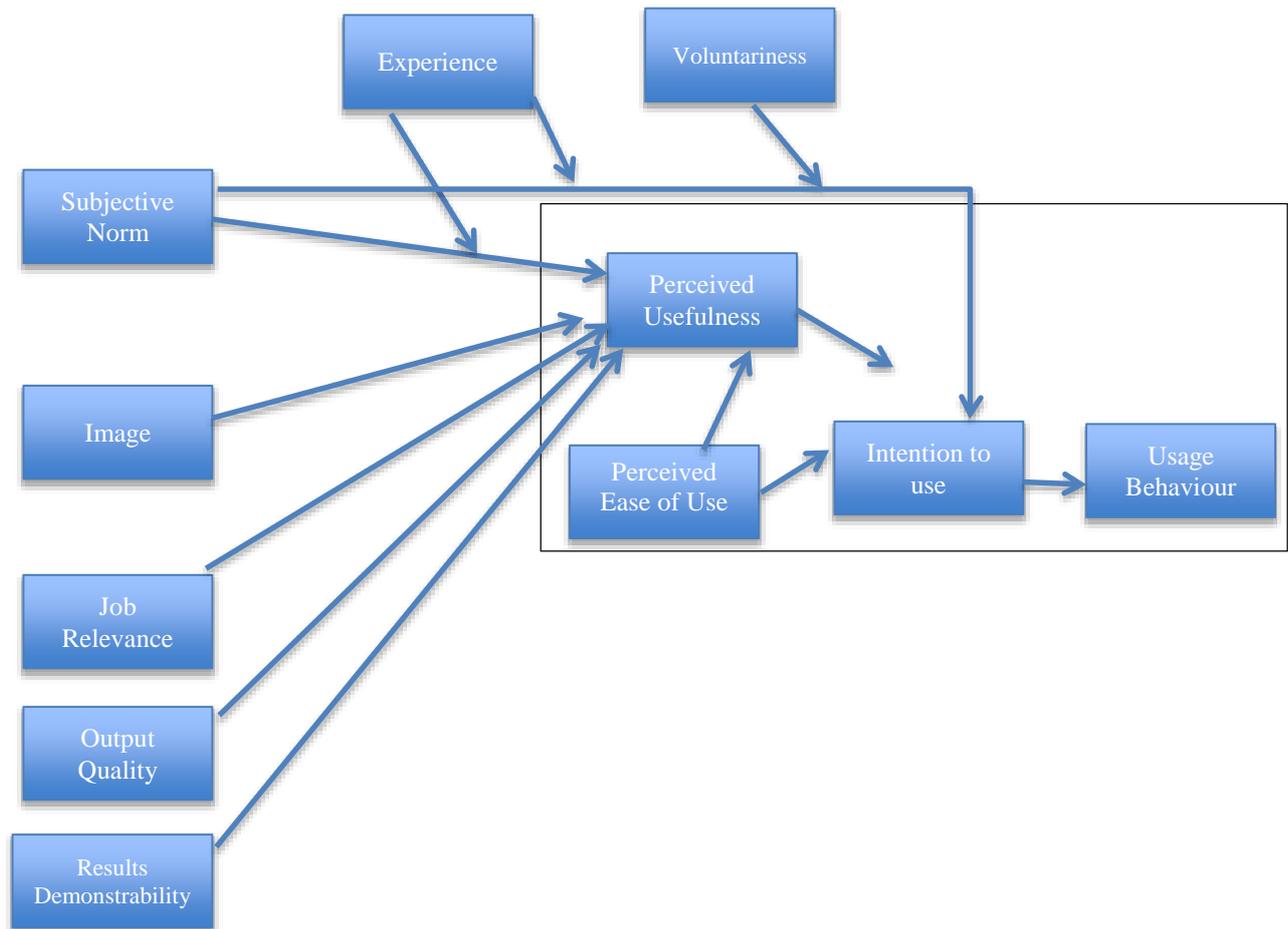
In previous literature TAM has been discussed as a framework to predict the actual usage of technology by end users, it suggests that peoples' attitudes are greatly determined by their perception towards usefulness and ease of use of the technology (Young Mee et al., 2010). Customer perceived value has remarkable influence on user behaviour and acceptance of technology (Ruijin, Pan, & Cao, 2011).

Use of technology in the work place offers a challenge with regards to users perception of its usefulness, as under-utilisation of information systems has been always an area of concern for its practice.

The perceived usefulness and perceived ease of use is affected by external variable such as system characteristics, development process and training. A system would be more useful if it's easier to use. TAM has evolved into a robust, powerful and trusted model to follow for such kind of research (Venkatesh & Davis, 2000).

Venkatesh et al. (2003), has proposed TAM2-an extension to the work of Fishbein and Ajzen in their study of pre-implementation and post implementation of technology in four different organizations. It was found that the extended model was strongly supported in all four organizations which contributed towards understanding of user adoption behaviour.

Figure 2: Extension of Technology Acceptance Model (Venkatesh & Davis, 2000)



In above diagram social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived ease of use) have great effect on user acceptance but it still remains a complex and very important phenomenon especially in a team setting. TAM2 has its own limitations but it is an attempt to extend the work previously done on TAM.

Locke and Latham (1990) discussed relationship between value and need, which in turns relates to individual need, value, goal and action. Ultimately it comes down to action which is responsible for change from one to another.

In the past 50 years, there has been significant research done about the processes individuals go through to adopt or adapt to technology however due to dynamic nature of technology understanding, hows and whys of technology adoption makes it a pressing issue now and in future (Straub, 2009). In this article technology adoption processes are examined based on three different technology adoption theories- TAM, Rogers's innovation diffusion theory and United Theory of Acceptance and Use of Technology. Adoption theory has been described before which examines the individual and choices he makes to accept or reject an innovation, it focuses on the components of whole. However diffusion theory describes how an innovation spreads through a population and how a population adopts innovation in relation to different factors such as time and social pressure, it takes a macro perspective of the process.

According to Chooprayoon, Chun Che, and Depickere (2007) there has been a study done in Thailand based on TAM and its application for SMEs technology adoption. An article in relation to this is available in IEEE database, it states that there is a need to gain knowledge and understand adoption of Internet and e-commerce technologies by Thai SMEs therefore TAM is used as a tool to study acceptance of e-commerce technology by Thai SMEs as TAM is one of the most dominant research model which has been used widely. This study suggests how TAM should be applied to increase benefits and understand its relationship with other approaches, survey has been conducted by derived questionnaire from previous study of Ajzen and Fishbein and Interviews have also been conducted in this study. The predominant dimensions of this study are based on TAM perceived usefulness (PU) and perceived ease of use (PEOU). The success in business is dependent of understanding customer concerns and factors which would promote use of mobile internet as mobile internet subscribers rapidly increase mobile internet revenue according to a study done in Korea (Je Ho & Park, 2005). In this study TAM has been used as bases and a modified model has been developed for suggested relevant implementation for Korean market. The casual relationships among TAM's derived components such as "perceived contents quality - perceived usefulness", "perceived system quality- perceived usefulness" and "internet experience-perceived ease of use" were used and witnessed. The study confirms that

comprehensive causal relationship of such aspects and variables used in revised TAM would help managers to implement strong strategic action for the success of mobile internet.

It is believed that if consumers may know the significant benefits from associated services from mobile internet it would lead to greater acceptance and usage of technology for instance more and more business are moving their business processes to be accessed remotely to mobilise their work force therefore any information on implementation of business process reengineering or associated applications and software would help towards adoption more use of mobile internet (Young Mee et al., 2010).

According to Van Akkeren and Harker (2003), there had been less work done on applications and services which would meet the needs of SMEs and there is more focus on life style applications being delivered on smart devices.

In this study literature on mobile internet adoption has been discussed and also to identify need of SMEs for mobile internet. According to Van Akkeren study the table below provides a snapshot of responses from a total of **275 respondents** and according to them the reasons why SMEs connect to internet:

Table 2: Reasons SME ('s) Connect to Internet (Van Akkeren & Harker, 2003)

Reason for use	No. of times named as Main Reason	% age of Main Reasons	No. of times named as Secondary Reason	% age of Main Reasons
Research or Information Search	90	33%	47	25
Communicate/ e-mail	83	30%	52	28%
Advertise Products or Services	31	11%	15	8%

Download Info. Or Software	18	7%	25	13%
Order Products & Services	16	6%	12	6%
Take Orders	11	4	8	4%
Network with Other Businesses	8	3	6	3%
Monitor Competition	6	2	10	5%
Use Directories like Yellow Pages	5	2	4	2%
Banking/Pay Bills	4	2	7	4%
Pay for Products and Services	1	-	1	-
Other	1	-	1	-
Don't Know/ Can't Say	1	-	-	-
Total	275	100%	188*	100%

The table depicts that the most significant reasons for SMEs to connect to internet are research, information search and then communication such as e-mail and it appears to be the most important benefit of mobile internet on smart devices as it has been validated in later studies that mobile internet appears useful due to its temporal and spatial service features that include instant connectivity and access to information, mobility and service localization for devices (Hong and Tam 2006; Lee and Benbasat 2003; Pedersen 2005; Rao and Troshani 2007).

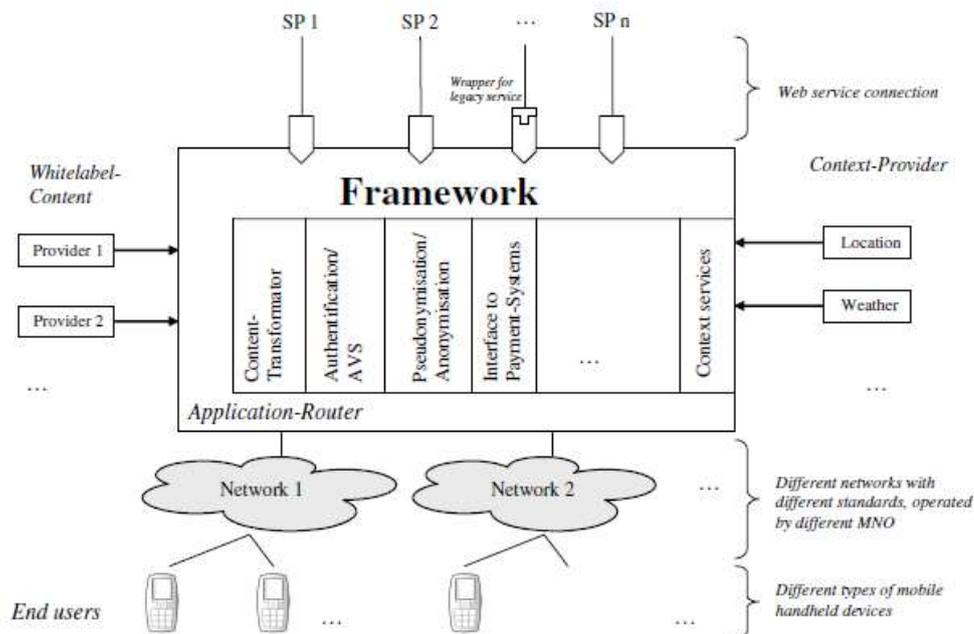
Overall SMEs in Australia have been generally slower to adopt mobile internet technologies, compared to Japan, US and Singapore (Van Akkeren & Harker, 2003). This study concludes that if the business owners of SMEs are going to invest money in new technology they have to take into account factors as covered below:

- Immediate rewards
- Decision makers to be able to constantly remain in touch with business operations- to pursue contacts and invoices
- Finally security is most vital issue for SME owners- to be able to monitor their business premises in the event of burglaries and staff pilfering.

According to Caragata et al. (2011) UMTS security protocol is susceptible to cryptographic attacks. This study suggests to do further studies in other countries and tracking study on yearly basis and also industry specific needs study.

Having said that ownership of mobile Internet value added services for their own use or customers use offer great financial and technical challenge to small and medium-sized enterprises (SME), there has been an intended research project done on European SMEs to provide a technical framework by the name MODIFRAME. This framework offers convenience to negotiate with only one point of contact and other service providers are seamless to SME. This framework offers complete infrastructure to develop and operate mobile services for SMEs with acceptable level of risk and cost (Decker, Schiefer, & Bulander, 2006).

Figure 3: MODIFRAME: Framework for European SMEs (Decker et al., 2006)



In this study mobile terminals (MT) are included but no laptops are considered to be acting like stationary computers where as examples of MT include mobile phones, PDAs and tablets. Only data communication is considered in this study but no voice communication. The services developed by a firm for its own usage are classified as Type I, whereas services for the firms' customers are classified as Type II.

It is a challenging task to develop and deliver mobile services as MTs have their own limitations with regards to battery, screen size, input method, appropriate user interface,

memory, processor speed and bandwidth available for such services. Before this model was proposed there are various factors which have been taken into account such as:

- Many Different Types of mobile terminal
- Different Wireless Standards
- Market Situation
- Brand Building
- Lack of Experts
- R & D Landscape
- Limited Capabilities of Risk Classification

Some of the functionalities of the frame work are:-

Application router, transformation, context, authentication, billing, white – label content, migration support and anonymisation to mention a few.

It is also taken into account that users have fears of being tracked and privacy (Decker et al., 2006).

According to Pathan, Mottalib and Zibran (2006) there is a security gap between existing mobile internet framework therefore, there is a need to bring coherence between wireless access protocol (WAP) and hypertext transfer protocol (HTTP) that will allow co-existence of HTML and wireless markup language (WML) in a single source file of web browser. It also helps to keep internet knowledge domain centralized. (Pathan, Mottalib, & Zibran, 2006).

At present such division of internet into two separate domains also offers challenge to programmers, designers and businesses. There has been several techniques used for the translation of HTML/XML content into WML. As of 2013 full HTML is predominantly dominating WAP as most of the smart phones today support full browser without having need for WAP.

New Zealand has seen a steady growth in mobile internet technology and addition of new players in the marketplace such as 2degrees mobile and Orcon.

There has been implementation of a good mix of technologies such as WiMax, WCDMA, HSDPA and at present the telecommunication companies are leaping

forward for LTE. It is interesting to know acceptance of this technology in New Zealand as according to (Al-Qirim, 2006), early on New Zealand SMEs had very limited use of mobile internet features and they questioned its cost-benefit to their business however they did not perceive mobile internet technology as complex or incompatible with them and so it has not been an impediment in an exponential growth in this area in the past few years.

Even though mobile internet has made major breakthrough in array of value added services such as instant messaging, location based services, financial services (i.e., banking), mapping and many more but industry experts indicate that its just a beginning and this technology is on its early stage of its evolution (Young Mee et al., 2010).

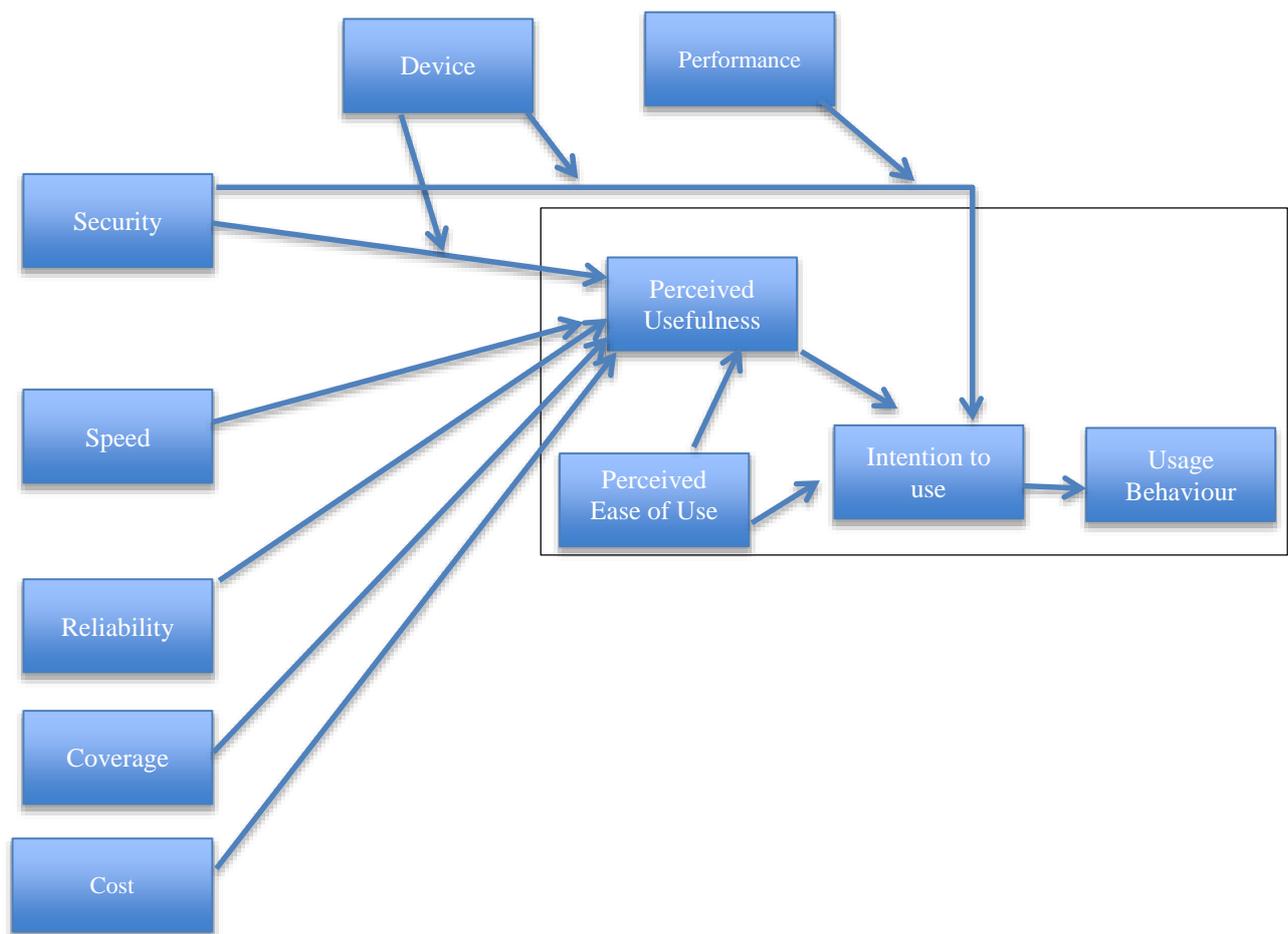
Mobile Internet or technology can be divided into three areas where it can benefit SMEs'; communication, ecommerce and security (Van Akkeren & Harker, 2003).

Dynamic nature of communication and mobile internet technology, changing standards and shorter product life cycles present an operational challenge for small businesses as SMEs' psychologically view this as a marketing tool rather than a technological issue so the perceived benefits of mobile internet itself cause an issue for SMEs' for instance there is more attention paid towards life style applications rather than application which will in fact benefit the business.

SMEs' need to have immediate rewards for any technology they invest in (Van Akkeren & Harker, 2003) as they do not have luxury of time like some other large businesses which may have more time. Mobile Internet allows them to be in constant contact with their customers and pursue clients' requests and they are well aware of importance to stay competitive with new technologies which increase productivity.

Extended TAM For This Study:

Figure 4. Proposed extension of Technology Acceptance Model



The above figure is derived from 'Technology Acceptance Model' and also Venkatesh and Davis (2000) extension of TAM. This is an attempt to extend the work previously done on technology acceptance mode.

2.2 Need for Mobile Internet and its Technology

It is very important for the success of MI (Mobile Internet) that people's perception on its usefulness is changed; end users need to be convinced that the technology they are buying into is really going to make the difference to their business, and the way they work.

Researchers reveal that providing great speed, reliability and improving ease of use experience would make little difference unless people's perception about its usefulness are changed first (Heimonen, 2009).

4G technology has been successfully and rapidly growing due to its higher speed and benefits offered for convergence of different technologies for instance, Voice over LTE, IP based video on demand, live streaming television, satellite providers and cloud based and other "over the top" (OTT) providers. Internet has become primary distribution method for audio content and broadcasters offer their content live or via catch up television service over the internet. The average subscription rate of mobile Internet access in OECD countries as a whole rose to 56.6% in June 2012, up from just 23.1% in 2009. The greatest amount of traffic is generated by smart devices over the WiFi network, fixed line infrastructure has become back haul for smart phones and tablets. Some studies claim that 80% use of smart devices is via WiFi connections (OECD-communications, 2013). Due to fast download and upload data speeds offered by LTE technology, business users are using more corporate applications on their smart devices than ever before and as a result revenues related to data services are growing at double digit rates in most OECD countries.

Limited spectrum and increasing demand would offer challenge to network operators and is logical choice for the network operator to offload traffic on fixed infrastructure therefore regulator and policy makers would need to ensure sufficient supply for wireless networks so that they can offer competition especially in economies where there is monopoly or duopoly in the market place. Since 2011, Asia Pacific Network Information Centre has run out of Internet Protocol version 4 (IPv4) addresses under normal procedures and there has been very little implementation for IPv6 services so far.

2.3 Mobile Internet Market Players in New Zealand

According to Commerce Commission (2014), New Zealand telecommunication market is guided by Telecommunications Act 2001. It is New Zealand Commerce Commission's role to regulate the supply of certain telecommunication services in New Zealand. There is competition between three primary network players, Telecom, Vodafone and 2Degrees. In addition to this there are several MVNOs- Mobile Virtual Network Operators which do not own any physical infrastructure however they provide services to their customers over existing infrastructure.

As of 2010 increased competition due to 2degrees mobile entry in NZ telecommunication market has resulted in direct and indirect benefits to New Zealand economy worth \$2.2 billion. In prepay market alone, cost of per minute call came down from \$0.89 cents to \$0.44 cents which is over 50% reduction in cost for consumers. Mobile data cost also came down and service providers started to offer more generous data to business customers. This has been investigated in research question 3 in following chapter. In October 2006 New Zealand Commerce Commission found through a report that there were significant barriers to entry for new mobile provider in mobile market, cost of telecommunication was significantly high as compared to other OECD countries. Since then regulatory environment has evolved and there were number of initiative taken to make it easy for new mobile entrants. Launch of 2Degrees mobile has created hundreds of jobs and supported local businesses (Consulting, 2014).

Telecom entered into New Zealand market in 1987 with 800 MHZ AMPS mobile network and was the only network in New Zealand until 1993 when BellSouth started its operation with 900 MHZ GSM mobile network and in 1998 Vodafone acquired BellSouth with 20% market share. Vodafone saw great success in further capturing the market share and growth to 40% in 2000 and subsequently 50% market share both in revenue and subscriber acquisition in 2003. However from 2003 to 2009 subscriber market share between Vodafone and Telecom remained relatively stable circa 50% mark.

Venture Consulting (2014), states that back in 90's a visionary group of Maoris' won the right to 3G spectrum and despite financial and regulatory adversity a Maori trust- Hautaki Trust, was formed in July 2001 with a vision to build 3rd mobile network in

New Zealand. In the same year Hautaki Trust established an agreement with the crown to purchase 2100 MHz frequency. In Aug 2009, 2Degrees was launched in New Zealand with its brand name and after 19 months into retail operation 2Degrees has grown to 11% subscriber market share and achieved milestone of having 1 million customers on its network in 2012. Penetration of mobile connections in New Zealand has also increased from 100% to 120% which is more aligned with OECD.

2.4 Mobile Internet Health Check for NZ Business Market

According to Ministry of Economic development SMEs are businesses with 19 or less staff and for the business owners in space to stay competitive it is important that they are better supported with technology leadership and advice as a lot of times they are the sole or key decision maker for their business and arguably they have greater need for support to build their business and leadership capability (MED, 2013).

There has been an ever increasing growth in mobile data customers and there are more than 2.5 million New Zealanders now that have smart phones. As a result, mobile data traffic is expected to grow eight-fold by 2017. In relation to internet connectivity there are 80% of New Zealand homes that are connected to the internet and use more than one gadget to get access to internet. Telecom New Zealand highlights in its annual report 2013 that to be successful in highly competitive telecommunication and technology market there is competition heating up and margins are squeezing. Therefore, it needs to revolutionise customer experience by delivering a simple and effortless consistent experience to its 1.8 million mobile customers. It also needs to act quickly on customers' insights and needs to stay connected. 145,000 customers use self-service option through an app on their smart device or my-Telecom login from the website. At the same time it needs to simplify its business by simplifying its current platforms, products, offers and supporting processes (Telecom, 2013).

Mobile voice and text revenues are on decline whereas mobile service providers are looking to monetise mobile data through innovative and appealing data propositions. According to Statistics Kiwis had accessed internet using more than one gadget in 2009 whereby laptop seemed to be the most popular device (StatisticsNZ, 2012b). However this behaviour is changed as Kiwis now use multiples smart devices to access internet (LEE, 2013). Telecom New Zealand in it 2013 annual financial report states that due to uptake of smart phones mobile data market is growing and there is going to be aggressive completion among the telecommunication players in data market. Business customers in New Zealand have need for high speed data to access corporate applications remotely from mobility and productivity point of view. Vodafone New Zealand was the first to launch 4G network followed by Telecom and 2Degrees to cater for this market. 2Degrees roll out in Auckland has been completed and is rapidly

expanding in other regions and major cities. Live coverage maps are available on 2Degrees website which offer visibility in term of 2G, 3G and 4G coverage up to street level which is very helpful for New Zealand SMEs to get an understanding of possible mobile internet experience while using data services(Telecom, 2013).

2.5 Mobile Internet Security and Performance

As more of smart devices going to be out there, there are going to be more and more security issues, security should be essential part of computing. Hardware and software needs to be well integrated to stop the malware penetrating into smart devices, for such secure ecosystem to flourish the security component should be free of charge to all smart device users. Intel is taking this initiative by offering free MacAfee anti-virus for smart devices (Intel, 2014).

Long term Evolution (LTE) or 4G (4th Generation) provided 10 times faster speed than on existing network infrastructure for Vodafone New Zealand, with acquisition of Telstra Clear for \$840 million- which was a subsidiary of Telstra Australia. Apparently this merger did not have likely effect on Telecom's market share since Telecom never had these retail customers in the first place. This was a logical deal which brought together Telstra Clear's fixed telecommunications and data products and corporate client-base with Vodafone New Zealand's mobile offering and retail customer base. The number of new entrants and competition in telecommunication industry in New Zealand is on rise. According to Cisco (2015) a 4G connection in 2014 generated 10 times more traffic on average than a non-4G connection, smart phone usage grew 45 % globally in 2014. There were almost half a billion mobile devices and connections added in 2014 and smart phones represented 69% (30 Exabyte) of total global handset traffic in 2014 which was 30 times the size of entire internet traffic in year 2000. Mobile network connection speed grew by 20% in 2014 according to Cisco 'Visual Networking Index' (VNI).

According to Jing et al. (2014) users are also concerned about security and privacy issues on mobile devices. In most cases they are not aware of the issues unless highlighted. End users' are concerned about using smart phone applications and tasks which could result in financial loss. This is due to four major factors: data loss and theft concerns, security of mobile network, accidental access of a smart phone application from an untrusted source. Therefore, it is recommended that there should be built in applications to address these major concerns. Some examples are like: easy backup solution for devices, remote lock, remote wipe and user friendly interface to address common misconceptions and guidelines for security, in the centralized application market. Understanding security risks of mobile applications is still an ongoing challenge. This is corroborated by Google Play who announced 48 billion application

downloads in May 2013, with Apple App Store reporting 50 billion app downloads. According to Dingguo, Nan, and Chengxiang (2009) traditional mobile communication technology does not provide complete security such as authentication, confidentiality and integrity. Therefore, to provide a robust overall mobile security it would include all above elements to address concerns and meet requirements of Government and financial sectors. For such sectors a SSL VPN secure mobile network is suggested which would protect the security of message transmitted on mobile network. According to Jing et al. (2014), RiskMon is a continuous automated risk assessment framework to score an application on its cumulative risk score each time it attempts to access sensitive information; it automatically alerts users on security and privacy violations as it continuously monitors runtime behaviors of trusted applications such framework improves user's experience of security features for example, spyware tracks users' locations and reports to remote controllers, and adware collects users' identities for enforcing an aggressive directed marketing. Unfortunately android only assists users at the time of install by providing a review to protect against rogue applications. In 2012, 8% of firms reported a security attack that resulted in the loss of data or time, or damage to software (StatisticsNZ, 2012a). According to Van Akkeren and Harker (2003), security is very critical to business success, whether a physical security of premises or data is any security breach would have immediate effect of business bottom line.

According to Caragata et al. (2011), in UMTS, network access security is the most vulnerable part as other domains of UMTS security are very robust and stable due to use of IPsec standard. The network access security mechanism is called Authentication and Key Agreement (AKA) which comprises of three entities – the home environment of the user, service network and User Equipment (UE). In this communication mechanism if a cryptographer attacker manages to get access to secret key 'K' then the security of past and future communication of the user is compromised (Caragata et al., 2011). It is recommended to use a temporary key in the communication rather than using secret key. Use of temporary key 'TK' is more secure than using secret key. It is also proposed to increase the size of secret key encryption from 128 bits to 256 bits.

According to Swamy and Reddy (2007), there is inherent latency in WAP- Wireless Access Protocol used in cellular communication which is independent of mobile processors and higher mobile internet bandwidths in future due to data exchange mechanism in WAP protocol. HTML5, new web standard has been adopted by Apple,

Google and many others. This standard is completely open and is controlled by standards committee, of which Apple is a member. This new standard does not require third party plugins (like Flash). Symantec recently highlighted Flash for having one of the worst security records in 2009 (Apple, 2015). In following chapter on page 37 a question is asked to assess how concerned are New Zealand SMEs (Small to Medium Enterprise) about mobile internet security.

2.6 Mobile Internet Cost and Billing

As discussed, mobile data usage is on rise globally (Sambasivan et al., 2013), especially in emerging regions, there is lack of price and data usage transparency for users to make informed decisions, increase price transparency would empower mobile data users according to this research done in urban Ghana involving 299 respondents.

New Zealand consumers are enjoying the more competitive mobile market due to cheaper cross-network calls and text messaging since commerce commission has forced carriers to reduce the rates they charge to each other for calls ending on the rival networks. As a result cross network traffic has also increased.

NZ telecommunications commissioner said in a statement. "It's pleasing to see a reduction in the price difference between calling people on the same network and those on other networks". "This suggests that competition between mobile operators is continuing to increase." The price of telecommunication services has decreased by 9.1% and equipment prices are down by 28% (McBeth, 2012, July 18).

On the other hand significant NZ businesses are not getting fair value for their money. According to a recent survey conducted by CallPuls shows that 51% of businesses do not analyse their mobile phone bills and 67% have not taken into account that due to unused mobile data and minutes what impact it could have on their business bottom line as an alarming 61% report unused mobile minutes at the end of each month.

CallPlus has introduced a new plan whereby businesses can get money back for their unused data and minutes (Scoop, 2012, February 28)

"We encourage businesses to be thorough when checking their mobile bills to see how many minutes and how much data is left untouched each month. If you don't use it then why should you have to pay for it?" says General Manager of CallPlus Kelvin Hussey. Herald on Sunday conducted a survey on 1000 senior Government employees from 100 state owned enterprises, universities and ministries and found that more than half of executives spend above their money limit (Johnson, 2012, July 1).

It has also been found that some agencies are paying more towards their mobile phones rentals than its actual usage. For instance Tertiary Education Commission spent \$4000

on renting mobile phones compared with \$3000 worth of usage. Cost of mobile internet is also a concern in other parts of the world, according to a nationally representative consumer survey conducted across 17 countries in Sub Sahara Africa, 10-20 % of individual income of the lower 75% income bracket, was spent on mobile phones. In Kenya alone in 2012, 99.2% of all internet traffic was due to mobile data (Sambasivan et al., 2013).

New Zealand Government is looking at ways to implement a new system to bulk buying mobile phone contracts through Vodafone, Telecom and 2Degrees. The stated aim was to avoid “bill shocks and hidden costs”(Johnson, 2012, July 1).

2.7 Mobile Internet Reliability

According to Bharati and Chaudhury (2006) actual usage of MI and users perceptions are greatly affected by cost rationality, service diversity and access quality; that is speed and reliability of the internet connection as supplier side value factors in addition to ease of use.

The above four factors relate to different aspects of customers perception; these aspects are namely-

1. System Dimensions- access quality and ease of use
2. Service Dimensions- service diversity; richness of data services
3. Cost Dimensions- cost rationality

System quality, users' satisfaction and perceptions towards usefulness are examined by number of studies and according to these studies system quality is crucial to good user experience (Young Mee et al., 2010).

There need to be concrete operational measures to gauge system quality and its success and that include external variables as well such as access convenience, flexibility, response time, sophistication, reliability, ease of use, and accessibility (Bharati & Chaudhury, 2006). The analysis reveals that even when MI providers offer a rich and easy to use set of services with improved access speed and reliability, its usage may not be changed much unless people perceive offered services useful.

After speed of connection is considered, the reliability of coverage and reliability of the service are necessary factors that need to be considered when deploying mobile Internet service (Al-Qirim, 2006).

2.8 Device Analysis for Mobile Internet

Mobile phones have their own hardware and software specifications and they can be categorised in basic, advanced and smart phone (Jansen & Ayers, 2007). Due to success and popularity of apps on smart phones there are literally millions of applications available for smart phones.

Table 3: Categories of Smart Phones (Jansen & Ayers, 2007)

	Basic	Advanced	Smart
Processor	Limited Speed	Improved Speed	Superior speed
Memory	Limited Capacity	Improved Capacity	Superior Capacity
Display	Grey Scale	Colour	Large Size, 16 bit colour or higher
Card Slot	NA	Mini SD, MMC mobile	MiniSDIO or MMC mobile
Camera	NA	Still	Still, Video
Txt Input	Numeric	Numeric Keypad, Soft keypad	Touch screen, handwriting recognition, built in QWERTY style keyboard
Cell Interface	Voice and Limited Data	Voice and high speed data	Voice and very high speed data
Wireless	IrDA	IrDA, Bluetooth	IrDA, Bluetooth, WiFi
Battery	Fixed , rechargeable Lithium Ion Polymer	Removable, Rechargeable Lithium Ion Polymer	Removable, Rechargeable Lithium Ion Polymer

In today market there are two major smart phones eco systems- android and IOS



Figure 5: IOS and Android Eco Systems (Personal Communication, 2014)

In New Zealand Mobile Mentor is well known in enterprise and government space for its MDM- mobile device management solution.

This MDM solution is called AirWatch which provides ‘over-the-air’ policy enforcement for smart devices such as tablets and smart phones. Airwatch also provides strong security measures which include passcode enforcement, remote wiping and locking of devices. Mobile Mentor has seen great success in enterprise and government and have successfully deployed on-premise MDM and cloud based services for government. Airwatch offers range of implementation options ranging from software only licenses to more comprehensive solution integrated with Active Directory and Secure E-mail Server (Scoop, 2012, Aug 29).

Chapter 3: Methods

3.1 Method Used for Study

The methodology used for this study is mixed method (Interviews and quantitative results data through survey). It involves two surveys- one is on New Zealand SMEs (Small to Medium Enterprises) decision makers and the other survey is on 'Business Sales Channel' of network operator which provides mobile internet services to SMEs. Interviews were conducted on SMT (Senior Management Team) of network operator/service provider which substantiate credibility of research as SMT leads business cross functional teams. This technique allows researcher to evaluate the responses from different perspectives, responses have been recorded from business channel (which include Business Sales Consultants, Business Sales Managers, Business Account Managers, Telephone Account Managers etc.) participants, feedback of several NZ SMEs owners and decision makers has helped towards aims and objectives of study and research questions.

The data obtained through interviews will be descriptive in nature and reflects how the participants deliver on important aspects of user/customer experience as highlighted in literature and research questions. Numerical analysis would be inappropriate for such data and thus the data will be explored for themes, commonality and differences.

This research project identified what is more important to the business customer in relation to mobile internet (MI) and what aspects of mobile internet proposition can be improved to innovate and be disruptive (do things differently than competitors) in the market place for growth which is a dire need for network operators.

3.2 Research Model and Research Questions

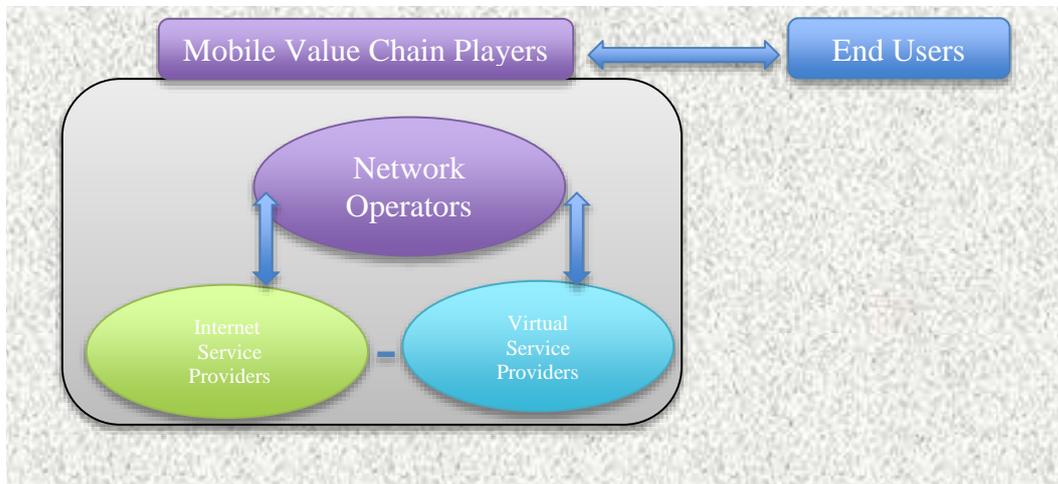
In order to obtain a research model which would be suitable for the investigation, the following process was used:

- Build an initial research model based on the literature
- Add new considerations to research model
- Provide analysis of the research questions

The next few sections describe the process mentioned above.

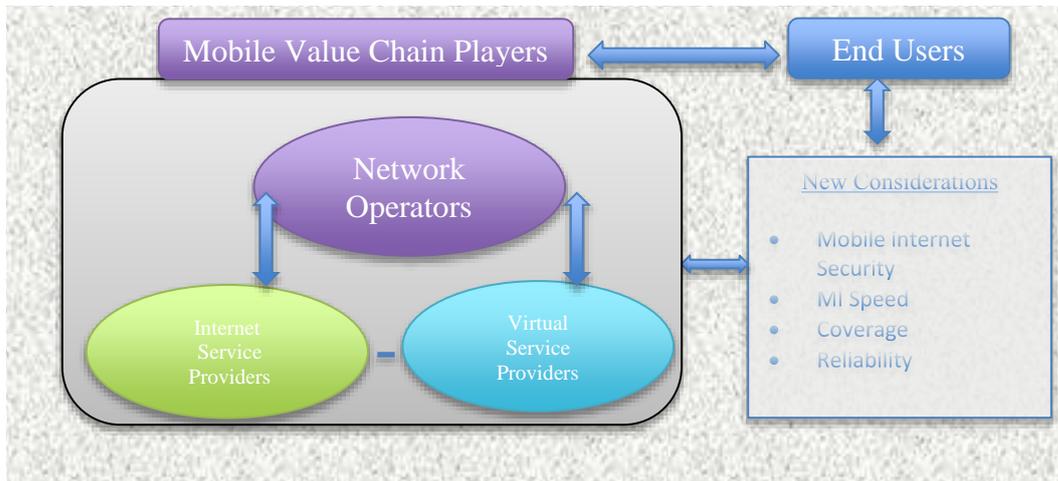
According to (Soininen, 2005), mobile Internet value chain is complex and number of actors in the value chain interact directly with the customers. The actors in value chain include ISPs, networks operators and content providers. This is shown in the model below proposed by Soininen.

Figure 6: Initial Research Model (based on Soininen 2005 and Petrova 2005)



In this study, mobile internet user experiences of SMEs in New Zealand are evaluated in relation to decision makers interaction with their service providers (in this case it could be any of the above as MVNO- Mobile Virtual Network Operators have started to become active as well), therefore above model is quite relevant to this study.

Figure 7: Extended Research Model (Soininen 2005 and Petrova 2005)



In addition to extended research model researcher also looked into user experience factors and components defined by Kaikkonen in chapter 1 table 1.

This process provides an overall perspective on better service delivery for mobile internet and a logical structure for research project. The research questions were developed after analysing the literature and user experience factors mentioned in literature review. Telecommunication landscape has changed in New Zealand due to government regulations and local loop unbundling. There are various MVNOs' who bill end users after buying bulk data from the network operators. Limitations of MVNOs' can have an impact on mobile internet experience of end users however in this study we have introduced new considerations to measure user experience in relation to mobile internet.

Following are research questions and key factors evaluated in this study.

Research Questions:

Primary Question:

What characteristics of mobile internet (MI) are considered by New Zealand SMEs' for their usage before selecting a service provider/network operator?

Secondary Research Questions:-

- How does Mobile Internet help in business productivity and decision-making
- What are the SME users' perceptions of mobile internet cost and billing?
- What level of security is implemented in mobile internet systems/devices?
- What concerns if any do ICT managers of SMEs have with the existing level of security in mobile internet/devices?
- How is the management of mobile internet devices conducted in NZ SMEs?
- What is the SME users' perception of mobile internet coverage/availability?
- What is the SME users' perception of mobile internet Reliability?

3.3 Research Design

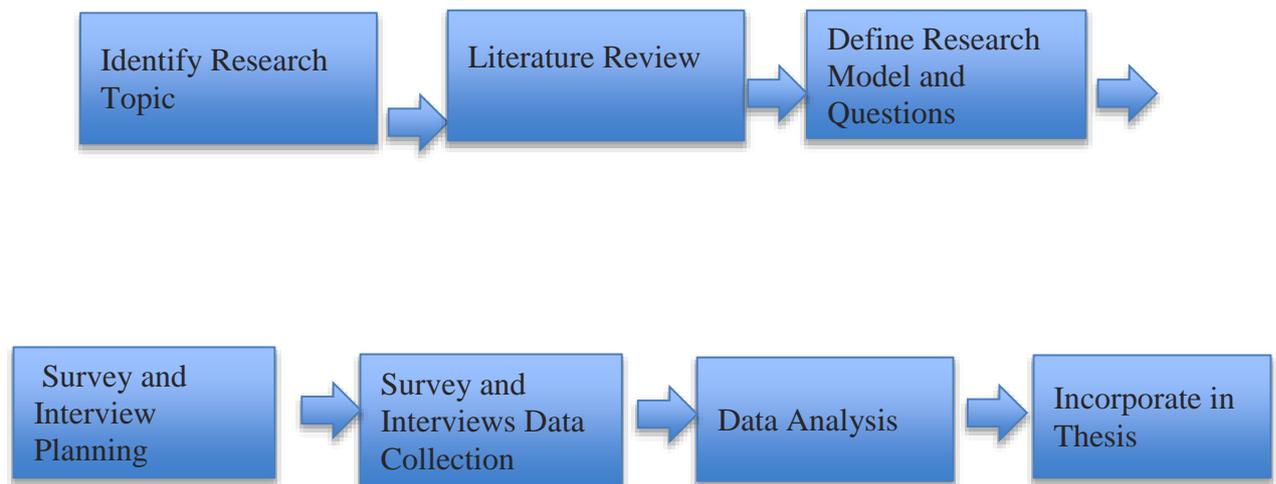
In this section different methods such as qualitative and quantitative are described and also why is this research credible and what provides rigor to this study. The research does not agree or disagree with the responses of respondents and keeps its position as neutral. The research follows a logical structure and research model is based on available literature and initial chapters provide fundamental background of the study.

3.3.1 Types of Research

Collis and Hussey (2003), introduce four parts of the research process: research purpose, research process, and research logic and research outcome. The researcher applies the classification concept from Collis & Hussey (2003, p.10), in order to clarify the type of research conducted in the research project.

3.3.2 Research Process

Figure 8: Parts of Research Process (Collis & Hussey, 2003)



3.4 Research Context

In chapter 1 we discussed that there are many aspects which determine mobile internet user experience this was described by Kaikkonen in her research article.

This study involves survey of New Zealand SMEs' and survey of business sales consultants of a network operator which provides mobile internet services to SMEs. Interviews were conducted of SMT of network operator. Researcher worked in telecommunication sector for over 10 years which provided an opportunity for observation and building knowledge. In this study data is collected by different stake holders in relation to MI. In the following table a breakdown of key participants for this study is provided.

Table 4: Key Participants of Study

	Research Focus	Sub Questions
SMEs Perspective on MI	<ul style="list-style-type: none"> • SMEs perception of mobile internet experience • Device Management • Eco system etc. 	<ol style="list-style-type: none"> 1. How satisfied are you with the speed of mobile internet 2. How concerned are you with the security of mobile internet 3. Do you use anti- virus software 4. How satisfied are you with the reliability of mobile internet 5. What are the key consideration for selection of mobile device 6. Do you use MDM- mobile device management
SMT Perspective on MI	What is SMT's (cross functional heads) perspective of mobile internet user/customer experience	Cross functional department heads- technology, marketing, sales, network, product and finance were interviewed to get a comprehensive perspective on

		service delivery and what does user experience mean to SMT.
Network Operator's Business Channel Perspective on MI	<ul style="list-style-type: none"> • Business Channel-Business Sales Consultants' perception of end users mobile internet experience 	<ul style="list-style-type: none"> • How satisfied are SMEs' with the speed of mobile internet • How concerned are SMEs' with the security of mobile internet • How satisfied are SMEs' with the reliability of mobile internet • What are SMEs' key consideration for selection of mobile device

The above research context provided basis to develop primary research question, build knowledge and it was broken into sub questions.

Primary Question: What characteristics of mobile internet (MI) are considered by New Zealand SMEs' for their usage before selecting a service provider/network operator?

Research Question Two: How does Mobile Internet help in business productivity and decision-making?

For any business, mobility is very important and hence mobile internet facilitates this. This research question intends to find out how NZ SMEs are using MI to increase their productivity and mobility, there are millions of smart phones applications available which can cater for businesses in all types of industries and segments, we have asked SMEs as to what they use their smart phones for, when it comes to increasing productivity and mobility. It is discussed in chapter 2 on page32 that due to fast download and upload data speeds offered by LTE technology, business users are using more corporate applications on their smart devices than ever before and as a result

revenues related to data services are growing at double digit rates in most OECD countries. This question is designed to assess how mobile internet help in productivity.

Research Question Three: What are the SME users' perceptions of mobile internet cost and billing?

Government regulation in New Zealand telecommunications market facilitated more competition with the introduction third network operator in the market as discussed in earlier chapter. More competition also resulted in cost saving for the SMEs and NZ rating in OECD improved in relation to price for this commodity- mobile internet.

This question intends to understand about SMEs feedback on price of mobile internet in New Zealand. It has been discussed in chapter 2 that due to more competition in New Zealand market, the cost of mobile internet has come down. This question is asked to investigate what are New Zealand SMEs perceptions about the cost of mobile internet.

Research Question Four: What concerns if any do ICT managers of SMEs have with the existing level of security in mobile internet/devices?

As discussed in literature that due to significant growth in mobile internet and devices there is going to be threat of more malware and viruses, security should be essential part of mobile computing as users are concerned about security and privacy issues on mobile devices. SME users are concerned about security and privacy issues on mobile devices and this has been outlined in literature on page 37.

This question intends to find out, how satisfied are SMEs with existing level of security and what measure are in place on their mobile device to address this issue.

Research Question Five: How is the management of mobile internet devices conducted in NZ SMEs?

Due to success and popularity of apps on smart phones there are literally millions of applications available to download for Apple, Android and Windows platform.

In medium to large organisations having a uniform version of software and applications across all the mobile devices poses a challenge for business owners and decision makers therefore above question intends to find out that what percentage of businesses in New

Zealand market are using a structured and specific solution such as MDM- Mobile Device Management to address this issue. Thesis has been discussed in literature on page 44 that there are different MDM solutions being used by New Zealand SMEs.

Research Question Six:

What is users' perception of mobile internet coverage/availability and reliability?

There is significant literature which suggests that reliability of internet connection is supplier side value addition which is very important for good user experience. It suggests that there needs to be concrete operations measures to gauge system quality for a reliable and better user experience of mobile internet.

This question tends to find out, how SMEs are satisfied with reliability and availability of mobile internet.

Research Questions Analysis

In this study we have asked interview questions on various aspects of mobile internet as it was received back after the literature had been reviewed. Analysis of survey data and interview questions would allow us to get insights into different aspects of mobile Internet experience of SME customers and how do SMEs' choose to use mobile Internet services?

This would also highlight that what role mobile Internet plays to be a critical success factor for network operator's business?

4.1.6 Summary

Research directions and objectives have been clarified in research design process that provided a logical structure to execute survey and interviews.

Primary and secondary questions were built and the researcher knew what kind of information could be obtained from the survey and participants interviewed.

There are many elements which affect user experience such as user's internal state, context of use and the system being used, there are different types of infrastructures which include multiple components and there are a lot of different types of mobile devices which are used to access mobile internet.

In this study we asked many types of question to NZ SMEs in relation to speed, security, reliability, performance of internet and about their experience on systems

which provide access to mobile internet. In the secondary questions we touch on further elements of mobile internet which could have an impact on user perception as well as experience.

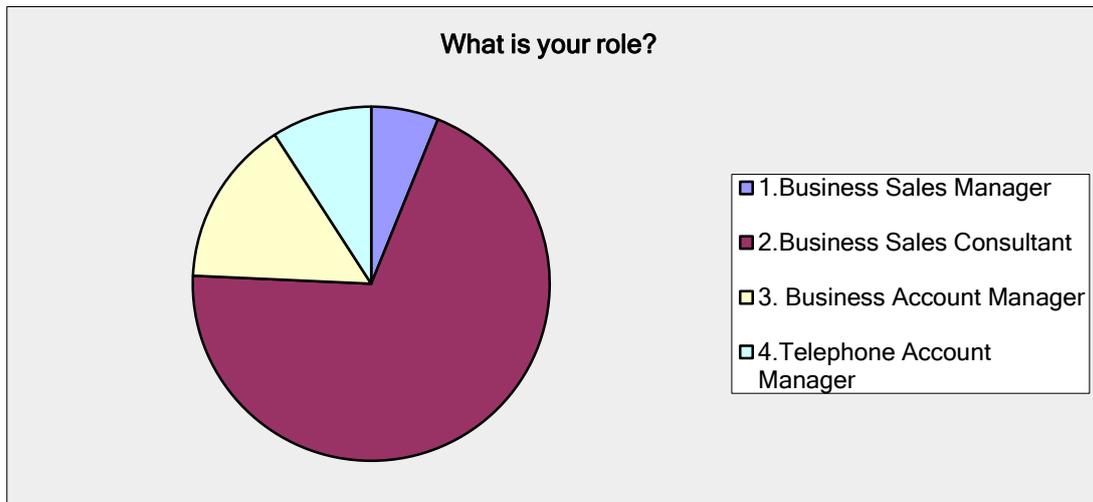
Chapter 4: Results

4.1 Survey Results- Business Channel and Small to Medium Enterprises?

As discussed 'Business Channel (BSCs-Business Sales Consultants, BSM- Business Sales Managers, BAM- Business Account Managers and TAM- Telephone Account Managers) is the face of service providers when it comes to interacting with SMEs (Small to Medium Enterprise). Business Sales Consultant role forms major part of 'Business Channel' as demonstrated by the response rate of 70% in this survey.

The first survey provides insights into business channel's perception about SMEs' user experience of mobile internet in relation to key attributes of mobile internet speed, security, coverage etc. These factors were discussed earlier in detail as well as the SMEs experience of mobile internet for which the second survey was conducted. This study provides an opportunity to cross check the responses from both perspectives of the business channel as well as the SMEs. The second survey was sent out to over 200 SMEs, out of which 55 businesses responded providing a response rate of 27.5% where as in relation to 'Business Channel' there was very high response rate- 82.5% (33 out of 40 people responded). Both these surveys are placed as appendices to this report.

Chart 1: Role of Business Channel Respondents- Survey 1

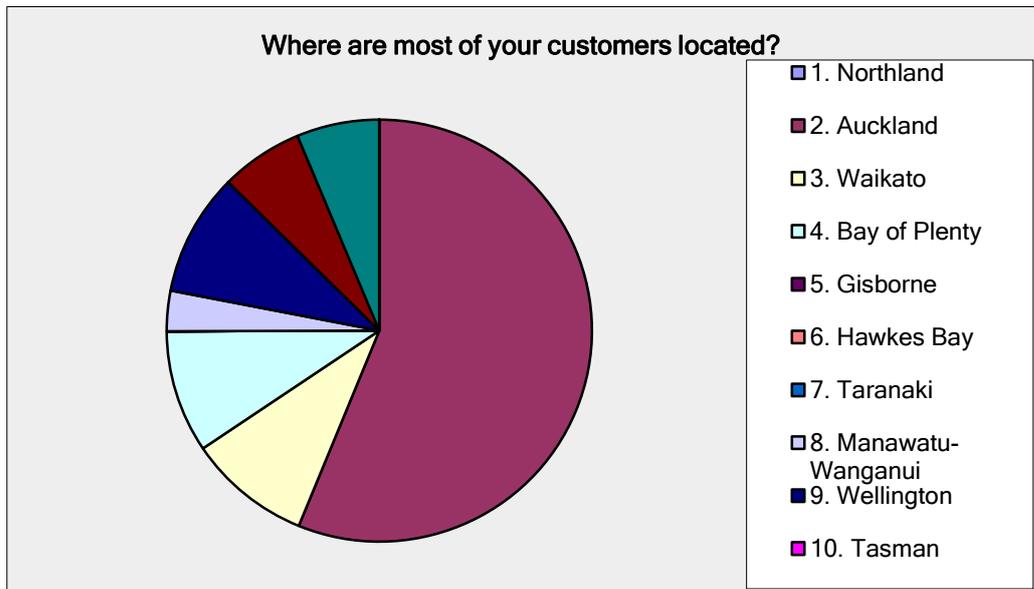


Results show that in survey-1 70% of the respondents are in business customer facing role and are responsible to provide customised technology solutions to New Zealand businesses, there are about 25% respondents in account management role and that includes telephones account managers as well.

Answer Options	Response Percent
1. Business Sales Manager	6.1%
2. Business Sales Consultant	69.7%
3. Business Account Manager	15.2%
4. Telephone Account Manager	9.1%

Business Sales Consultants and Account Managers directly report to Business Sales Managers and in this survey about 6% of the respondents are BSM (Business Sales Managers) which provides good credibility and quality for overall survey response data.

Chart 2: Location of SMEs- Survey 1



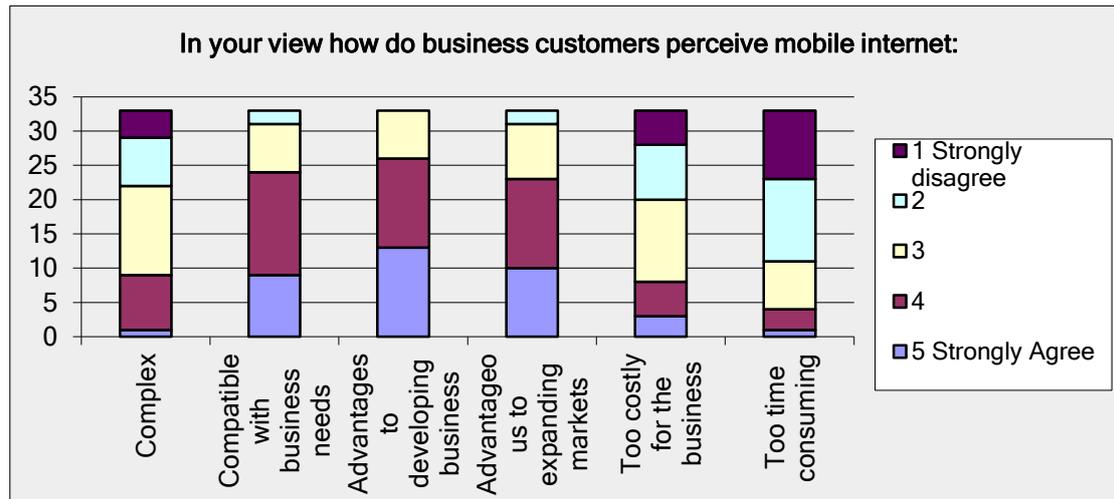
Results in Survey-1 show that about 56% of the respondents' customers are based in Auckland as it is a major business hub considering its population and number of businesses it has got as compared to rest of the country.

Answer Options	Response Percent
1. Northland	0.0%
2. Auckland	56.3%
3. Waikato	9.4%
4. Bay of Plenty	9.4%
5. Gisborne	0.0%
6. Hawkes Bay	0.0%
7. Taranaki	0.0%
8. Manawatu-Wanganui	3.1%
9. Wellington	9.4%
10. Tasman	0.0%
11. Nelson	0.0%
12. Marlborough	0.0%
13. West Coast	0.0%
14. Canterbury	6.3%
15. Otago	6.3%

Waikato, Bay of Plenty and Wellington all have got about 10% each whereas Canterbury and Otago in South Island about 6% each.

When asked a rating scale matrix questions to business channel in Survey-1 on different attributes of mobile internet, here is overall picture of the feedback.

**Chart 3: SMEs Perception of Mobile Internet from ‘Business Channel’
Perspective- Survey 1**



Service Provider Survey Question 6: Mobile Internet user experience of SMEs in New Zealand

Answer Options	1 Strongly disagree	2	3	4	5 Strongly Agree	Response Count
Complex	4	7	13	8	1	33
Compatible with business needs	0	2	7	15	9	33
Advantages to developing business	0	0	7	13	13	33
Advantageous to expanding markets	0	2	8	13	10	33
Too costly for the business	5	8	12	5	3	33
Too time consuming	10	12	7	3	1	33
<i>answered question</i>						33

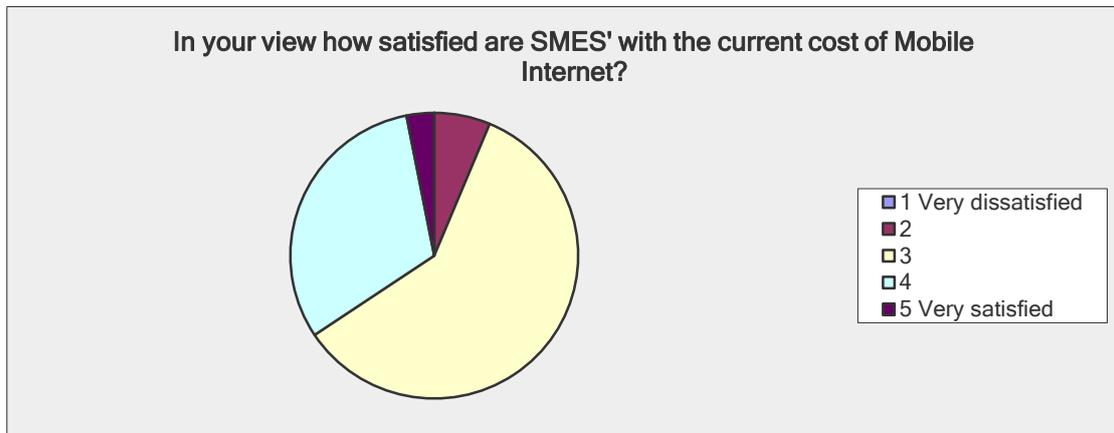
In relation to mobile internet being complex rating scale question, 33 % respondents in Survey-1 disagree that it’s complex for customers and 27% consider that customers find it complex whereas when same question was asked to SMEs in Survey-2 about 60%

(Please find results in appendix) disagreed that its complex and 10% agree that its complex. We find a gap here as BSCs' perceive that it is complex for customers by 200% more than what the SMEs perceive themselves. It is suggested to have more investigation in this area to fill in this gap.

There are about 40% of SMEs' who strongly agree that mobile internet is compatible with their business needs whereas BSC's perceive that only 30% of SMEs' agree to this. It was expected that it would be other way round for the network operator to provide assurance to SMEs.

BSCs' perceive that 70% of the SMEs' would find it too time consuming however when this question was asked to SMEs' about 90% perceive mobile internet technology too time consuming so it is suggested for the marketing department to have more focus on ease of use and benefits advertising to change customers perception in relation to this. In relation to cost, about 30% believe that it's costly for SMEs' whereas only 10% of SME respondents find it too costly.

Chart 4: Business Channel’s Understanding of SMEs’ Cost Perception



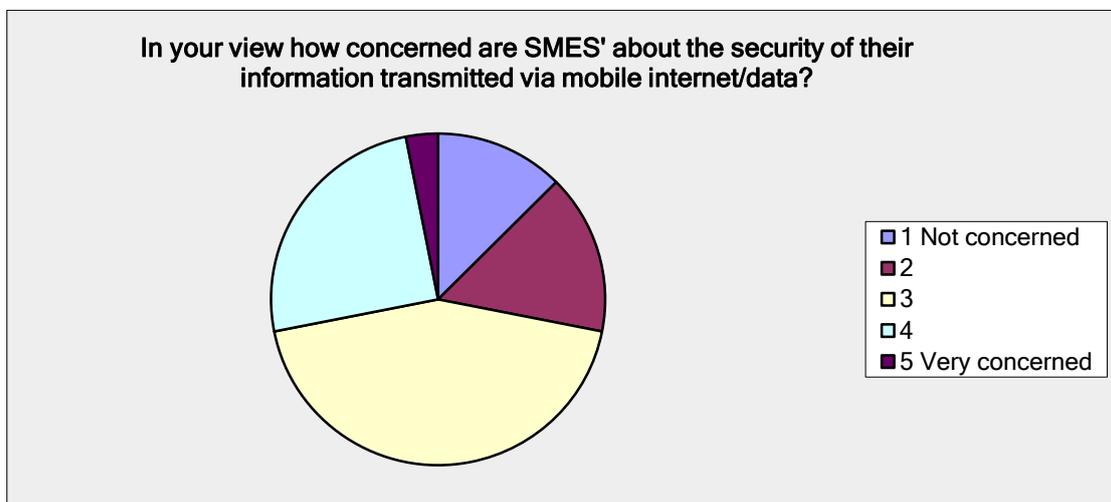
In your view how satisfied are SMES' with the current cost of Mobile Internet?		
Answer Options	Response Percent	Response Count
1 Very dissatisfied	0.0%	0
2	6.3%	2
3	59.4%	19
4	31.3%	10
5 Very satisfied	3.1%	1

Another question (12) was asked in relation to cost and 44% of SME respondents (Please find results in appendix) were satisfied with the cost of mobile internet as opposed to 34% perceived by BSCs in the above diagram. Generally speaking it was expected that network operator should perceive that SME customer are much more satisfied with the cost and that is not the case here, 6% responded that SMEs are dissatisfied whereas 60% kept the response neutral. There has been positive response in relation to importance of mobile internet for developing SMEs business with about 80% from BSCs in Survey-1 and 60% agreement from SMEs survey-2.

4.1.1 Mobile Internet Security

As discussed earlier that 48.2 % of the SME respondents in Survey-2 are concerned or very concerned about the security of information transmitted via mobile internet where as there are further 27% respondents who are not sure about the security therefore it is evident that when it comes to mobile internet; it poses a huge risk for the users. When we asked same question to BSCs (Business Channel) about 29% responded that SMEs were concerned about security of mobile internet.

Chart 5: Business Channel’s Response on Mobile Internet Security Perceived by SMEs



Question 17: Mobile Internet user experience of SMEs of New Zealand

Results show that there is a substantial gap in fact a mismatch in perception of network operator as a business and customers.

Answer Options	Response Percent
1 Not concerned	12.5%
2	15.6%
3	43.8%
4	25.0%
5 Very concerned	3.1%

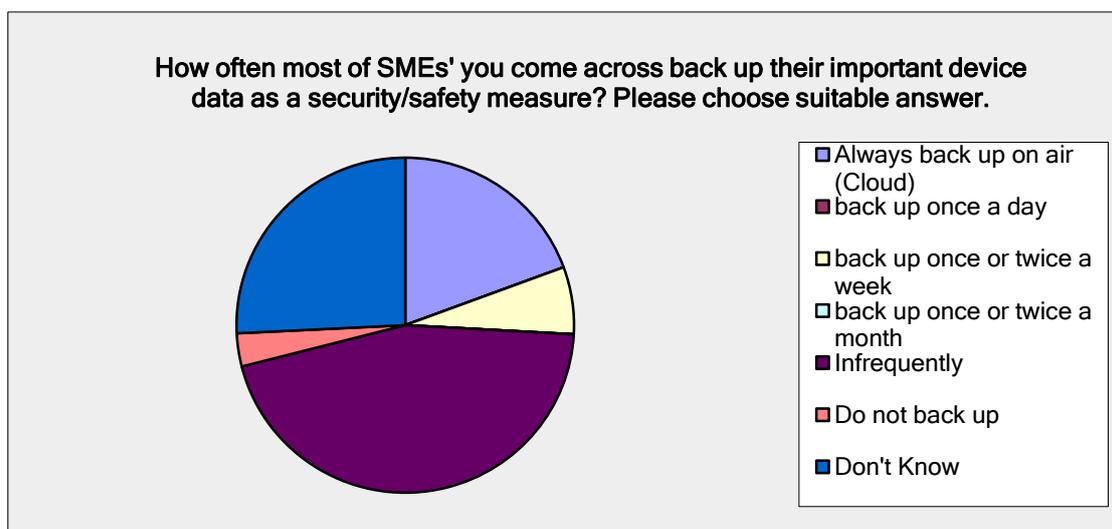
In relation to security, there was another question asked to respondents in Survey-1 about use of anti-virus software on mobile device by SMEs, over 70% believed that SMEs do not use anti-virus so often and about 20% responded neutral.

How often SMES' request/require anti-virus software on their mobile internet/smart device?

Answer Options	1 Not so often	2	3	4	5 Very often
	16	8	6	1	0

Below graph also shows that when it comes to back up of information on mobile devices in Survey-1 20% of the BSCs believe that the SMEs back up their data on cloud and 25% did not express any knowledge in relation to this. As per Survey-2 50% of the businesses use cloud for their smart mobile devices, 25% of SMEs reported that they use cloud to back up their data.

Chart 6: How often SMEs Back Up Their Mobile Device Data



Business Channel- consultant's additional comments:

- Try to advise/educate each customer to do so if not already
- It depends on their device. If they don't have one that backs up automatically they often don't bother.

- some don't back up often enough

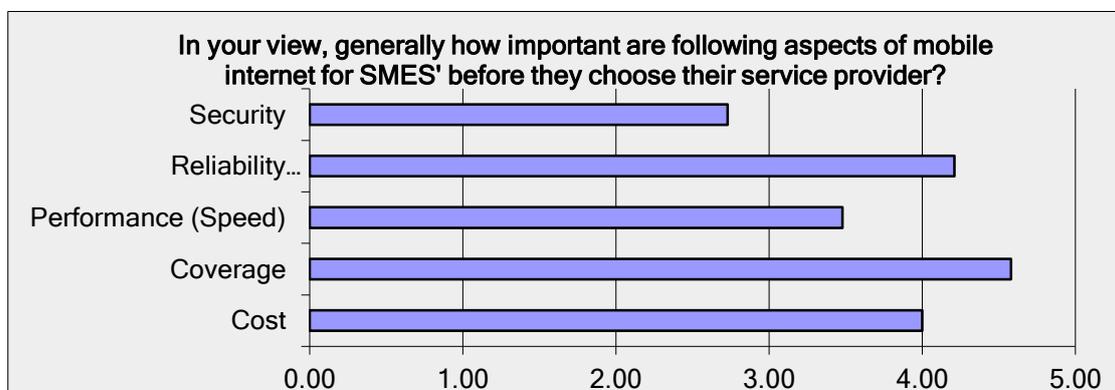
Answer Options	Response Percent
Always back up on air (Cloud)	19.4%
back up once a day	0.0%
back up once or twice a week	6.5%
back up once or twice a month	0.0%
Infrequently	45.2%
Do not back up	3.2%
Don't Know	25.8%

In the same question posed to SMEs, about 20% did not know about the back and 35% reported they back up infrequently. Results suggests that there is a great need to educate SMEs in relation to back-up their important business data as 95% of SME owner and decision makers use their smart phones both for business and personal use.

4.1.2 Mobile Internet Speed/Performance

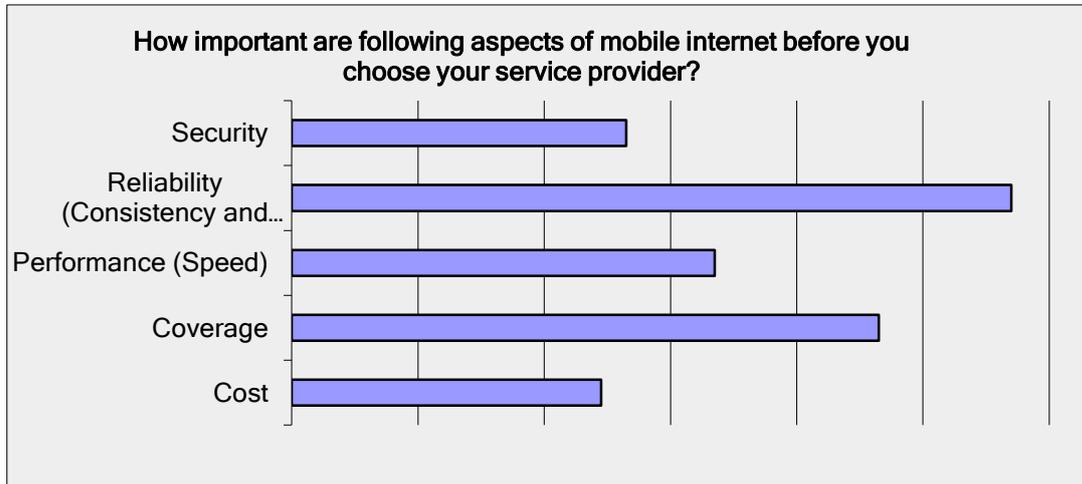
Results show in Survey-1 that importance of speed of mobile internet in relation to selection of mobile internet service provider came after cost however coverage and reliability got the first importance respectively in below graph. Overall rating for speed is 3.4 out of 5 whereas rating for reliability is 4.5 out of 5.

Chart 7: Key Aspect of Mobile Internet for its Selection



When same question was asked to SMEs in survey-2, SME's, reliability came out number 1 in terms of its importance to them and they appear to be least concerned about cost in relation to their rating in below graph.

Chart 8: Feedback on Speed of Mobile Internet



Question 14: Mobile Internet user experience of SMEs of New Zealand

In this study we inquired about speed in a different question again and only about 22% of consultant believed that SMEs are satisfied with the current speed of mobile internet available for smart devices.

In your view how satisfied are SMES' with the speed of mobile internet on their mobile device? (This includes smart phone, tablet and 3G data card)

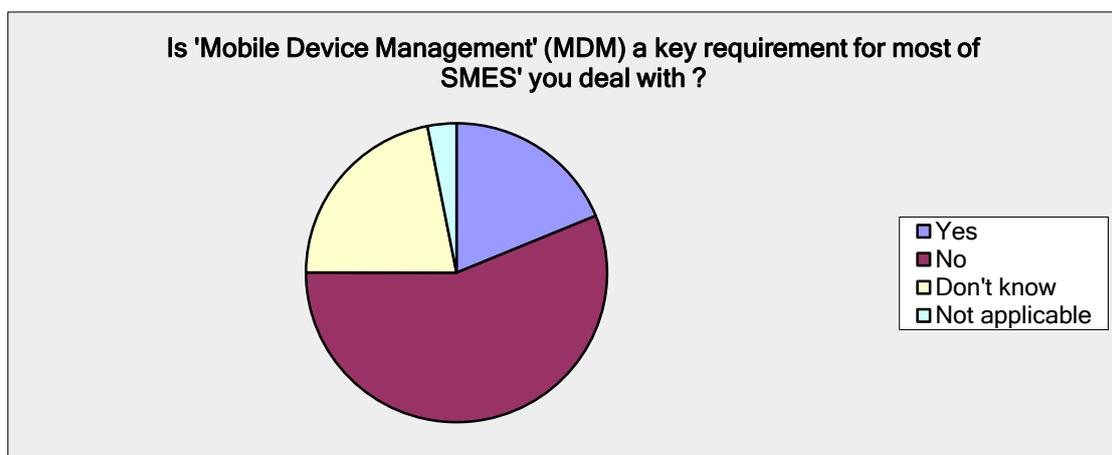
Answer Options	Response Percent
1 Not satisfied	0.0%
2	15.6%
3	62.5%
4	21.9%
5 Very satisfied	0.0%

Over 15% believed that SMEs are somewhat not satisfied with the speed and rated only 2 out of 5 satisfaction level for speed.

4.1.3 Mobile Internet Device Management

Results show in survey-1 that 56% of the respondents believed that MDM- Mobile Device Management is NOT a requirement for SMEs however about 20% of the survey-1 respondents believed that MDM is a requirement for most of SMEs this potentially shows a prospective growth opportunity in device management space.

Chart 9: Feedback on Mobile Device Management Requirement



Question 20: Mobile Internet user experience of SMEs of New Zealand

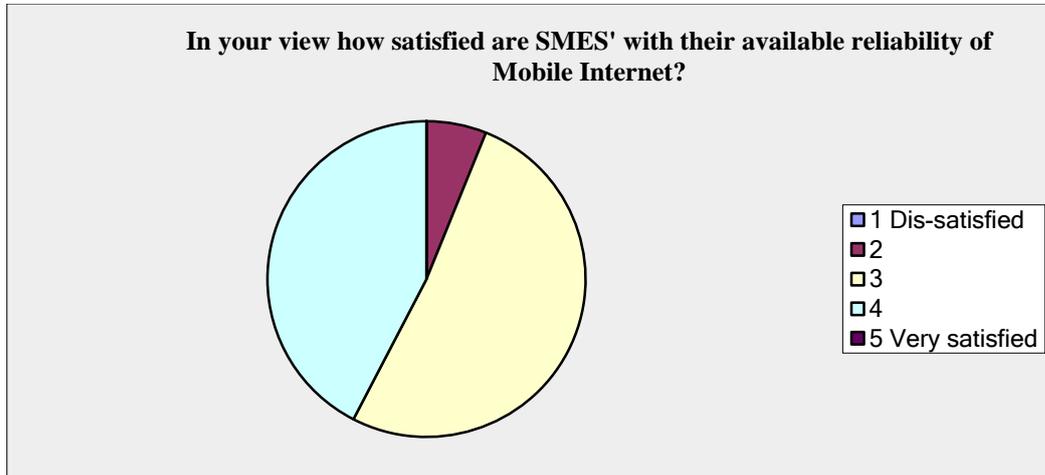
Answer Options	Response Percent
Yes	18.8%
No	56.3%
Don't know	21.9%
Not applicable	3.1%

22% of the survey-1 respondents replied that they “Don’t Know” which suggests room for improvement for network operator staff to know about this technology. We know that only 1% of New Zealand business have got 50 or more staff. MDM is more like a requirement in corporate space- companies with few hundreds and more staff.

4.1.4 Mobile Internet Reliability and Coverage

When asked about reliability, in Survey-1 business channel gave a rating of 4.2 out of 5 after 4.5 for coverage however from SMEs perspective in another part of survey, reliability of mobile internet is the most important aspect than anything else.

Chart 10: Feedback on Reliability of Mobile Internet



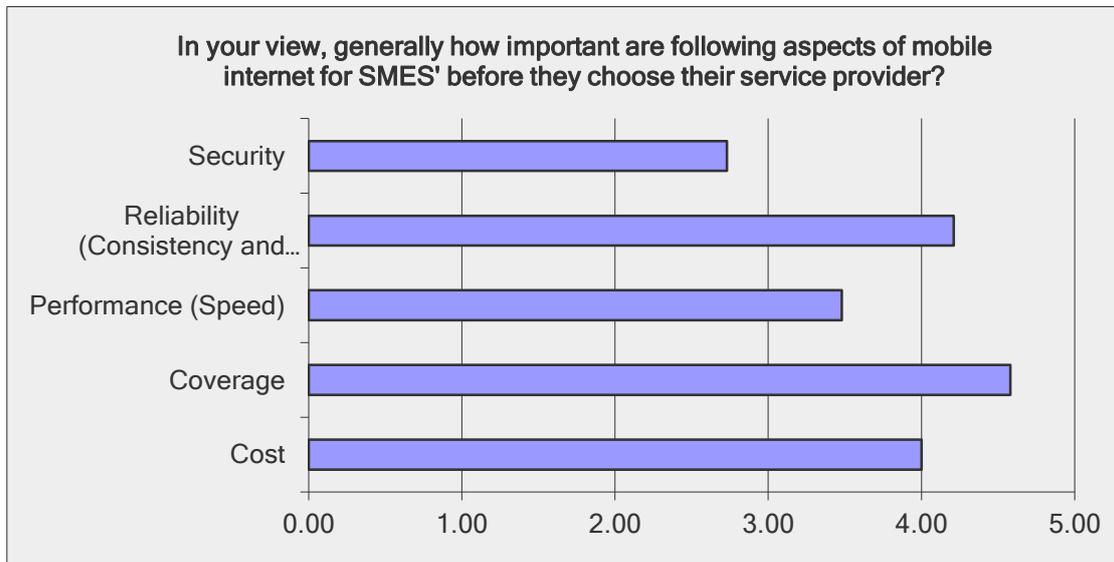
42% of BSCs believed that SMEs are satisfied with the reliability however 51.5% kept a neutral position which suggests that there are some reservations to be confident about reliability of mobile networks.

Answer Options	Response Percent
1 Dis-satisfied	0.0%
2	6.1%
3	51.5%
4	42.4%
5 Very satisfied	0.0%

In another question about reliability the BSCs in survey-1 responded that coverage is more important to customers than reliability, it is shown in the bar graph below.

When the same question was asked to SMEs, they responded in survey-2 that reliability is more important aspect for them to choose a service proposition or provider.

Chart 11: Feedback on Different Aspects of Mobile Internet



According to “Business Channel” in survey-1 coverage is most important aspect for SME’s and security is least important.

4.2 Interview Results

Interviews were conducted with telecommunication service provider's SMT- Senior Management Team (which represents cross functional departments such as Sales, Marketing, IT, Core Network Design and Finance etc.) to quantify the gaps in different perspectives. Each participant is head of a specific business division as discussed above responsible for user/customer experience and interaction with the business divisions in relation to mobile internet. Name of the organisation and participant is confidential and is not mentioned in the study. Please find interview questions, a summary table in relation to questions attached in the appendix.

In this chapter answers to interview questions are presented in the form of tables. However, in Chapter 5-discussions, references are made to this chapter.

Interview Question 1

What challenges do you face in a highly competitive environment?

Date and time of the interviews is recorded however it has been presented in the first table following questions would be part of the respective interview.

The answers of all participants for this question are presented in the table below:

Table 5: Answers to interview question 1

Case 1- Marketing	In a competitive market we continually face challenges to our positioning. As a 'value' player, competitors constantly try to move into this territory, making it important for us to stay one step ahead.
Case 2- Product	In a competitive market timing to launch a product is very important for instance Apple has been very smart to launch iPhone in the market when 3G network became more prevalent in the market place. Our objective is to be different than competitors therefore we are always looking for different venues and alternative vendors like Motorola, HTC and LG. We try to have wider range than competition to deliver more choice to the customer for instance Moto G2 is like Samsung S-3 and it's a great device with amazing price point
Case 3- Core Network Design	In a competitive market we continually face challenges to differentiate ourselves from competition and also innovate and based on that allow marketing department to deliver on their objectives. There is always a trade-off between capacity and investment- we need to have sufficient capacity for our customers and at the same time consider return on investment in that area.
Case 4- IT Operations	We are in very competitive environment and we want to be disruptive, with a view to innovate

	<p>and execute quickly that means having an idea from a concept to when its live product in production that brings challenges like ensuring quality, usability and related aspects, making sure that we can deliver a quality product and it does what's it's supposed to do for the customer and it does not break. We look after IT operations- IT subscriber facing services- web portal-mobile app- recharge-billing systems, payment systems and field operations team looks after base stations and a team that looks after value added services- voicemail, blacklisting implementation and IN System which does rating and due to configuration error there could be chances of that customer being billed incorrectly.</p>
<p>Case 5- Sales</p>	<p>We are a young company and we need to be able to show growth through innovation and change and we need to continuously keep doing it. We need to grow but at the same time protect profitability. We have been disruptive by introducing concept and product of carry over minutes, data and shared data. We need to find new ways to do this- for instance we introduced MRO-mobile repayment system whereby the freedom mobile plan is separate to mobile handset payments. We have a roadmap for these innovations and its part of our annual budget process.</p>
<p>Case 6- Finance</p>	<p>In the global financial crises the suppliers money was taken up so if we were to borrow money at that particular time it was kind of pretty dry so it has begun to loosen up in last 18 months so we can get funding to fund internal projects on the other hand our role is to invest money in customer acquisition and building a cell site so it's about striking the right balance as we give \$20 to \$30 mill annually to Vodafone as roaming cost.</p>

It is evident that every department and business segment has got its own challenge for example product department heads need to ensure that it is not only about maintaining the best price but also to provide different choice and functionality in the handset for the SME users. It also came out in survey results that SMEs need to have a reliable and secure connection to mobile internet and for it to be possible it's important that the handsets they use are capable and tested by product team. It is one of the top priorities of the finance department to strike the right balance so that investment can be made to build more cell sites and extend coverage. This is quite consistent to what has been explored in survey questions even though this question has been asked indirectly to service provider's leadership team but when it comes to mobile internet user experience we notice that common pattern of themes has emerged around reliability, coverage, cost, billing and product for the customer.

Interview Question 2

What is the most common issue for your department/role?

Table 6: Answers to interview question 2

Case 1- Marketing	The most common issue for Marketing is 'cutting through'. Whether it is with new propositions, advertising or communicating to the base – everyone gets talked to about so many different things in their daily life, we need them to take a few seconds to hear our messages.
Case 2- Product	<p>Testing- Phones are running like computer software and during the phones life cycle it may have two to three major software update e.g. Android and iOS launch so many software versions for different tier of their devices so challenge for us to keep up to date to do software and network testing for those products effectively that they are optimised on our network for our customers.</p> <p>The main thing for us is to test how the handset performs when it goes on to Vodafone network and comes back quickly on to 2degrees network under national roaming agreement and it's not an easy thing to do as it requires some modification in handset radio chipset, it's a bit complicated as it's not a usual thing to do around the world out of hundreds of networks around the world only half a dozen do this.</p>
Case 3- Core Network Design	Building coverage. We started of having 10% network traffic on our own infrastructure and

	now we have 90% traffic on our own infrastructure and 7% on Vodafone.
Case 4- IT Operations	The most common issue for technology is keeping up with pace of change and stay ahead of competitors by innovating as demand changes- customers' want new products and new features which require change for instance quite recently we introduced MRO-mobile repayment option which needed to be delivered quickly basically a customer can pay off their device interest free over 24 months and the charge can be put on their bill, even something very simple needs to be accessible from all channels for instance stores, systems and customer care, it looks simple but it has got all these touch points and interfaces to take information and take that into a back end system.
Case 5- Sales	Try to meet that growth through our sales channels, how to get more out of our existing sales channels- through employee referral program or word of mouth. Achieving growth in new market is hard as channels want more money.
Case 6- Finance	Trying to balance money between network expansion, capacity expansion, customer expansion or distribution channels expansion for instance dealer network and there isn't a correct formula

Responses to this question are comparative with what has emerged in survey for instance product department strives to ensure that the SME customers get a consistent experience when 2degrees network hands it over to Vodafone network under national roaming agreement, an up to date software ensures that customers get a reliable and quality experience. In survey SME respondents rated reliability, number one when it comes to them choosing a service provider. In SME survey question 10.1 is asked to ascertain SMEs feedback about importance of mobile internet reliability.

Interview Question 3

How do you keep customer experience at heart?

Table 7: Answers to interview question 3

Case 1- Marketing	Everything we do is insight based (i.e. driven from customer insight) – by doing this, customer experience is always at the heart of everything we do, because it is customer actions or feedback which drives each change
Case 2- Product	<p>We drive test the phones and make sure that they perform all right while you moving around at speed. We ensure that the phone works fine on the network and it can access all services. We cannot test everything and we not really responsible for that our main responsibility is how phone works on the network for basic functions. It really up to manufacturer or Google to sort this out.</p> <p>We have very well defined list of feature that we test.</p>
Case 3- Core Network Design	By building sufficient infrastructure, operating and optimising. Operating involves change management and process management and optimising involves increasing services and reducing delay.
Case 4- IT Operations	Even when we move quickly we have fairly well defined processes- when something comes to operations we see different phases, ensuring we understand what it is, how it works and how we can support with necessary documentation and whatever else and also take it into knowledge there is test team who test product according to its specifications. In customer care its part of the process from technology enterprise project management perspective that customer care is involved that they also have inputs into what needs to be tested and from operations perspective we need to look into what we are

	implementing. Our guiding principle is do what's right for the customer when a system is broken the person needs to think what's the right thing to do for the customer and if you follow that 9 out of 10 times you make right decision.
Case 5- Sales	By providing common systems and processes and making sure everyone is KPI-ed in the same way and by breaking barriers, for instance initially our dealer store did not have access to same systems as our direct stores did so it's about using same methodology.
Case 6- Finance	Trying to balance money between network expansion, capacity expansion, customer expansion or distribution channels expansion for instance dealer network and there isn't a correct formula and its about striking the right balance among different priorities.

Common themes have emerged from the interview of different department heads. It is learnt that they want to improve mobile internet experience and would like to do what is right for the customer whether it is to do with network, handsets, systems or process management. In survey results we notice that these aspects are very important to SME customers, for example result of questions 4.3, 6.1 and 10.1 in the SME survey show that reliability, and cost and security are of paramount importance to SME customers.

Interview Question 4

What are some of the strategies you follow wherein the outcomes/change is easy to follow for end users?

Table 8: Answers to interview question 4

Case 1- Marketing	Again, the strategy is to use a cross-functional team to make sure all areas of the business are represented when doing product design. We also test concepts with customers where possible and if needed continually improve/optimize the product once it is in market
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Case 2- Product	Testing and firsthand experience. I will use the device myself for everything-e-mails, music and YouTube etc to put myself in customer shoes that it performs efficiently and as per the description and feed it back to the vendor who send it back to their RND and software development team and most of the vendors 'd have their technical guy based in New Zealand
Case 3- Core Network Design	We try to avoid change unless it's absolutely needed and in case of change we communicate this to marketing. We also ensure that there is level of redundancy for every change, there is redundancy built in everything
Case 4- IT Operations	Some of our end users would be customer care from our perspective, so sales they use our systems. There is clear communication in terms of change so that the end user know that what we are doing and why we doing. It's all about communications ensuring that you get the things in place such as training before you make any change which could affect end users.
Case 5- Sale	We try to avoid change unless it's absolutely needed and in case of change we communicate this to marketing. We also ensure that there is level of redundancy for every change, there is redundancy built in everything.

Theme from result of this question is emerged that successful user/customer experience includes many aspects such as reliability, redundancy and training. Service providers need to ensure that all areas of business are represented such as as billing, finance, IT operations and network etc, in building and delivering mobile internet user experience.

Interview Question 5

What does user/customer experience mean to you?

Table 9: Answers to interview question 5

<i>Case 1- Marketing</i>	User experience is extremely important – customers don't want to call into a call centre for help, they want simple user experiences that let them do things themselves and remove the hassle. Good UX facilitates this
<i>Case 2- Product</i>	Use it as my phone for everything all day long for two weeks and UX is like how it to have it your device before I would offer it to customers. Google and Apple might have list of 500 things which they want to have included in the device but they cannot do everything
<i>Case 3- Core Network Design</i>	Everything we do can have an impact on user experience so we need to get it right every single time
<i>Case 4- IT Operations</i>	It needs to be consistent, every time some uses a service he needs to have same experience, it means to look the same field, word and needs to be easy to use and if something does go wrong the user needs to understand what went wrong and why e.g. error messaging need to be clear and concise
<i>Case 5- Sales</i>	Ideally customer should not have a reason to call you that means that you proactivity contact customer and resolve any problems before customer calls you.
<i>Case 6- Finance</i>	From finance point of view, bad customer experience means we are losing money

Chapter 5: Discussion

The objective of this section is to discuss themes which emerged during interviews of cross functional senior management/leadership team (SMT) such themes have been reported in Chapter 4- Results.

The results show that network operator understands the importance of different aspects of mobile internet user experience the like of which this research is about. This study presents different perspective on mobile internet user experience from SMEs', business consultants and telecommunication's business leadership team (Sales, Marketing, Network, Product, Finance and Technology).

Important aspects of mobile internet (MI) such as cost, coverage, performance, reliability and ease of use have emerged but surprisingly there is almost no concern mentioned in relation to security of mobile internet or its importance to business customers.

In the interviews we asked same question to six different department heads which provided us with an overall understanding of what service provider is aiming to achieve for its customers' successful mobile internet experience. In addition to this we also discuss quantitative results which come through the survey and help us to evaluate and investigate mismatch among different perspectives and answer primary question- 'What characteristics of mobile internet (MI) are considered by New Zealand SMEs' for their usage before selecting a service provider/network operator?' and a survey was developed to cover SME's feedback on different aspects of mobile internet such as reliability, coverage, cost, billing, security and mobile device management etc. Secondary questions are presented in Chapter 3 on page 51 and SME survey questionnaire is attached in appendix on page 104. It came out from SME survey that there is more work required on service provider part in this area of mobile internet.

In interviews with service providers cross functional team heads gave candid responses to the questions asked around challenges and issues they faced.

The results showed that in competitive business landscape, it is important for service providers to position themselves differently than competition and to be innovative to deliver better customer experience e.g. in New Zealand carryover data was introduced by one of the service providers which eliminated a lot of inflexibilities and provided more visibility on overall mobile internet usage. Such simple hence innovative product

caused a lot of stir in the market and resulted in significant growth for the service provider and also reduction in administrative overheads from SMEs point of view. This theme emerged as quite common in the results across many heads of departments. It is not always easy to keep innovating and be disruptive in the market place and it is also one of the key challenges for continuous growth and success to get the timing right for launch of a product or service for example in response to interview question 1 (*What challenges do you face in a highly competitive environment?*) head of product answered that *“In a competitive market timing to launch a product is very important for instance Apple has been very smart to launch iPhone in the market when 3G network became more prevalent in the market place. Our objective is to be different than competitors therefore we are always looking for different venues and alternative”*. one of the key reasons for Apple’s success was timing of launch of iPhone, for instance 3G network became available in New Zealand in 2005 and in mid-2007 first generation iPhone was launched therefore 3G data speeds supported by iPhone and usage of mobile internet with user friendly interface was possible. The results show that maintaining quality and usability of mobile internet experience for customers poses a challenge from service provider point of view.

As part of qualitative methods interviewees were asked about customer experience and what are the issues faced by the SMT (Senior Management Team). Results show that there is a lot of complexity in telecommunication business and striking the right balance in relation to available funds and projects that need investment is not always easy so cutting through the complexity of what is more important for the customer and keeping up with pace of change poses challenge for meeting and delivering continuous growth and improved mobile internet user experience.

In response to interview question 3, *“How do you keep customer experience at heart?”*, the respondents highlighted that the way we ensure that customer experience is at heart is that they make business decisions based on insights on usage patterns and surveys conducted to measure customer satisfaction and to ensure that our systems are optimised and robust. We build, operate and optimise infrastructures and in relation to businesses processes, these need to be well defined and there is greater visibility on different phases. The results show that service providers tend to avoid change unless it is for redundancy or business benefit. When there is going to be changes made in existing systems the leadership of respective business segment ensure that there is

sufficient training for the people who are stakeholders and would be affected by such change and that there is clear communication on what is going to change and its impact on business units. The results show that to deliver a seamless customer/user experience there needs to be an all departments' representation, for instance, IT, networks, marketing, sales, customer service, product and legal so on and so forth to make it hassle free, clear and consistent for the customers so that customers do not have a reason to call service provider.

Quantitative results show that significant proportion, overall 95% of selected respondents (Business Sales Consultants and Business Account Managers) for this study, interact directly with SME clients to provide mobile technology solutions and service them. This adds to the credibility of the data gathered which could be used by stakeholders and decision makers while making a strategy for superior user/customer experience. The results of question 4 in SME questionnaire (attached in appendix) on page 108 show that there is representation not only from Auckland but also from Upper North Island, Waikato, Central North Island, Canterbury and Otago in South Island which provides overall representation of SMEs in New Zealand.

Results show that SMEs perceive mobile internet as a less complex and compatible to what BSCs and BAMs (Business Sales Consultants and Business Account Managers) perceive. There is scope for more inquiry to understand such gaps, the more the alignment between service provider and customers perception better it is to serve them and improve mobile internet user experience. Results of question 4.3 and question 6 show that SMEs level of satisfaction with the cost is more than what BSCs perceive however BSC strongly believe that mobile internet is very important for growth and development of SMEs.

Results show that SMEs are more concerned about security of mobile internet and the information transmitted by smart device than the BSCs (Business Sales Consultant) perceive. As per SME survey results in question 9.1, less than 6% business owners/decision makers agreed that they are not concerned about the security issues of mobile internet, this is reflected in purple color in graph whereas 48.2 % reported that they are concerned or very concerned about security of mobile internet. This reflects that there is huge area to be filled in by the industry or mobile technology providers to ensure their customers that the information transmitted on mobile network is secure and is not susceptible to the risk of being hacked. SMES' appear concerned as data security breach would have immediate effect on business bottom line. This could be a possible opportunity for the service provider to develop solutions which are more secure and also educate customers how comprehensive security is being implemented to make mobile internet safe and secure for the customers and to deliver a robust solution to SME customers for mobile internet and educate them why the solution they are proposing is secure and what security features it has got so that it provide assurance to SMEs to use their services. This shows that there is a massive market in security

discipline when it comes to mobile internet and security of information transmitted by mobile devices. When we asked SMEs about how satisfied they are with the speed of mobile internet, results show that half of SMEs are satisfied with current speed of mobile internet. This area suggests more investigation as every SME and end user would have different requirement for speed depending on his/her role, smart device and type of usage. Generally speaking mobile device management solution is used in corporate space whereby an organisation has possibly got few hundred smart devices. Considering percentage of business in medium space out of respondents for this survey it's evident that MDM solution is a growing need in today's telecommunication marketplace and even medium enterprises like the idea to manage their fleet devices with an effective and robust device management system.

When asked about reliability of mobile network the results show that there need to be more work done in this area to up skill business channel and operate as a network operator for more customer satisfaction and profitability. It would be beneficial for the network operator to highlight to its business customers, the resilience and redundancy aspect of its network. SMEs rated reliability of network higher than mobile internet coverage which is quite understandable as business decision makers believe that any downtime or unavailability of any service could be detrimental to their business and customer service as a matter of fact a business can operator with acceptable and adequate level of coverage, it is network operators job to qualify where exactly prospective SME would be using the service and would there be any impact on clients business which its existing level of coverage- 9 out of 10 times this issue can be resolved by following proper business process. Keeping telecommunication cost low is important to SMEs however we learn from this study that actually cost is only the third important when it comes to business customers.

Chapter 6: Conclusion and Recommendations

In this study we have taken into account different stakeholders perspectives on mobile internet experience (satisfaction rating) in relation to key characteristics e.g. speed, security, reliability and other significant factors. The comprehensive nature of this study emphasis that a successful mobile internet experience can only be customer driven as it is evident that there is a gap between what service provider and SME decision makers perceive to be important for mobile internet. The service provider can only meet customer expectation of successful experience and can encourage its acceptance and adoption by aligning its organisational strategy to customers concerns, for instance customers are very concerned about mobile internet security, however, service providers seem to have less focus towards security or educating SMEs on security of mobile internet. Future work could be intended to extend ‘Technology Acceptance Model’ for a specific mobile internet feature. It could also be critical to understand if there are differences between technology professionals and non tech savvy business owners.

As a result to this study recommendations are made to service providers based on available substantial literature and evaluation of key attributes of mobile internet (MI) from SMEs’, Business Channel and SMT’s (Senior Management Team) perspective. It is also appreciated from this study that in New Zealand’s competitive telecommunication market, service providers fight for growth through innovation and by dynamically adapting, it is important to identify if there are any gaps in their understanding of what is important to customers. In light of survey of service provider’s business channel, SMEs and descriptive interview data, we explored themes, commonality and differences to come to such conclusion and make following recommendations:

The service provider should:

- Engage more and educate SME customers on mobile internet security.
- Demonstrate to customers on coverage and reliability of mobile internet in more effective manner and utilise smart tools/programs to achieve this.
- Service provider should first understand SMEs perspective and then satisfy their key concerns and their own much needed growth is bound to follow.

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8: Appendices

8.1 Questionnaire Mapping

	Research Questions	Telco-Business Channel	SME- Decision Maker
	Primary Research Question	Section (Questions)	Section (Questions)
	What characteristics of mobile internet (MI) are considered by New Zealand SMEs' for their usage before selecting a service provider/network operator?	3- (1-8) 4-10 (all)	4 - (1,3)
	Secondary Research Questions		
2	How does Mobile Internet help in business productivity and decision-making?	4- (2, 3) 7 (1)	5 (1-4)
3	What are the SME users' perceptions of mobile internet cost and billing?	6-(1-2) 4- (3) 10 (1)	6 (1-2) 4 (3)
4	What level of security is implemented in mobile internet systems/devices?	9- (1-4) 10 (1)	9 (1-4)
5	How is the management of mobile internet devices conducted in NZ SMEs?	9- (4) 4 (4) 5- (1,4)	9 (5)

6	What is the SME users' perception of mobile internet coverage/availability?	10- (1)	10- (1)
7	What is the SME users' perception of mobile internet Reliability?	10- (1)	10- (1-2)

Mobile Internet User Experiences of SMEs in New Zealand

1. Introduction

The following Survey has been developed by Asif Iqbal, enrolled in the Master of Computing programme at Unitec, currently in his final year to undertake thesis for which he is carrying out research on "Mobile Internet User Experiences of SMEs' in New Zealand".

What will it mean for you?

It will mean completing about 20 very short online questions (Including Demographic Questions) that will take approximately 10 minutes.

What I will do with this?

By taking part in this you will be helping the student not only to complete his studies but also understand NZ businesses' experience with mobile internet.

Consent

Completing this survey is taken as consent to participate in the research project. If you have any concerns about the research project you can contact research supervisor Hira Sathu (hsathu@unitec.ac.nz) on (09) 815-4321 ext. 6027.

Confidentiality

Please answer all relevant questions. By completing this survey you are giving informed consent for the information submitted to be used for the purposes of research. All returns will be ANONYMOUS and UNIDENTIFIABLE. Responses will be kept in a password protected file and accessible only to primary researchers and their associates.

Unitec rigorously adheres to the Privacy Act and the Commerce Act. All information received in the production of this research will be held in strict confidence.

Thank you for taking your time to complete this survey.

Asif Iqbal

(MComp Student)

Department of Computing

Unitec Institute of Technology

UREC REGISTRATION NUMBER: (1116)

2. Participant's Profile

Firstly, a few questions about your business and business mobile phones.

1. What is your role?

1. Business Sales Manager

2. Business Sales Consultant

3. Business Account

4. Telephone Account

Manager Other (please specify)

3.

1. What business sector most of your customers belong to?

- Retail
- Transport
- Communication Services
- Health and Community
- Personal and other
- Services Agriculture, Fishing,
- Forestry Building and
- Construction

Other (please specify)

2. Where are most of your customers located?

- 1. Northland
- 2. Auckland
- 3. Waikato
- 4. Bay of Plenty
- 5. Gisborne
- 6. Hawkes Bay
- 7. Taranaki
- 8. Manawatu-Wanganui
- 9. Wellington
- 10. Tasman
- 11. Nelson
- 12.
- Marlborough
- 13. West Coast
- 14. Canterbury
- 15. Otago

Other (please specify)

Mobile Internet User Experiences of SMEs in New Zealand

4. Usefulness and Ease of Use of Mobile Internet

Purpose of this page is to get an understanding of how useful is mobile internet to your business customers' and how easy is it to use it.

1. What do most of your customers use their mobile/wireless device for:-

Personal use

Business use

Both

2. In your view, how important is mobile internet for your customers to perform their job?

1 Not Important

2

3

4

5 Most Important



3. In your view how do business customers perceive mobile internet:

1 Strongly disagree

2

3

4

5 Strongly Agree

Complex



Compatible with business needs



Advantages to developing business



Advantageous to expanding markets



Too costly for the business



Too time consuming



4. How do most of your business customers manage mobile internet and mobile devices (mobile phones/USB data sticks/tablets):

In-house- They Have employed someone to look after smart devices and engagement with service

providers Outsourced- They have contracted out to a third party who manages and organises smart

devices/service Don't know

Other (please specify)

5. Selection of Mobile Internet Device (this includes mobile phone/tablet/usb ...)

Factors which may influence selection of mobile internet device.

1. Please choose which mobile Operating System is preferred by most of business customers in your view? (This includes your smart phone and tablet)

- IOS/Apple
- Windows (Microsoft)
- Android (Samsung etc)
- All of above
- Don't Know

Other (please specify)

2. What is your experience on, how long business customers use mobile device (phone/tablet/usb stick) before they buy (upgrade) a new one?

- 0-6 months
- 1-2 years
- 2-3 years
- 3-5 years or more
- Don't Know

3. This question is to assess how satisfied are you with your current tool of trade/Mobile device (this includes mobile phone/USB data stick/tablet)?



4. Generally what are key considerations for your business customers before they select a mobile/wireless device (mobile/USB stick/tablet)?

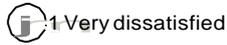
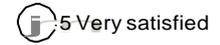
- OS (Operating System)
- Software compatibility
- Processor Speed
- Device Security such as finger print reader
- WiFi
- Camera
- Size of Screen
- Battery Life

Something else (please specify)

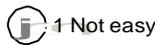
6. Cost and Billing

How satisfied are SMES' with the cost and billing of your mobile internet service provider?

1. In your view how satisfied are SMES' with the current cost of Mobile Internet?

2. How easy is it for SMES' to understand the charge of mobile internet (Dollar amount over and above your data allowance e.g. cents per megabyte) by a service provider?

7. Performance/ Speed

Speed of Mobile Internet

1. In your view how satisfied are SMES' with the speed of mobile internet on their mobile device?

(This includes smart phone, tablet and 3G data card)

 1 Not satisfied

 2

 3

 4

 5 Very satisfied

8. Productivity

Productivity of mobile internet, use of mobile internet in spare/free time on the go (while travelling)...

1. What are some of the most important business applications (you come across) that SMES' access on their mobile device remotely (while not in the office)? Please select all that apply.

- E-mail
- Smart phone app
- Calendar
- Web
- Video conferencing

Other (please specify)

2. Do you believe that cloud computing is on the rise for great number of SMES' you deal with?

Yes

No

Not applicable

Don't Know

9. Security of Mobile Internet

What are your security concerns with regards to the use of mobile internet device?

1. In your view how concerned are SMES' about the security of their information transmitted via mobile internet/data?

1 Not concerned 2 3 4 5 Very concerned

2. How often SMES' request/require anti-virus software on their mobile internet/smart device?

1 Not so often 2 3 4 5 Very often

3. How often most of SMES' you come across back up their important device data as a security/safety measure?

Please choose suitable answer.

Always back up on air (Cloud)

back up once a day

back up once or twice a

week back up once or twice a

month Infrequently

Do not back up

Don't Know

Other (please specify)

4. Is 'Mobile Device Management' (MDM) a key requirement for most of SMES' you deal with?

Yes

No

Don't know

Not applicable

10. Reliability

*** 1. In your view, generally how important are following aspects of mobile internet for SMES' before they choose their service provider?**

	1 Not Important	2	3	4	5 Most Important
Cost					
Coverage					
Performance (Speed)					
Reliability (Consistency and Quality of Connection)					
Security					

2. In your view how satisfied are SMES' with their available reliability of Mobile Internet?

1 Dis-satisfied
 2
 3
 4
 5 Very satisfied

11. Prize Draw

1. If you are happy to be included in the prize draw, please enter your e-mail below.

8.3 SME Questionnaire

Introduction

The following Survey is for the student enrolled at Unitec, currently in his final year to undertake thesis for which he is carrying out research on "Mobile Internet User Experiences of SMEs' in New Zealand".

What will it mean for you?

It will mean completing about 20 very short online questions (Including Demographic Questions) that will take approximately 10 minutes.

What I will do with this?

By taking part in this you will be helping the student not only to complete his studies but also understand NZ businesses' experience with mobile internet.

Consent

Completing this survey is taken as consent to participate in the research project. If you have any concerns about the research project you can contact research supervisor Hira Sathu (hsathu@unitec.ac.nz) on (09) 815-4321 ext. 6027.

Confidentiality

Please answer all relevant questions. By completing this survey you are giving informed consent for the information submitted to be used for the purposes of research. All returns will be ANONYMOUS and UNIDENTIFIABLE. Responses will be kept in a password protected file and accessible only to primary researchers and their associates.

Unitec rigorously adheres to the Privacy Act and the Commerce Act. All information received in the production of this research will be held in strict confidence.

Thank you for taking your time to complete this survey.

Department of Computing

Unitec Institute of Technology

UREC REGISTRATION NUMBER: (1116)

2. Participant's Profile

Firstly, a few questions about your business and business mobile phones.

1. Are you the person in your business who influences or decides on the mobile phone provider and the pricing plans your business chooses?

- 1. I have a lot of influence over
- 2. I make the final decision about
- 3. I do not influence or decide
- 4. We have no mobile phones for business purposes

3.

1. What is your job role?

- Business
- Owner General
- Manager
- Finance Manager
- IT Manager or CIO
- Administration Manager
- Senior Manager
- Other (Please tell us)

Other (please specify)

2. What is your business sector?

- Retail
- Transport
- Communication Services
- Health and Community
- Personal and other
- Services Agriculture, Fishing, Forestry Building and Construction

Other (please specify)

3. How many staff do you have in your company?

- 1
- 2
- 3
- 4
- 5
- 6-9
- 10-19
- 20+

Mobile Internet User Experiences of SMEs in NZ

1-5 years



5-10



10-15



15-20



20+

4. Where is your business located?

If you have multiple locations, please select the head office location.



1. Northland



2. Auckland



3. Waikato



4. Bay of Plenty



5. Gisborne



6. Hawkes Bay



7. Taranaki



8. Manawatu-Wanganui



9. Wellington



10. Tasman



11. Nelson



12. Marlborough



13. West Coast



14. Canterbury



15. Otago



16. Southland

Other (please specify)

Mobile Internet User Experiences of SMEs in NZ

4. Usefulness and Ease of Use of Mobile Internet/MDT:

Purpose of this page is to get an understanding of how useful is mobile internet to your business and how easy is it to use it.

1. Do you use your mobile/wireless device for:-

Personal use

Business use

Both

2. How important is mobile internet to perform your job?

1 Not Important

2

3

4

5 Most Important



3. I consider mobile internet:

1 Strongly disagree

2

3

4

5 Strongly Agree

Complex



Compatible with the needs of my business



Advantages to developing my business



Advantageous to expanding markets



Too costly for the business



Too time consuming



4. How many mobile internet devices do you have in your company? (This includes smart phones, tablets, 3G data cards and mobile internet USB data sticks)

1 to 5

5 to 10

10 to 20

20 to 30

30 to 40

50+

5. Do you manage your IT infrastructure

In-house

Outsourced

Don't know

Not applicable

5. Selection of Mobile Internet Device (this includes mobile phone/tablet/usb ...)

Factors which may influence selection of mobile internet device.

1. Please choose which mobile Operating System do you use? (This includes your smart phone and tablet)

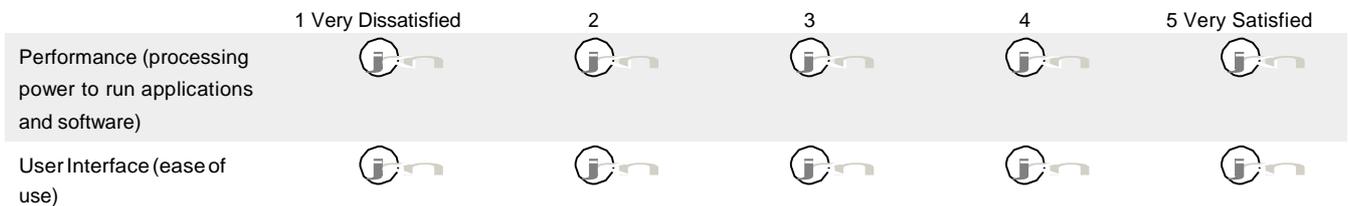
- IOS/Apple
- Windows (Microsoft)
- Android (Samsung etc)
- All of above
- Don't Know

Other (please specify)

2. How long do you use your mobile device (phone/tablet/usb stick) before you buy a new one (upgrade)?

- 0-6 months
- 1-2 years
- 2-3 years
- 3-5 years or more

3. How satisfied are you with mobile device's



4. What are key considerations for selection of mobile/wireless device?

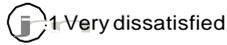
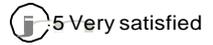
- OS (Operating System)
- Software compatibility
- Processor Speed
- Device Security such as finger print reader
- WiFi
- Camera
- Size of Screen
- Battery Life

Other (please specify)

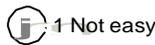
6. Cost and Billing

How satisfied is your business with the cost and billing of your mobile internet service provider?

1. How satisfied are you with the cost of mobile internet you currently paying?

2. How easy is it to understand the charge of mobile internet (Dollar amount over and above your data allowance e.g. cents per megabyte) by your service provider?

7. Performance/ Speed

Speed of Mobile Internet

**1. How satisfied are you with the speed of mobile internet on your mobile device?
(This includes your smart phone, tablet and 3G data card)**

 1 Not satisfied

 2

 3

 4

 5 Very satisfied

8. Productivity

Productivity of mobile internet, use of mobile internet in spare/free time on the go (while travelling)...

1. What are some of the most important business application you access on your mobile device remotely (while not in the office)? Please select all that apply.

- E-mail
- Smart phone app
- Calendar
- Web
- Video conferencing

Other (please specify)

2. Do you use cloud computing for your mobile device?

Yes

No

Not applicable

Don't Know

9. Security of Mobile Internet

What are your security concerns with regards to the use of mobile internet device?

1. How concerned are you about the security of your information transmitted via mobile internet/data?

1 Not concerned 2 3 4 5 Very concerned

2. Do you use any anti-virus software on your mobile internet/smart device?

Yes No Not applicable

3. How often do you back up your mobile/wireless device's data for security reasons? Please choose suitable answer.

Backed up on air (Cloud)
 Once a day
 Once or twice a
 week Once or twice a
 month Infrequently
 Don't Know

4. How often do you do software update on your mobile device for security reasons?

Once a day
 Once or twice a
 week Once or twice a
 month Infrequently
 Don't Know

5. Do you use 'Mobile Device Management' (MDM) software to manage business devices?

Yes No Don't know Not applicable

10. Reliability

*** 1. How important are following aspects of mobile internet before you choose your service provider?**

	1 Not Important	2	3	4	5 Most Important
Cost	<input type="radio"/>				
Coverage	<input type="radio"/>				
Performance (Speed)	<input type="radio"/>				
Reliability (Consistency and Quality of Connection)	<input type="radio"/>				
Security	<input type="radio"/>				

2. How satisfied are you currently with the overall reliability of mobile internet?

1 Dis-satisfied 2 3 4 5 Very satisfied

11. PRIZE DRAW

There are two prizes up for grabs through a random draw for 2 lucky winners:

- HTC one Smart Phone RRP \$699
- \$50 Prezzy Card

1. If you are happy to be included in the prize draw, please enter your e-mail below.

12. Thank You

We would like to take this opportunity to thank you for the time you have spent on this survey. Your personal opinions are extremely valuable to us. Thank you.

8.4 Summary Table- Interview Log

	Date and Time	Business Type	Position
Interview 1	20/10/2014 1:00 PM	Network Operator	Head of Marketing
Interview 2	On 13/10/2014 12:00 PM	Network Operator	Head of Product
Interview 3	13/10/2014 2:00 PM	Network Operator	Head of Core Network
Interview 4	16/10/2014 12:00 PM	Network Operator	Head of IT Operations
Interview 5	04/11/2014 2:00 PM	Network Operator	Chief Sales Officer
Interview 6	12/11/2014 1:00 PM	Network Operator	Chief Financial Officer

8.5 Information Sheet for Participants



Information for participants

Mobile Internet User Experiences of SMEs in New Zealand

My name is Asif Iqbal and I am final year MComp student at Unitec. Part of my degree programme involves a research paper on a subject of my choice. My research topic looks at mobile internet user experiences of SMEs in NZ.

What I am doing

I want to find out what factors make mobile internet a success or failure for businesses. By taking part in this research project you will be helping us to understand what is relevant and important for SMEs in New Zealand with regards to mobile internet usage and its success for the business. The information discerned would also help telecommunication companies.

What it will mean for you

I want to survey and talk about:

- Your opinion on security of mobile internet?
- Your opinion on the use of mobile Internet to conduct business?
- Your opinion on performance of mobile Internet for business?

I would like it if you could meet me for about 20 minutes to talk about above mentioned. I will come to your office during business hours. I will tape the interviews and will be transcribing them (typing the conversation out) later. All features that could identify you will be removed and the tapes used will be erased once the transcription is done.

Your name and information that may identify you will be kept completely

confidential. All information collected from you will be stored on a password

protected file and only you, the researcher and my supervisors will have access to this information.

Please contact me if you need more information about the project. At any time if you have any concerns about the research project you can contact my supervisors:

Hira Sathu phone 815 4321 ext. 6027

E-mail: hsathu@unitec.ac.nz

Dr. Aaron Chen

E-mail: achen2@unitec.ac.nz

Your participation

An electronic questionnaire has been developed for you to complete. The questions in the questionnaire are mainly about your views and opinions about the mobile Internet user's experience. Please feel free to have your voice. The published research will be available for you to read (contact the researcher).

This questionnaire will probably take 15 minutes for you to complete. All the features that could identify you will be carefully removed when analysing data and your responses will be kept in a secure place.

Confidentiality

Your name and information that may identify you will be kept completely confidential. All information collected from you will be stored on a password protected file and the only access to your information is yourself, me and my two supervisors. Because the questionnaire is anonymous we will not be able to withdraw your data once submitted.

Thank you!

UREC REGISTRATION NUMBER: (1116)

This study has been approved by the Unitec Research Ethics Committee from (2010) to (2011). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretariat (Ph: 09 815 4321 ext.6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

8.6 Consent Form



Mobile Internet User Experiences

This is a consent form which allows permission to get information for a study on “Mobile Internet User Experiences of SMEs’ In New Zealand”.

I have had the research project explained to me and I have read and understood the information sheet given to me. I understand that everything I say is confidential and none of the information I give will identify me and that the only persons who will know what I have said will be the researcher and their supervisors. I also understand that all the information that I give will be stored securely on a computer at Unitec for a period of 5 years.

I understand that my discussion with the researcher will be taped, hand written on a note pad and transcribed.

I am aware that I may contact the Research Coordinator/Supervisor Hira Sathu at Unitec on (09) 815-4321 ext 6027, if I have any queries about the project.

I have had time to consider everything and I give my consent to be a part of this research/study.

Participant Signature: Date:

Project Researcher: Date:

8.7: Interview Results' Themes

Questions	Key Themes highlighted by Participants
Challenges	Positioning, timing, innovative, disruptive, differentiation, quality, usability, growth
Issues	Cutting through, testing software and performance, coverage, pace of change, meeting growth, strike the right balance for funds
Keeping customer experience at heart	Insight based decisions, drive test and network test, building, operating and optimising infrastructure, well defined processes and ability to see different phases from enterprise project management perspective, breaking barriers and consistent KPIs, strike the right balance of investment.
No Impact Strategies- Ease of use	All business teams representation, testing, first-hand experience, avoid change, redundancy, clear communication, training
What is user/customer experience mean?	Get it right every single time, remove hassle, put yourself in customer shoes, consistent, clear and concise, customer should not have a reason to call you, bad experience cost us money

8.8: Sample Interview Questions

Initially discussed questions:

1. What challenges do you face in a highly competitive environment?
2. What is the most common issue for your department/role?
3. How do you keep customer experience at heart?
4. What are some of the strategies you follow to ensure that the outcomes/change is easy to follow for end users?
5. What does user/customer experience mean to you?

In the interview we asked above questions to cross functional SMT (Senior Management Team) and few additional questions to further substantiate desired inquiry.

Interview Questions for SMT (Senior Management Team) - Cross Functional Departments

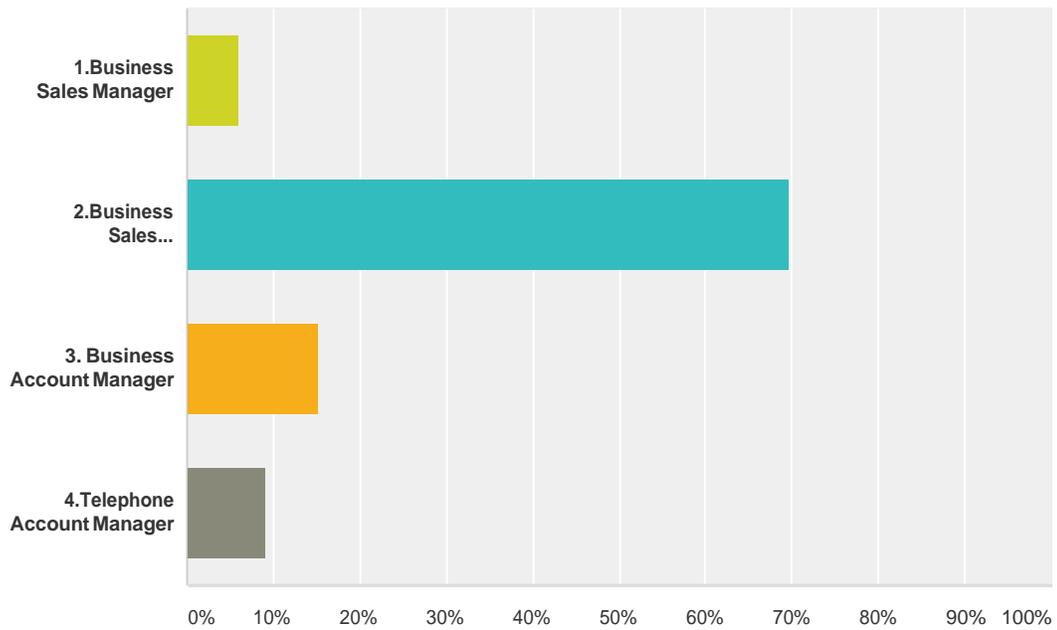
Q	Finance 12/11/2014 1:00 PM	IT Operations 16/10/2014 12:00 PM	Core Network Design 13/10/2014 2:00 PM	Product On 13/10/2014 12:00 PM	Marketing 20/10/2014 1:00 PM	Sales 04/11/2014 2:00 PM
1.	What challenges do you face in highly competitive environment?	What challenges do you face in highly competitive environment?	What challenges do you face in highly competitive environment?	What challenges do you face in highly competitive environment?	What challenges do you face in highly competitive environment?	What challenges do you face in highly competitive environment?
2.	What is the most common issue for finance?	What is the most common issue for Technology?	What is the most common issue for Network?	What is the most common issue for Product?	What is the most common issue for Marketing?	What is the most common issue for Customer Care/Sales?
3.	How do you keep customer	How do you keep customer experience at heart?	How do you keep customer experience at heart?	How do you keep customer experience at heart?	How do you keep customer experience at heart?	How do you keep customer experience at heart?

	experience at heart?					
4	What are some of the strategies you follow to ensure that the outcome/change is easy to follow for end users	What are some of the strategies you follow to ensure that the outcome/change is easy to follow for end users	What are some of the strategies you follow to ensure that the outcome/change is easy to follow for end users	What are some of the strategies you follow to ensure that the outcome/change is easy to follow for end users	What are some of the strategies you follow to ensure that the outcome/change is easy to follow for end users	What are some of the strategies you follow to ensure that the outcome/change is easy to follow for end users
5	What does UX mean to you?					
6	What are some of the financial tools you use to prioritise cost?	How do ensure 24/7 availability of services for end users?	What does reliability mean for end users?	How do you balance device demand and supply equation?	What are some of the tools you use to ensure continuous growth and success?	What is the most common inquiry you get from SMEs?

8.9 Business Channel Survey (Service Provider/ISP)

Q1 What is your role?

Answered: 33 Skipped: 0

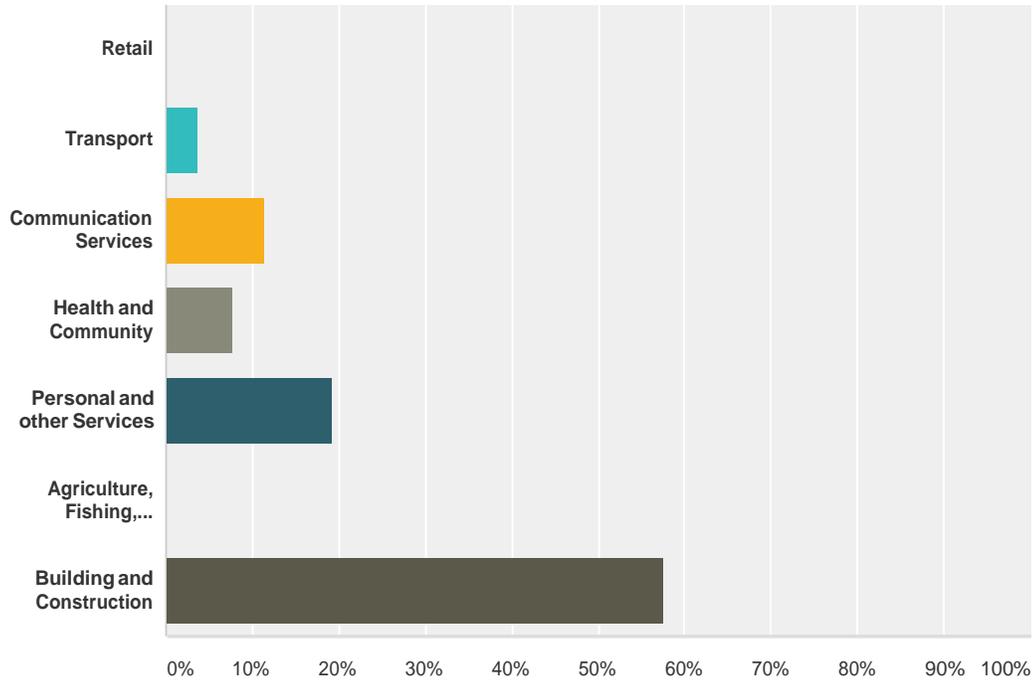


Answer Choices	Responses
1. Business Sales Manager	6.06% 2
2. Business Sales Consultant	69.70% 23
3. Business Account Manager	15.15% 5
4. Telephone Account Manager	9.09% 3
Total	33

#	Other (please specify)	Date
	There are no responses.	

Q2 What business sector most of your customers belong to?

Answered: 26 Skipped: 7



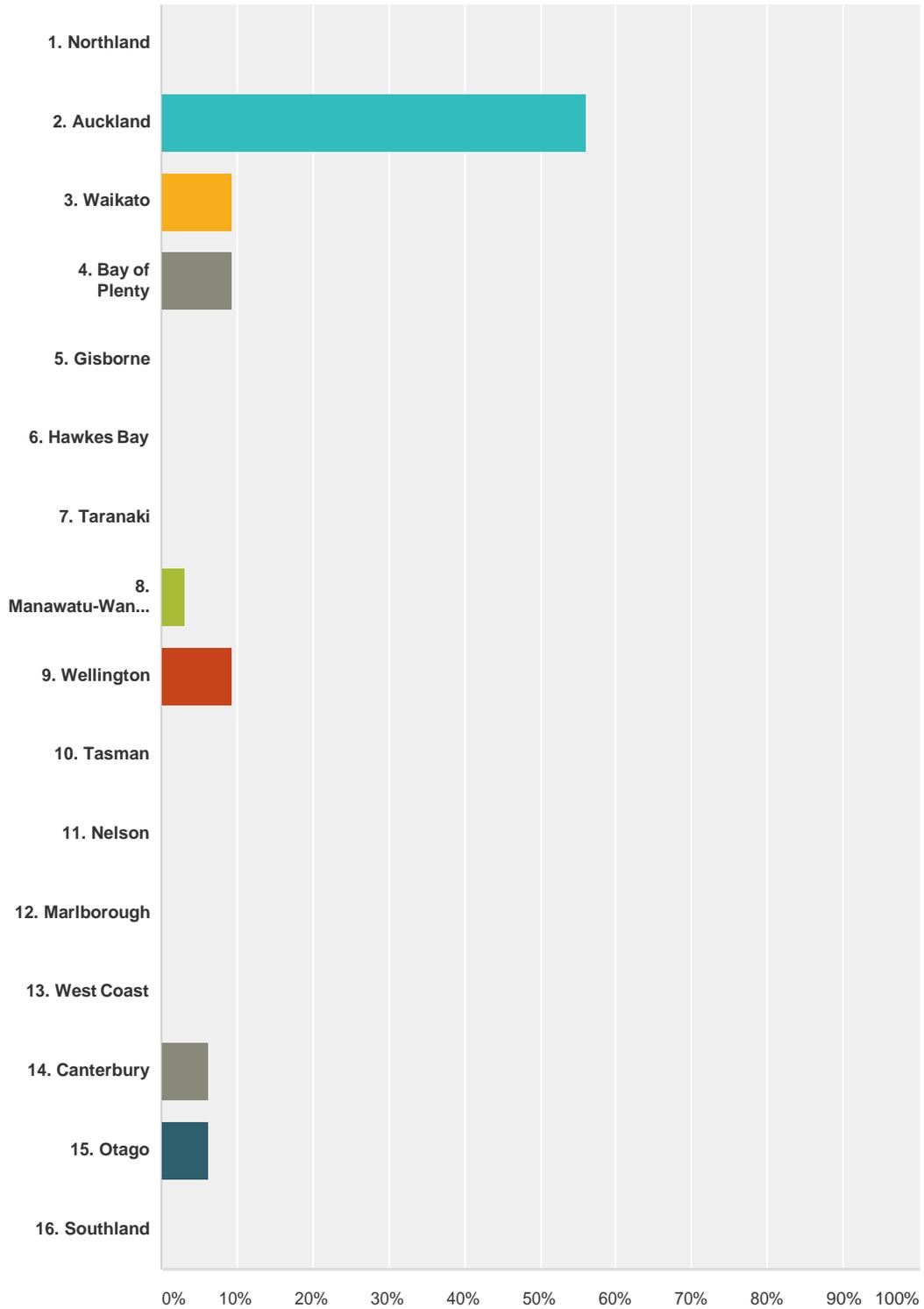
Answer Choices	Responses
Retail	0.00% 0
Transport	3.85% 1
Communication Services	11.54% 3
Health and Community	7.69% 2
Personal and other Services	19.23% 5
Agriculture, Fishing, Forestry	0.00% 0
Building and Construction	57.69% 15
Total	26

#	Other (please specify)	Date
1	Education	6/20/2014 2:01 PM
2	Government and corporate	6/16/2014 10:26 AM
3	It's a real mix of all of the above	6/6/2014 12:01 PM
4	Various	6/4/2014 11:48 AM
5	To much Variety to choose just one	6/4/2014 10:19 AM

7	Various	6/4/2014 7:55 AM
8	All Business	6/4/2014 7:54 AM

Q3 Where are most of your customers located?

Answered: 32 Skipped: 1



Answer Choices

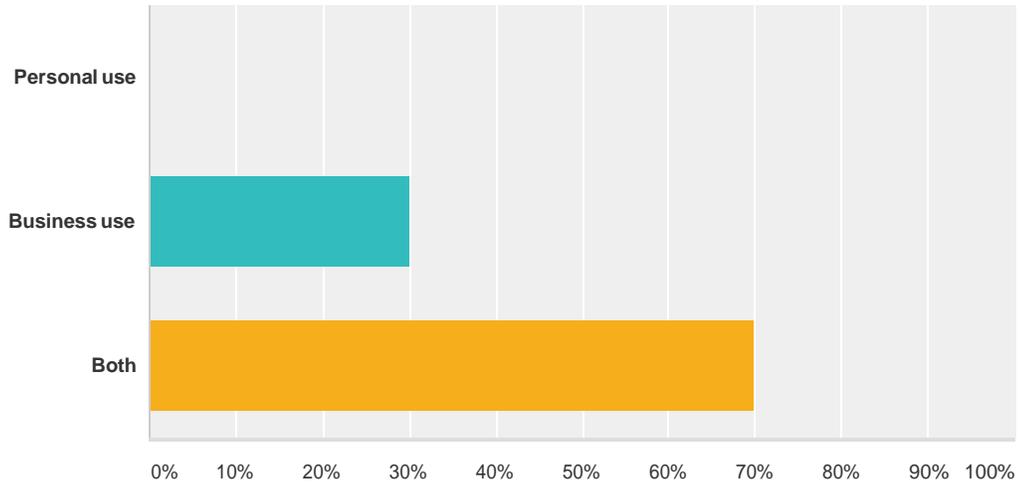
Responses

1. Northland	0.00%	0
2. Auckland	56.25%	18
3. Waikato	9.38%	3
4. Bay of Plenty	9.38%	3
5. Gisborne	0.00%	0
6. Hawkes Bay	0.00%	0
7. Taranaki	0.00%	0
8. Manawatu-Wanganui	3.13%	1
9. Wellington	9.38%	3
10. Tasman	0.00%	0
11. Nelson	0.00%	0
12. Marlborough	0.00%	0
13. West Coast	0.00%	0
14. Canterbury	6.25%	2
15. Otago	6.25%	2
16. Southland	0.00%	0
Total		32

#	Other (please specify)	Date
1	Nationwide	6/16/2014 12:03 PM
2	Waikato & BOP	6/6/2014 12:01 PM
3	Tauranga	6/4/2014 10:50 AM

Q4 What do most of your customers use their mobile/wireless device for:-

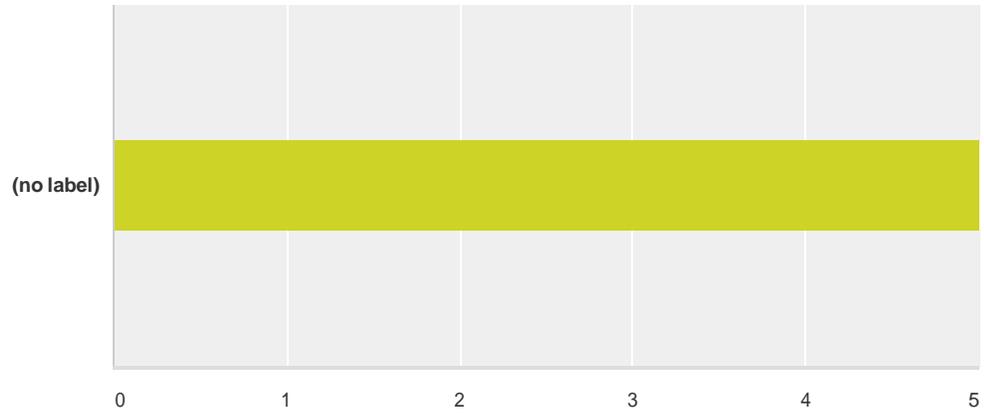
Answered: 33 Skipped: 0



Answer Choices	Responses
Personal use	0.00% 0
Business use	30.30% 10
Both	69.70% 23
Total	33

Q5 In your view, how important is mobile internet for your customers to perform their job?

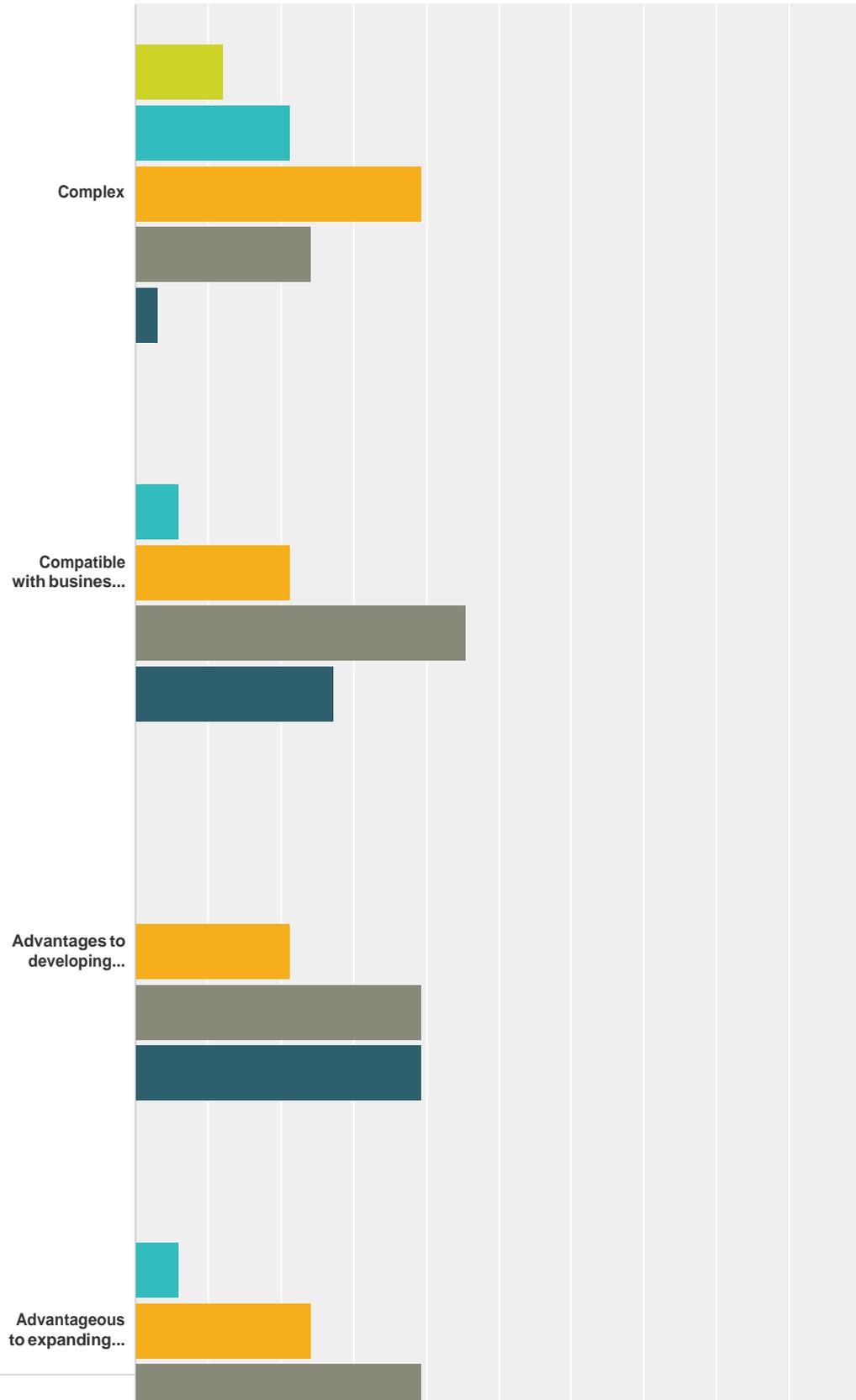
Answered: 33 Skipped: 0

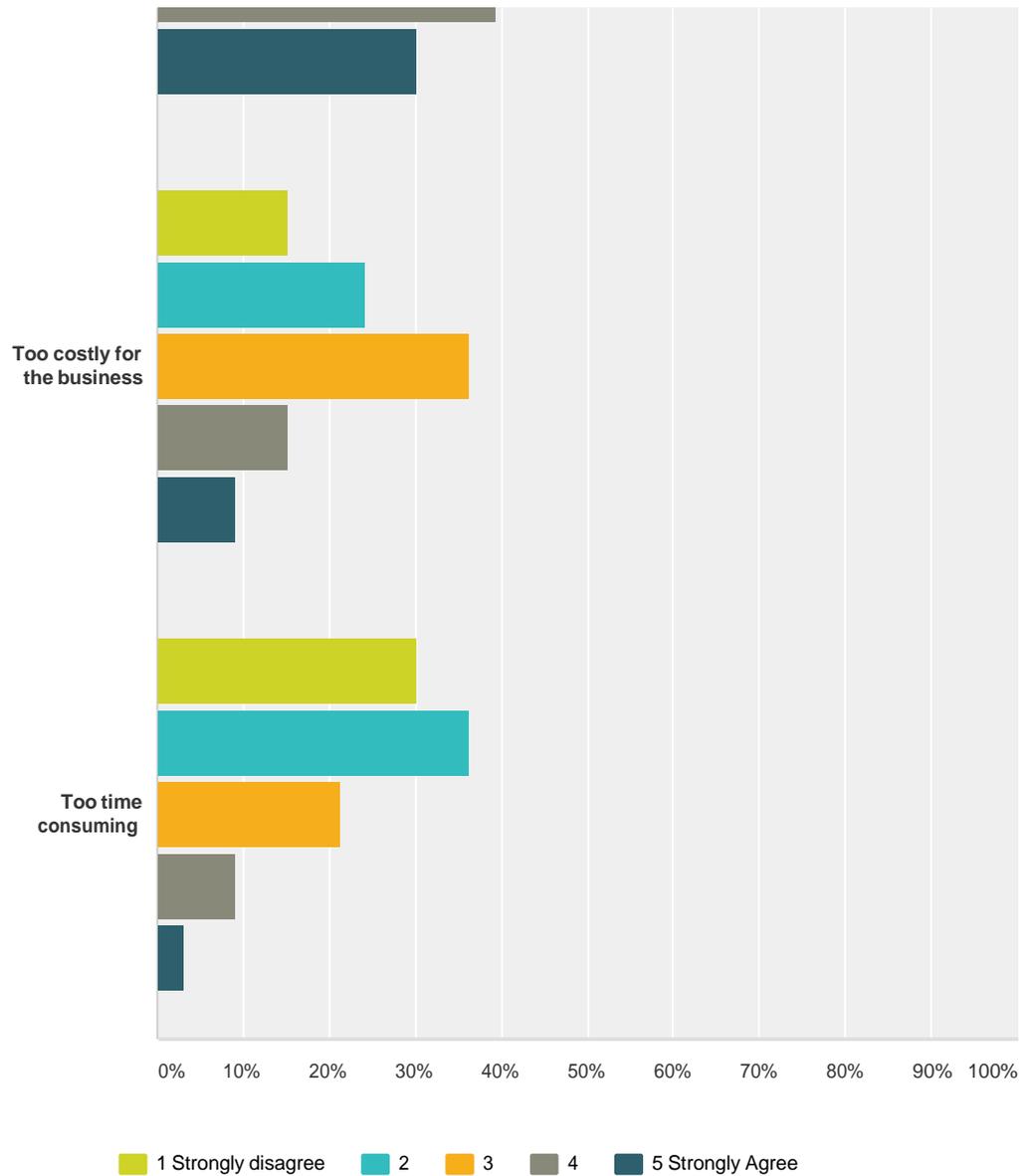


	1 Not Important	2	3	4	5 Most Important	Total	Weighted Average
(no label)	0.00% 0	3.03% 1	15.15% 5	48.48% 16	33.33% 11	33	4.12

Q6 In your view how do business customers perceive mobile internet:

Answered: 33 Skipped: 0

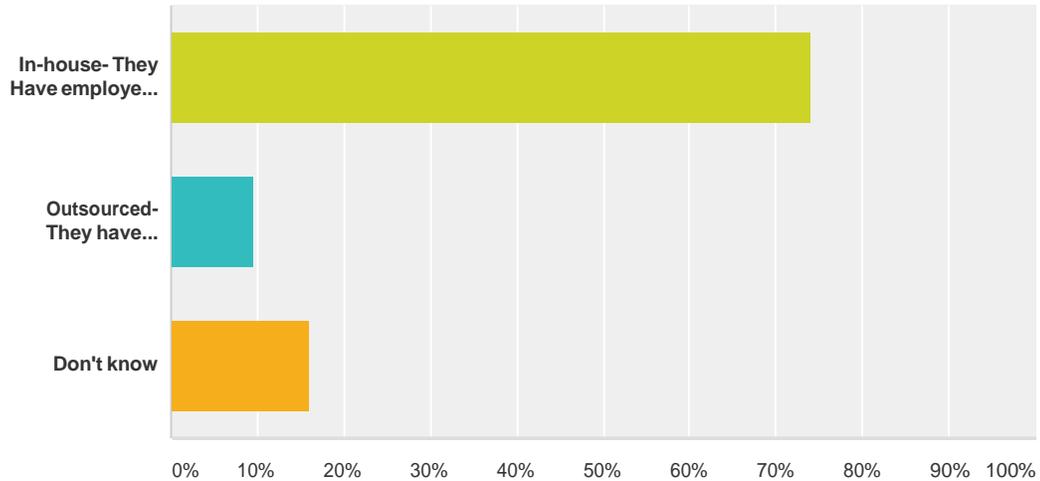




	1 Strongly disagree	2	3	4	5 Strongly Agree	Total
Complex	12.12% 4	21.21% 7	39.39% 13	24.24% 8	3.03% 1	33
Compatible with business needs	0.00% 0	6.06% 2	21.21% 7	45.45% 15	27.27% 9	33
Advantages to developing business	0.00% 0	0.00% 0	21.21% 7	39.39% 13	39.39% 13	33
Advantageous to expanding markets	0.00% 0	6.06% 2	24.24% 8	39.39% 13	30.30% 10	33
Too costly for the business	15.15% 5	24.24% 8	36.36% 12	15.15% 5	9.09% 3	33
Too time consuming	30.30% 10	36.36% 12	21.21% 7	9.09% 3	3.03% 1	33

Q7 How do most of your business customers manage mobile internet and mobile devices (mobile phones/USB data sticks/tablets):

Answered: 31 Skipped: 2

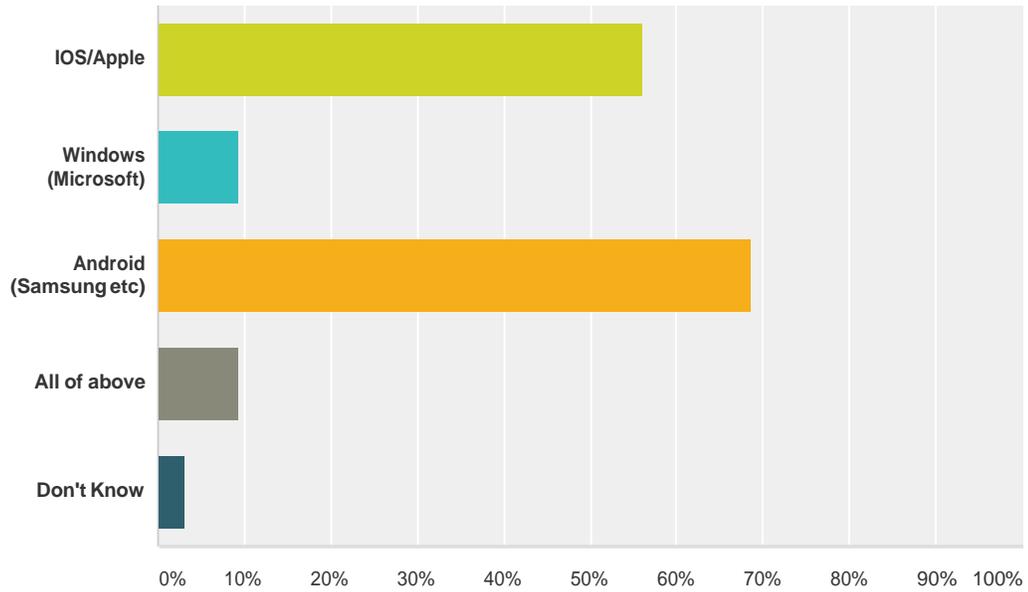


Answer Choices	Response s
In-house- They Have employed someone to look after smart devices and engagement with service providers	74.19% 23
Outsourced- They have contracted out to a third party who manages and organises smart devices/service	9.68% 3
Don't know	16.13% 5
Total	31

#	Other (please specify)	Date
1	Although there is a shift in preference towards outsourcing	6/16/2014 10:27 AM
2	It depends on the size of the business. Large businesses have in house employees. Medium tend to outsource	6/4/2014 11:49 AM
3	Themselves	6/4/2014 10:52 AM
4	Small businesses usually have someone inhouse who manages their mobile service but they have not been speciafically employed todo this. It is more like an add on to their role	6/4/2014 10:21 AM

Q8 Please choose which mobile Operating System is preferred by most of business customers in your view? (This includes your smart phone and tablet)

Answered: 32 Skipped: 1

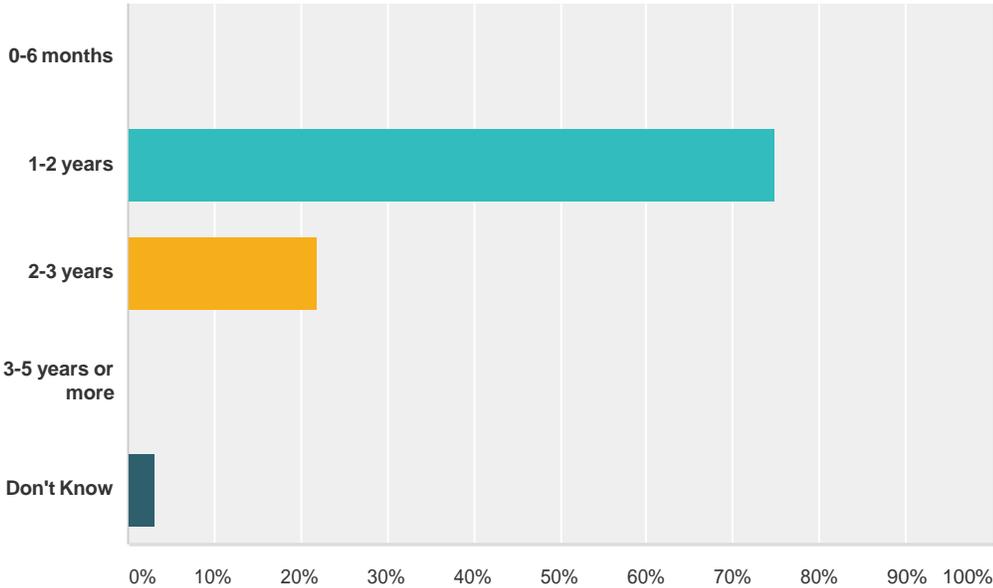


Answer Choices	Responses
IOS/Apple	56.25% 18
Windows (Microsoft)	9.38% 3
Android (Samsung etc)	68.75% 22
All of above	9.38% 3
Don't Know	3.13% 1
Total Respondents: 32	

#	Other (please specify)	Date
1	Followed closely by andriod.	6/16/2014 10:28 AM

Q9 What is your experience on, how long business customers use mobile device (phone/tablet/usb stick) before they buy (upgrade) a new one?

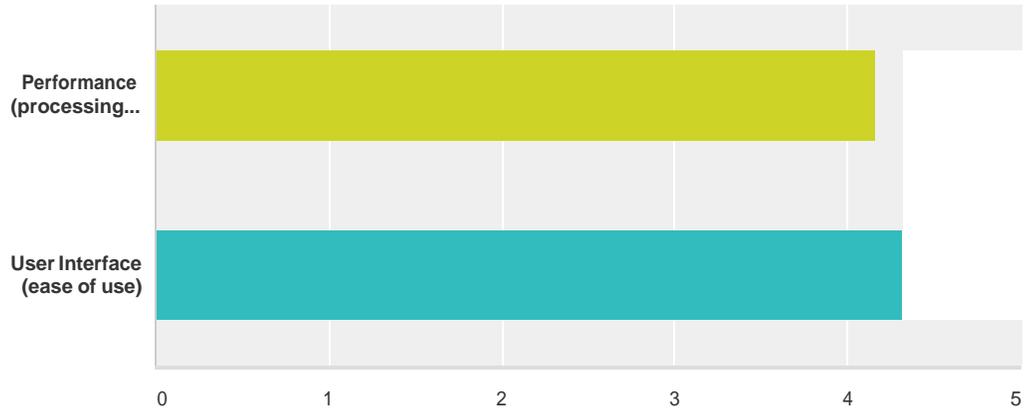
Answered: 32 Skipped: 1



Answer Choices	Responses	
0-6 months	0.00%	0
1-2 years	75.00%	24
2-3 years	21.88%	7
3-5 years or more	0.00%	0
Don't Know	3.13%	1
Total		32

Q10 This question is to assess how satisfied are you with your current tool of trade/Mobile device (this includes mobile phone/USB data stick/tablet)?

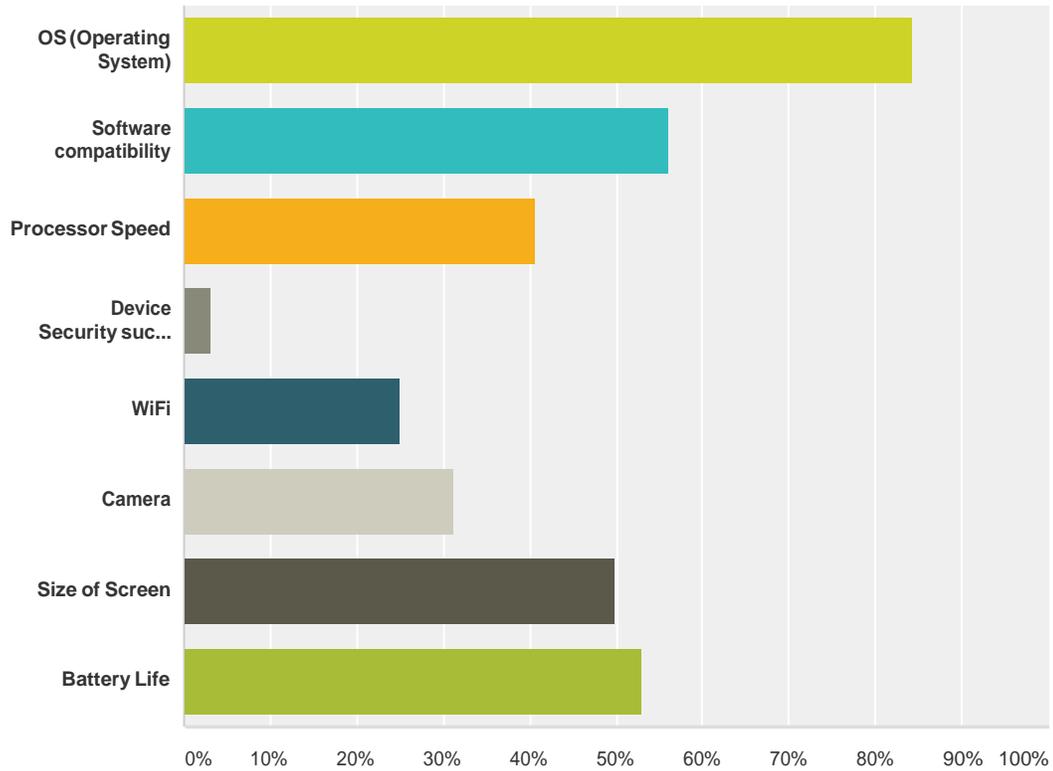
Answered: 32 Skipped: 1



	1 Very Dissatisfied	2	3	4	5 Very Satisfied	Total	Weighted Average
Performance (processing power to run applications and software)	3.13% 1	6.25% 2	12.50% 4	28.13% 9	50.00% 16	32	4.16
User Interface (ease of use)	3.23% 1	0.00% 0	6.45% 2	41.94% 13	48.39% 15	31	4.32

Q11 Generally what are key considerations for your business customers before they select a mobile/wireless device (mobile/USB stick/tablet)?

Answered: 32 Skipped: 1

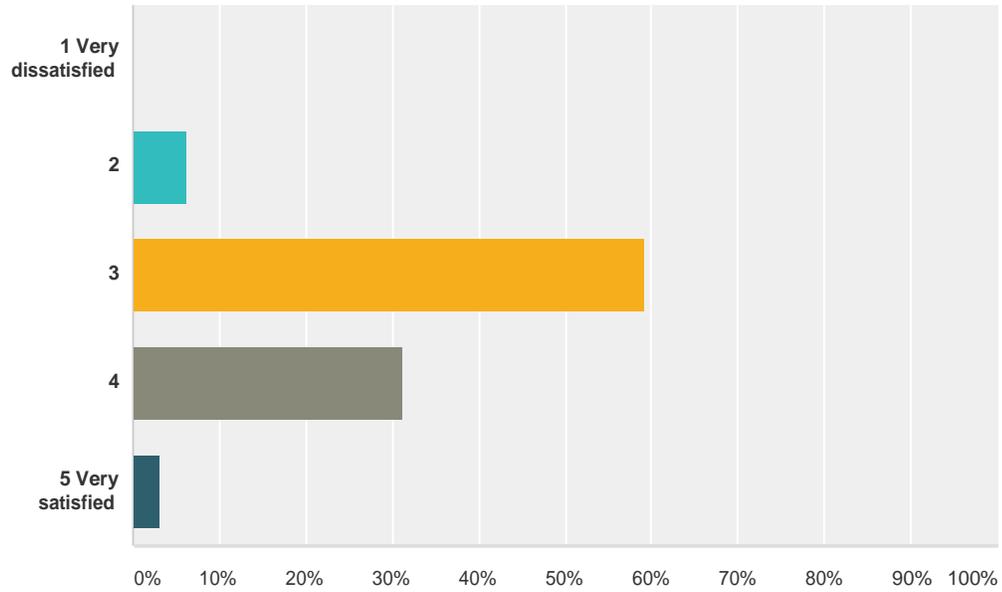


Answer Choices	Responses
OS (Operating System)	84.38% 27
Software compatibility	56.25% 18
Processor Speed	40.63% 13
Device Security such as finger print reader	3.13% 1
WiFi	25.00% 8
Camera	31.25% 10
Size of Screen	50.00% 16
Battery Life	53.13% 17
Total Respondents: 32	

#	Something else (please specify)	Date
1	Latest and greatest	6/6/2014 12:03 PM

Q12 In your view how satisfied are SMES' with the current cost of Mobile Internet?

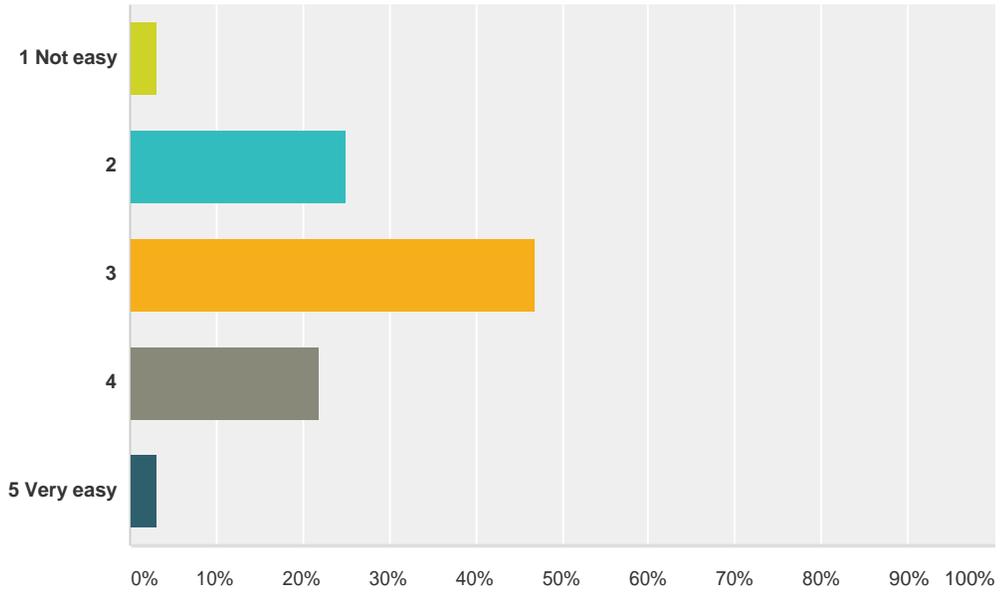
Answered: 32 Skipped: 1



Answer Choices	Responses	
1 Very dissatisfied	0.00%	0
2	6.25%	2
3	59.38%	19
4	31.25%	10
5 Very satisfied	3.13%	1
Total		32

Q13 How easy is it for SMES' to understand the charge of mobile internet (Dollar amount over and above your data allowance e.g. cents per megabyte) by a service provider?

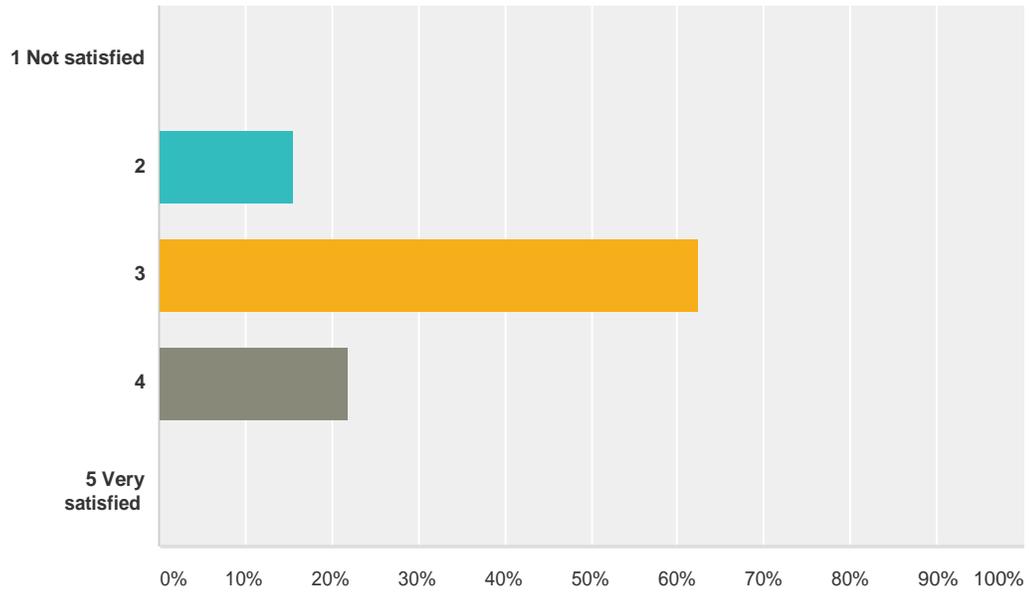
Answered: 32 Skipped: 1



Answer Choices	Responses	
1 Not easy	3.13%	1
2	25.00%	8
3	46.88%	15
4	21.88%	7
5 Very easy	3.13%	1
Total		32

Q14 In your view how satisfied are SMES' with the speed of mobile internet on their mobile device? (This includes smart phone, tablet and 3G data card)

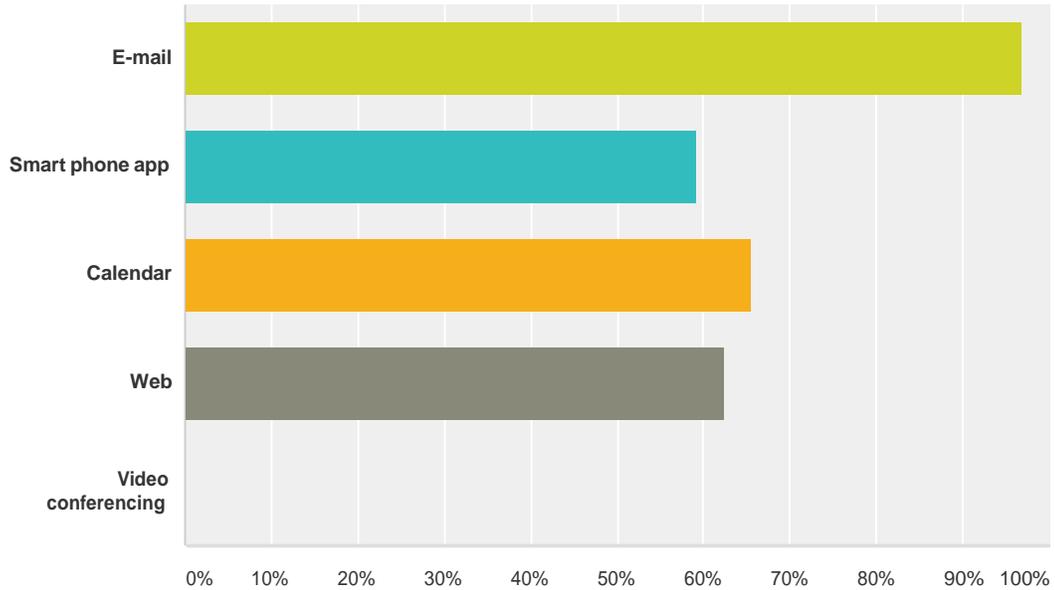
Answered: 32 Skipped: 1



Answer Choices	Responses	
1 Not satisfied	0.00%	0
2	15.63%	5
3	62.50%	20
4	21.88%	7
5 Very satisfied	0.00%	0
Total		32

Q15 What are some of the most important business applications (you come across) that SMES' access on their mobile device remotely (while not in the office)? Please select all that apply.

Answered: 32 Skipped: 1

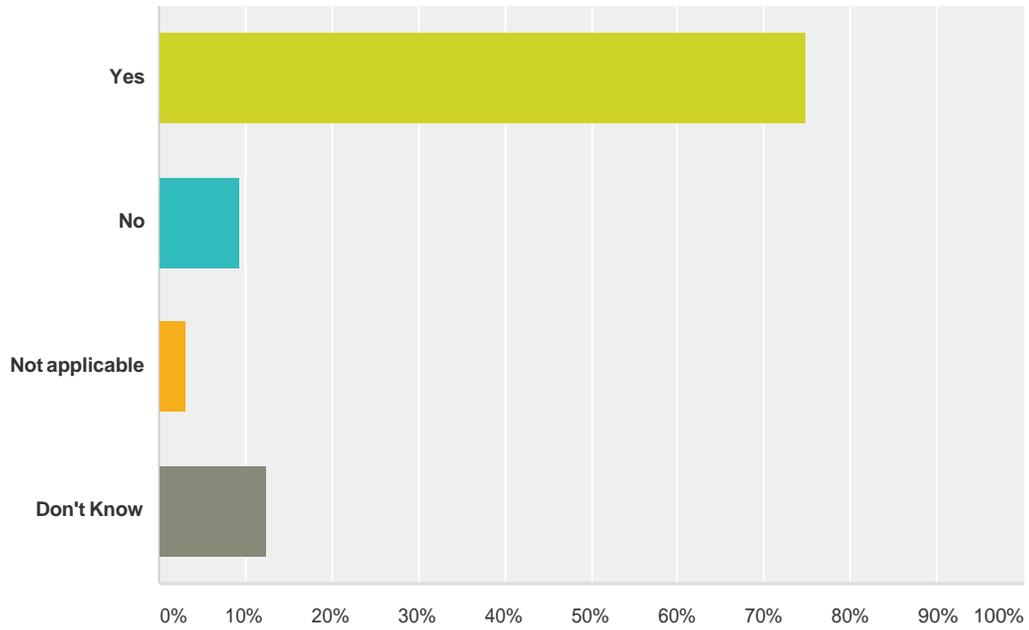


Answer Choices	Responses
E-mail	96.88% 31
Smart phone app	59.38% 19
Calendar	65.63% 21
Web	62.50% 20
Video conferencing	0.00% 0
Total Respondents: 32	

#	Other (please specify)	Date
	There are no responses.	

Q16 Do you believe that cloud computing is on the rise for great number of SMES' you deal with?

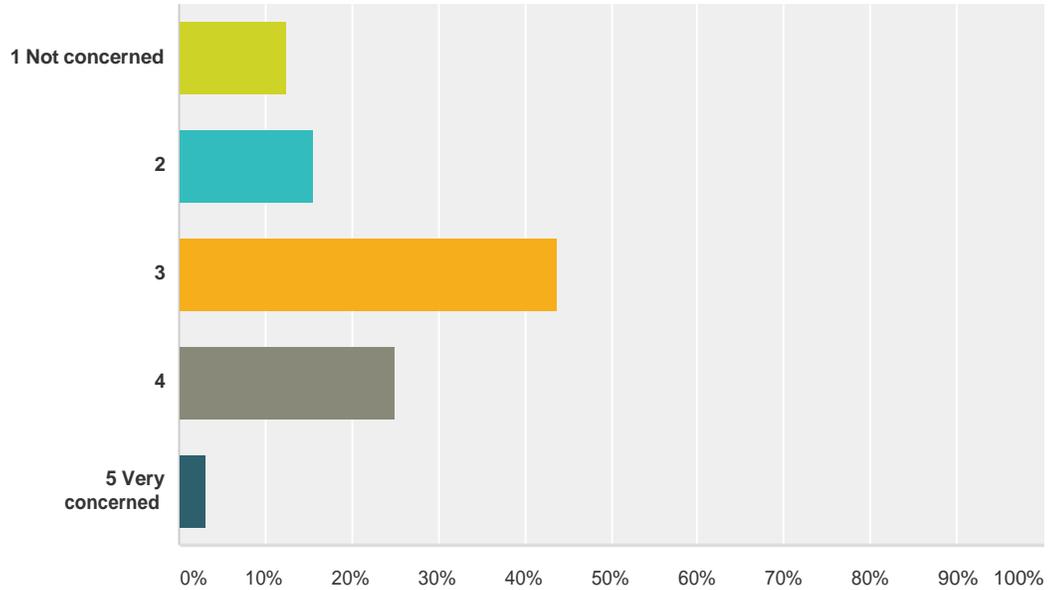
Answered: 32 Skipped: 1



Answer Choices	Responses
Yes	75.00% 24
No	9.38% 3
Not applicable	3.13% 1
Don't Know	12.50% 4
Total	32

Q17 In your view how concerned are SMES' about the security of their information transmitted via mobile internet/data?

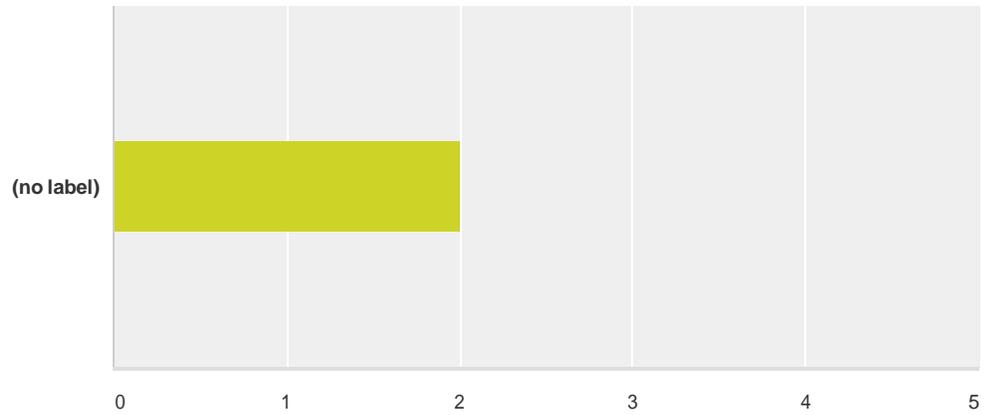
Answered: 32 Skipped: 1



Answer Choices	Responses	
1 Not concerned	12.50%	4
2	15.63%	5
3	43.75%	14
4	25.00%	8
5 Very concerned	3.13%	1
Total		32

Q18 How often SMES' request/require anti-virus software on their mobile internet/smart device?

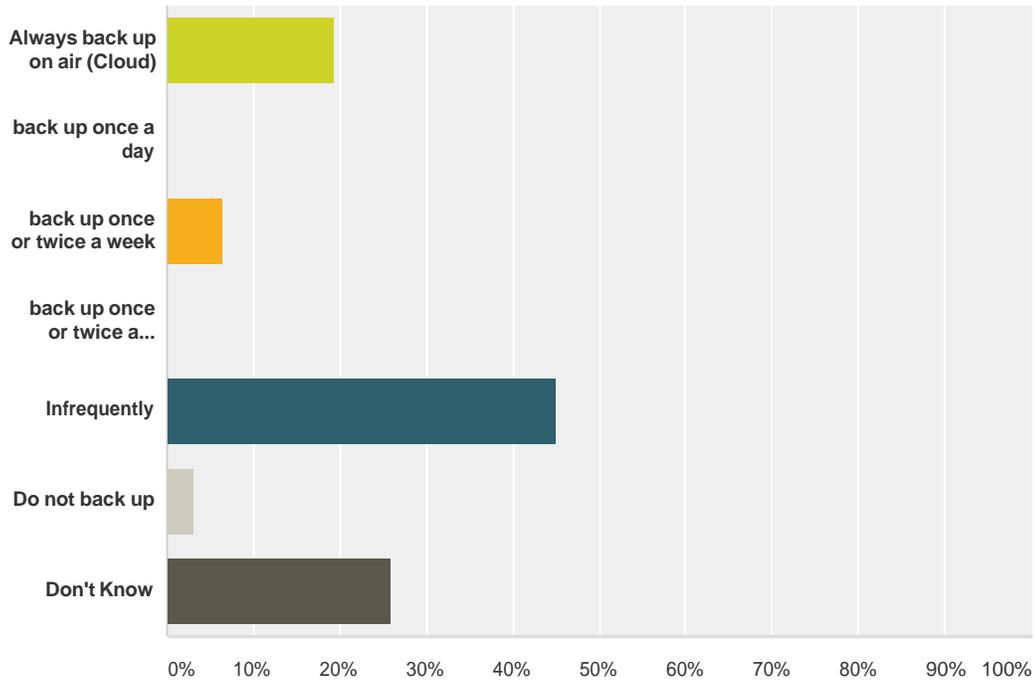
Answered: 31 Skipped: 2



	1 Not so often	2	3	4	5 Very often	Total	Weighted Average
(no label)	51.61% 16	25.81% 8	19.35% 6	3.23% 1	0.00% 0	31	1.74

Q19 How often most of SMEs' you come across back up their important device data as a security/safety measure? Please choose suitable answer.

Answered: 31 Skipped: 2

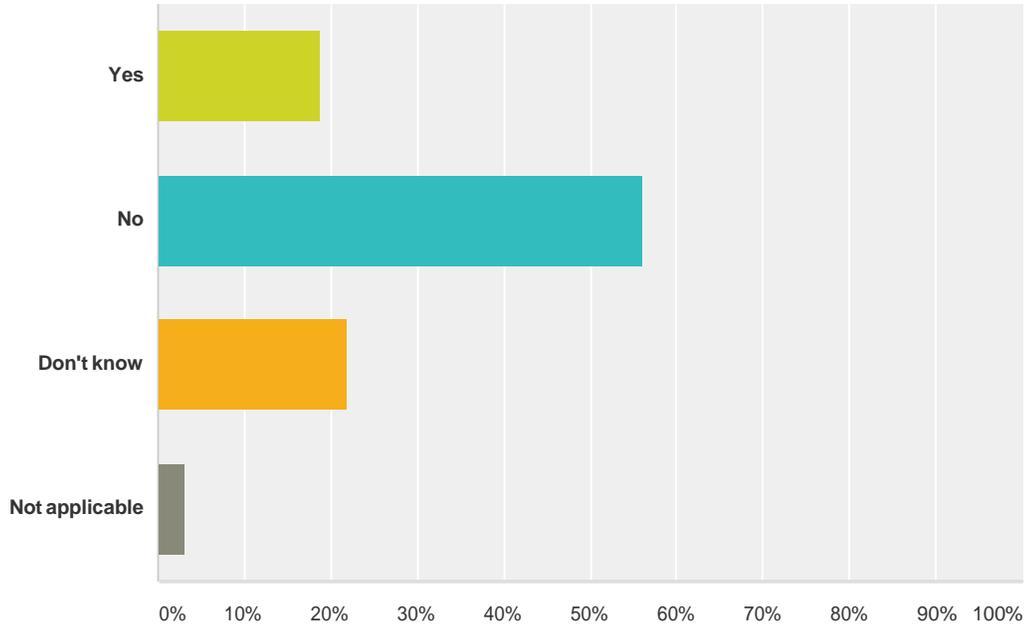


Answer Choices	Responses
Always back up on air (Cloud)	19.35% 6
back up once a day	0.00% 0
back up once or twice a week	6.45% 2
back up once or twice a month	0.00% 0
Infrequently	45.16% 14
Do not back up	3.23% 1
Don't Know	25.81% 8
Total	31

#	Other (please specify)	Date
1	Try to advise/educate each customer to do so if not already	6/18/2014 5:37 PM
2	It depends on their device. If they don't have one that backs up automatically they often don't bother.	6/4/2014 11:51 AM
3	some don't back up often enough	6/4/2014 11:05 AM

Q20 Is 'Mobile Device Management' (MDM) a key requirement for most of SMES' you deal with ?

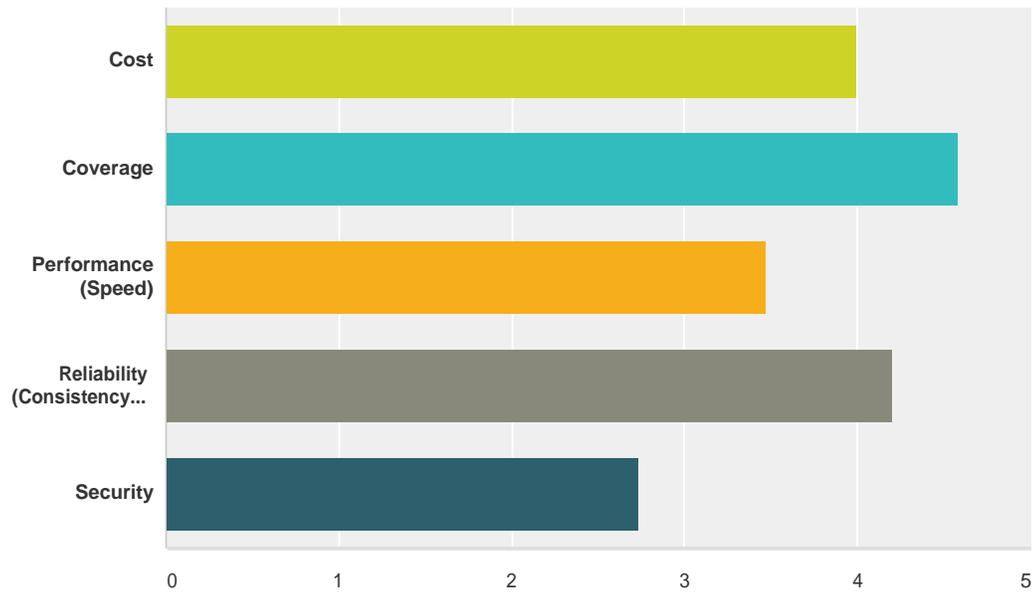
Answered: 32 Skipped: 1



Answer Choices	Responses
Yes	18.75% 6
No	56.25% 18
Don't know	21.88% 7
Not applicable	3.13% 1
Total	32

Q21 In your view, generally how important are following aspects of mobile internet for SMES' before they choose their service provider?

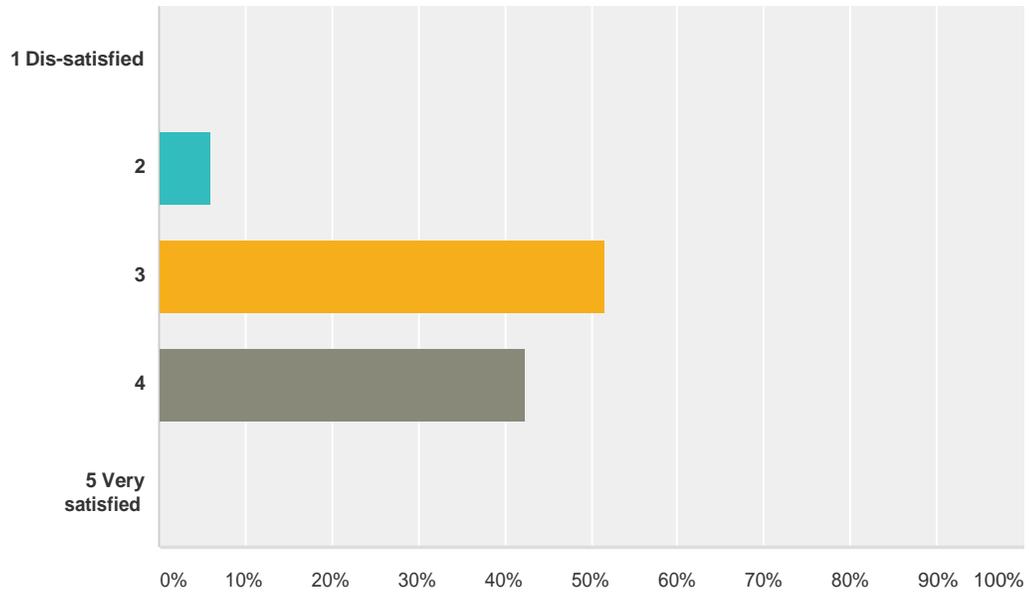
Answered: 33 Skipped: 0



	1 Not Important	2	3	4	5 Most Important	Total	Weighted Average
Cost	3.03% 1	3.03% 1	9.09% 3	60.61% 20	24.24% 8	33	4.00
Coverage	3.03% 1	0.00% 0	3.03% 1	24.24% 8	69.70% 23	33	4.58
Performance (Speed)	3.03% 1	6.06% 2	45.45% 15	30.30% 10	15.15% 5	33	3.48
Reliability (Consistency and Quality of Connection)	3.03% 1	0.00% 0	12.12% 4	42.42% 14	42.42% 14	33	4.21
Security	6.06% 2	39.39% 13	39.39% 13	6.06% 2	9.09% 3	33	2.73

Q22 In your view how satisfied are SMES' with their available reliability of Mobile Internet?

Answered: 33 Skipped: 0



Answer Choices	Responses	Count
1 Dis-satisfied	0.00%	0
2	6.06%	2
3	51.52%	17
4	42.42%	14
5 Very satisfied	0.00%	0
Total		33

Q23 If you are happy to be included in the prize draw, please enter your e-mail below.

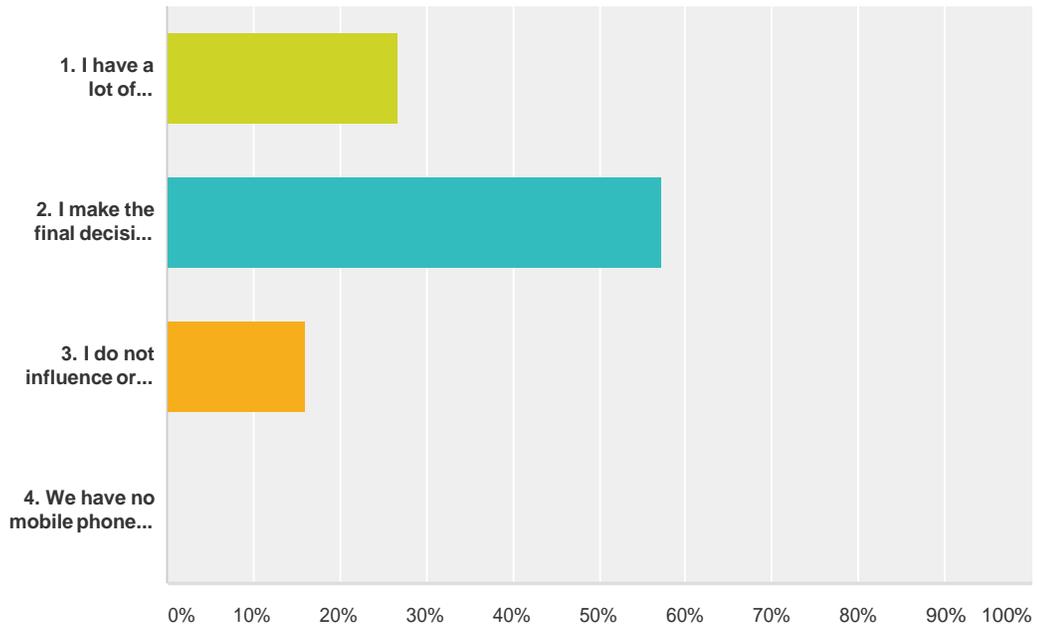
Answered: 29 Skipped: 4

#	Responses	Date
1	narita.dixon@2degreesmobile.co.nz	6/20/2014 2:06 PM
2	jason.carter@2degreesmobile.co.nz	6/18/2014 5:38 PM
3	luke.buss@2degreesmobile.co.nz	6/18/2014 12:25 PM
4	matthew.humphrey@2degreesmobile.co.nz	6/17/2014 2:08 PM
5	geoff.bell@2degreesmobile.co.nz	6/16/2014 6:10 PM
6	ashar.gunn@2degreesmobile.co.nz	6/16/2014 2:10 PM
7	daniel.tupara@2degreesmobile.co.nz	6/16/2014 12:07 PM
8	kelly.gray@2degreesmobile.co.nz	6/16/2014 10:31 AM
9	recky.nunez@2degreesmobile.co.nz	6/16/2014 9:28 AM
10	deepu.thomas@2degreesmobile.co.nz	6/6/2014 3:56 PM
11	brad.white@2degreesmobile.co.nz	6/6/2014 12:36 PM
12	renaee.smith@2degreesmobile.co.nz	6/6/2014 12:05 PM
13	kaine.stoyanof@2degreesmobile.co.nz	6/6/2014 9:55 AM
14	john.latu@2degreesmobile.co.nz	6/5/2014 10:47 PM
15	percy.yang@2degreesmobile.co.nz	6/5/2014 12:09 AM
16	james.hawke@2degreesmobile.co.nz	6/4/2014 2:31 PM
17	adam.bascombe@2degreesmobile.co.nz	6/4/2014 1:36 PM
18	karl.sutton@2degreesmobile.co.nz	6/4/2014 12:29 PM
19	ashleigh.jillings@2degreesmobile.co.nz	6/4/2014 11:52 AM
20	nick.mckimm@2degreesmobile.co.nz	6/4/2014 11:27 AM
21	ashok_negi@hotmail.com	6/4/2014 11:26 AM
22	brendan.ward@2degreesmobile.co.nz	6/4/2014 11:11 AM
23	sam.kemp@2degreesmobile.co.nz	6/4/2014 11:07 AM
24	zinnia.manchanda@2degreesmobile.co.nz	6/4/2014 10:55 AM
25	andy.galbraith@2degreesmobile.co.nz	6/4/2014 10:25 AM
26	richard.robinson@2degreesmobile.co.nz	6/4/2014 9:40 AM
27	shamal.kumar@2degreesmobile.co.nz	6/4/2014 8:56 AM
28	isaac.li@2degreesmobile.co.nz	6/4/2014 8:01 AM
29	stephen.mason @2degreesmobile.co.nz	6/4/2014 7:59 AM

8.10 SME Survey Feedback

Q1 Are you the person in your business who influences or decides on the mobile phone provider and the pricing plans your business chooses?

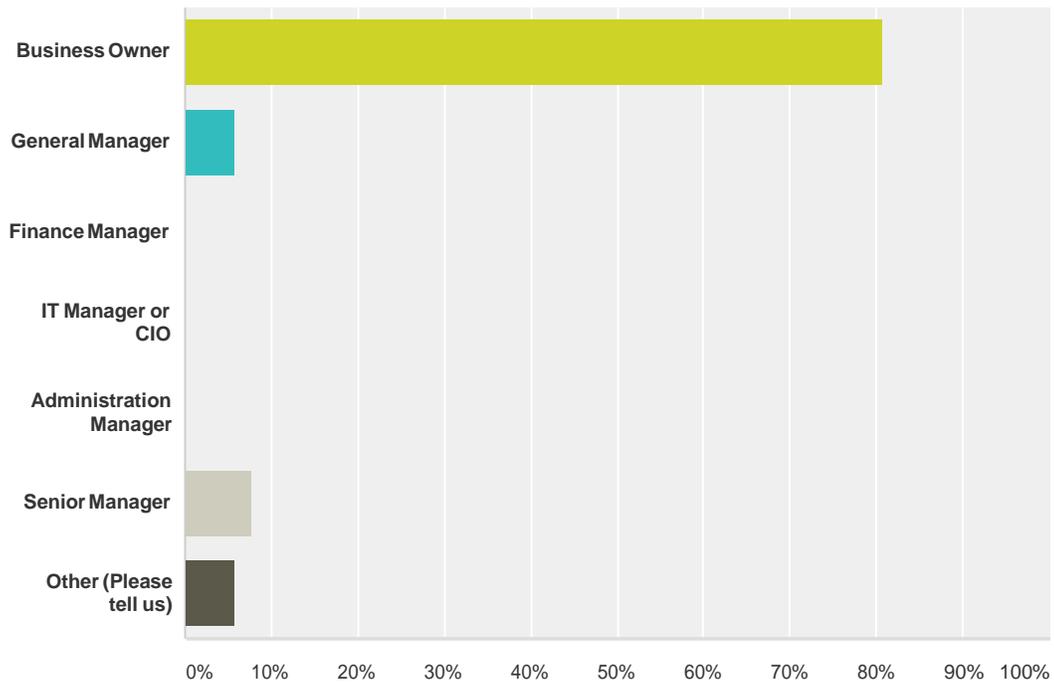
Answered: 56 Skipped: 1



Answer Choices	Responses
1. I have a lot of influence over this	26.79% 15
2. I make the final decision about this	57.14% 32
3. I do not influence or decide this	16.07% 9
4. We have no mobile phones for business purposes	0.00% 0
Total	56

Q2 What is your job role?

Answered: 52 Skipped: 5

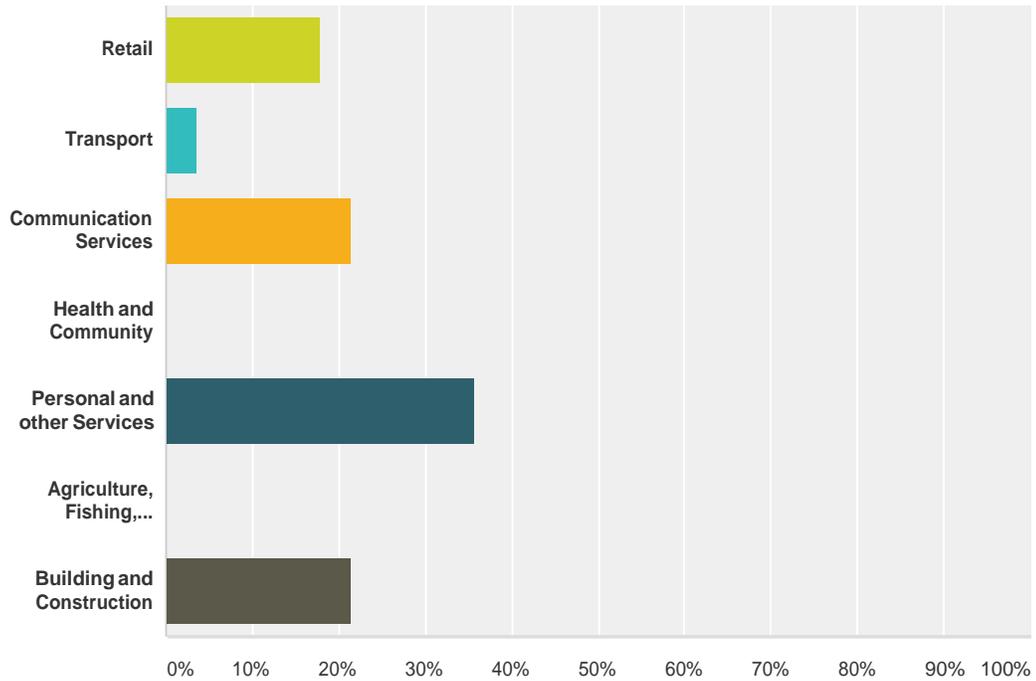


Answer Choices	Responses
Business Owner	80.77% 42
General Manager	5.77% 3
Finance Manager	0.00% 0
IT Manager or CIO	0.00% 0
Administration Manager	0.00% 0
Senior Manager	7.69% 4
Other (Please tell us)	5.77% 3
Total	52

#	Other (please specify)	Date
1	Broker consultant	8/8/2014 7:50 PM
2	Business Development Manager	7/31/2014 3:03 PM
3	Recruitment Consultant	7/14/2014 2:36 PM
4	General Employee	7/14/2014 10:45 AM
5	Business development	6/13/2014 2:33 PM
6	sales	6/11/2014 9:13 PM

Q3 What is your business sector?

Answered: 28 Skipped: 29



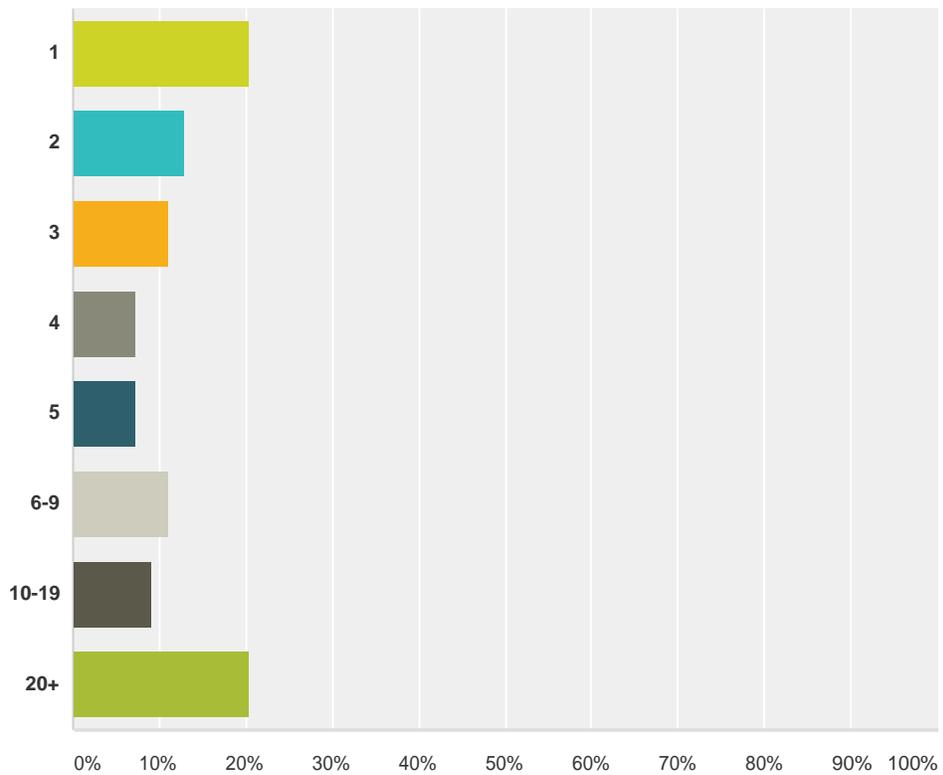
Answer Choices	Responses
Retail	17.86% 5
Transport	3.57% 1
Communication Services	21.43% 6
Health and Community	0.00% 0
Personal and other Services	35.71% 10
Agriculture, Fishing, Forestry	0.00% 0
Building and Construction	21.43% 6
Total	28

#	Other (please specify)	Date
1	Signage manufacturing	9/11/2014 8:32 AM
2	Ice cream vendor	9/11/2014 12:25 AM
3	IT	9/10/2014 11:51 PM
4	Business Consulting	8/21/2014 2:10 PM
5	Information services	8/18/2014 1:45 PM
6	LANDSCAPING	8/11/2014 7:38 PM
7	Design	8/11/2014 12:43 PM

8	Legal Services	8/11/2014 9:54 AM
9	business consulting	8/11/2014 9:19 AM
10	Digital agency	8/11/2014 8:35 AM
11	manufacturing - print	8/11/2014 7:40 AM
12	Insurance	8/8/2014 7:50 PM
13	Financial services	8/8/2014 12:34 PM
14	Real estate	8/1/2014 8:23 AM
15	insurance	7/31/2014 4:07 PM
16	IT	7/31/2014 3:03 PM
17	Office Support	7/14/2014 2:36 PM
18	Law	7/13/2014 4:18 PM
19	Business Services Graphic Design	7/1/2014 2:32 PM
20	Tourism	6/25/2014 10:32 PM
21	Consulting	6/18/2014 11:08 AM
22	Sell and install heat pumps	6/14/2014 7:57 AM
23	Legal services	6/13/2014 4:37 PM
24	Photographer	6/13/2014 2:53 PM
25	Professional services	6/13/2014 1:38 PM
26	Property	6/12/2014 8:58 PM
27	Insurance	6/12/2014 10:34 AM

Q4 How many staff do you have in your company?

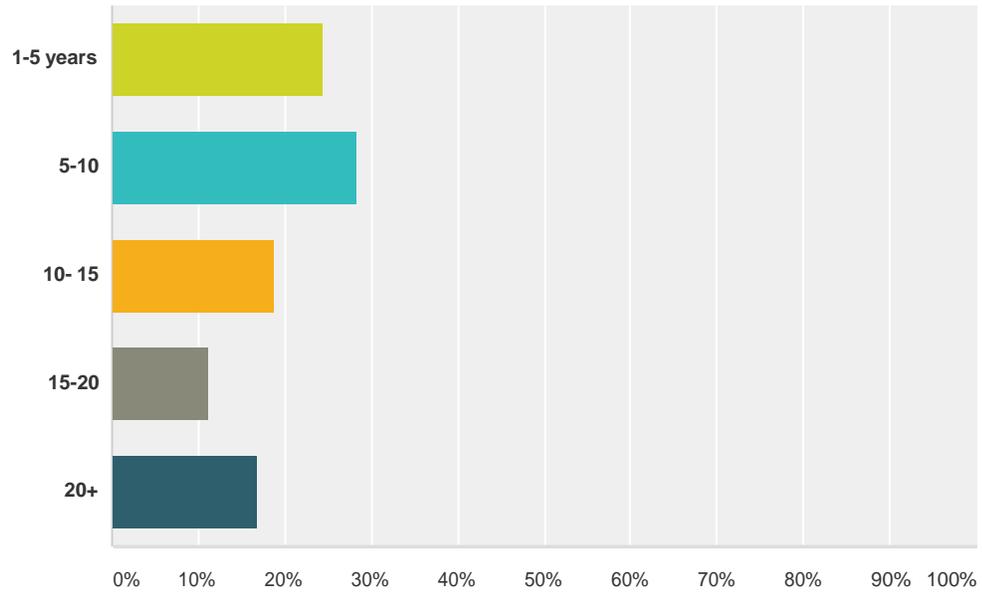
Answered: 54 Skipped: 3



Answer Choices	Responses	
1	20.37%	11
2	12.96%	7
3	11.11%	6
4	7.41%	4
5	7.41%	4
6-9	11.11%	6
10-19	9.26%	5
20+	20.37%	11
Total		54

Q5 How old is your business?

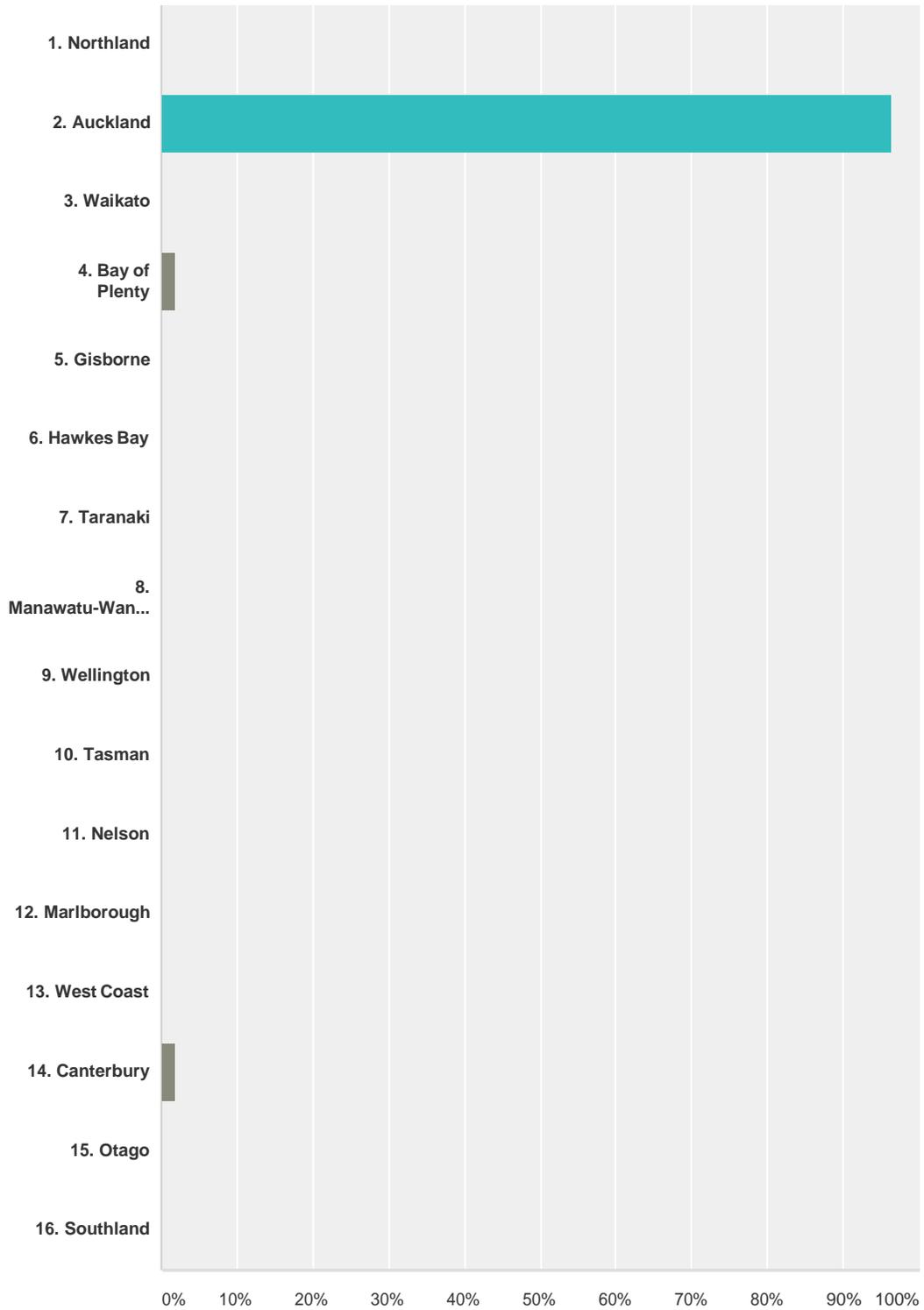
Answered: 53 Skipped: 4



Answer Choices	Responses
1-5 years	24.53% 13
5-10	28.30% 15
10- 15	18.87% 10
15-20	11.32% 6
20+	16.98% 9
Total	53

Q6 Where is your business located? If you have multiple locations, please select the head office location.

Answered: 55 Skipped: 2



Answer Choices

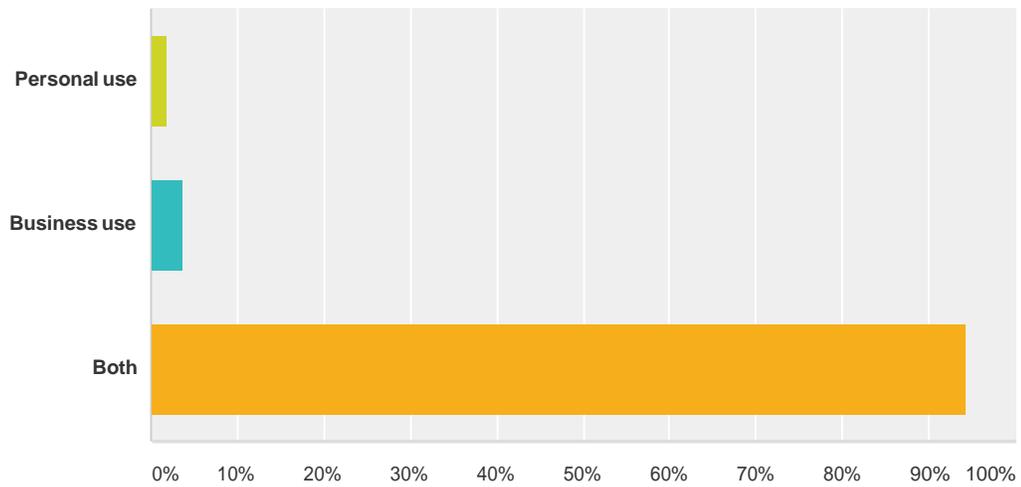
Responses

1. Northland	0.00%	0
2. Auckland	96.36%	53
3. Waikato	0.00%	0
4. Bay of Plenty	1.82%	1
5. Gisborne	0.00%	0
6. Hawkes Bay	0.00%	0
7. Taranaki	0.00%	0
8. Manawatu-Wanganui	0.00%	0
9. Wellington	0.00%	0
10. Tasman	0.00%	0
11. Nelson	0.00%	0
12. Marlborough	0.00%	0
13. West Coast	0.00%	0
14. Canterbury	1.82%	1
15. Otago	0.00%	0
16. Southland	0.00%	0
Total		55

#	Other (please specify)	Date
	There are no responses.	

Q7 Do you use your mobile/wireless device for:-

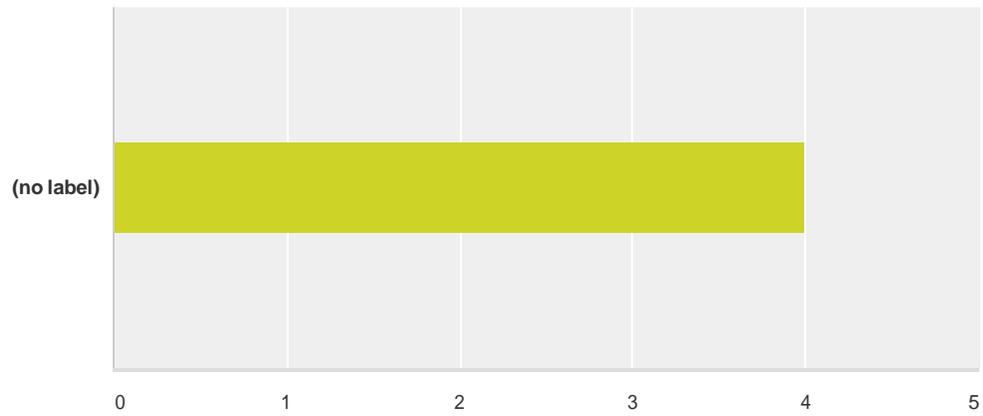
Answered: 54 Skipped: 3



Answer Choices	Responses
Personal use	1.85% 1
Business use	3.70% 2
Both	94.44% 51
Total	54

Q8 How important is mobile internet to perform your job?

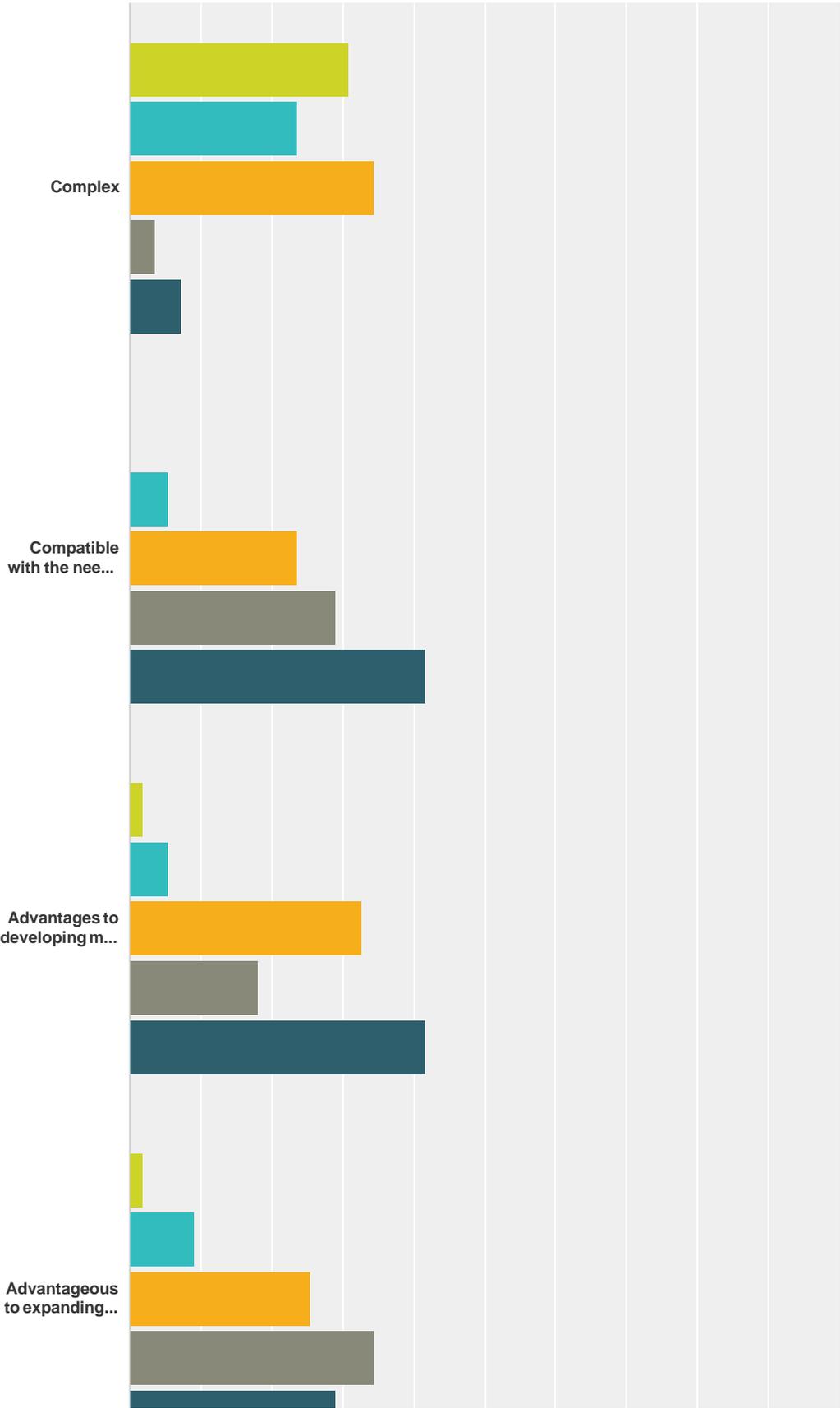
Answered: 55 Skipped: 2

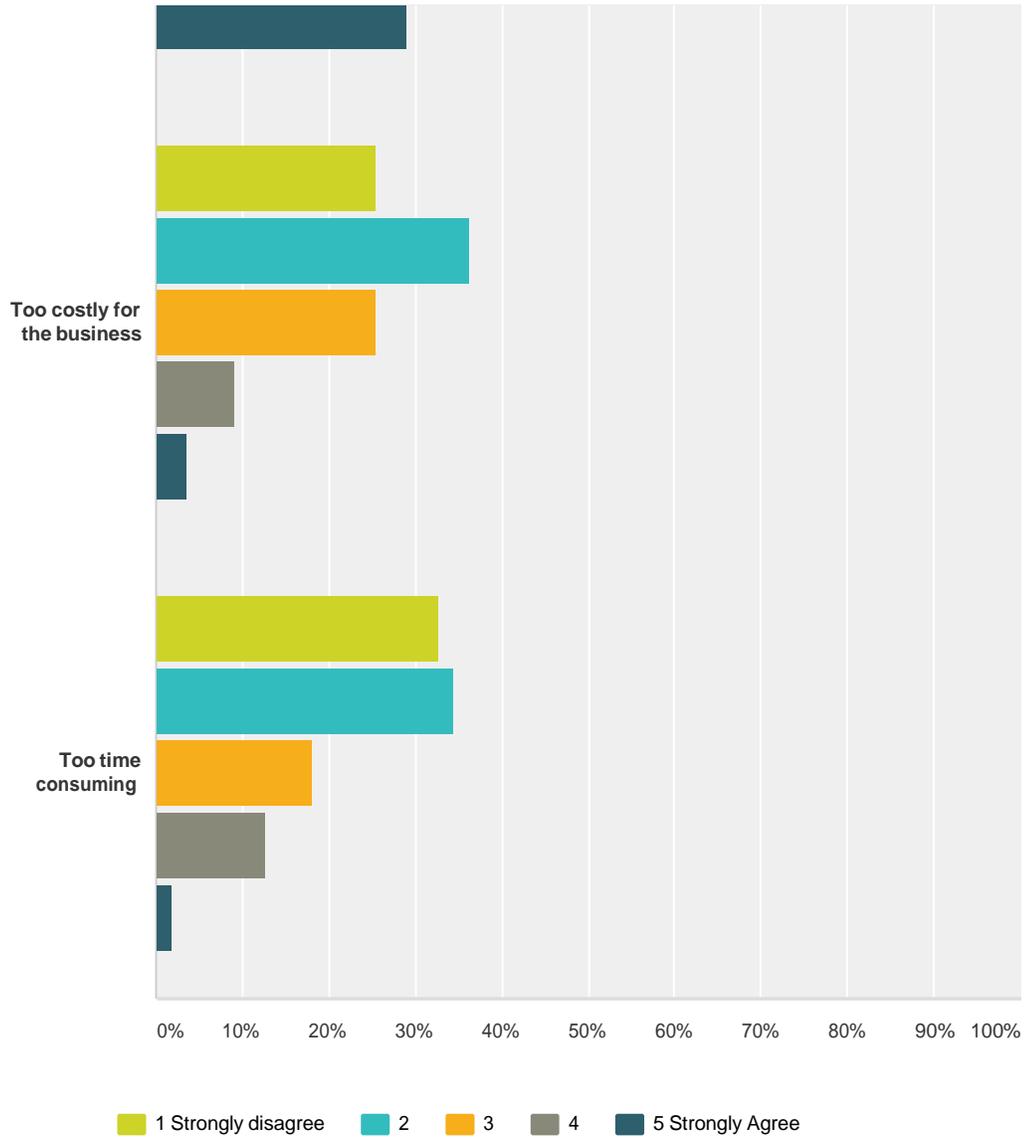


	1 Not Important	2	3	4	5 Most Important	Total	Weighted Average
(no label)	1.82% 1	10.91% 6	18.18% 10	21.82% 12	47.27% 26	55	4.02

Q9 I consider mobile internet:

Answered: 55 Skipped: 2

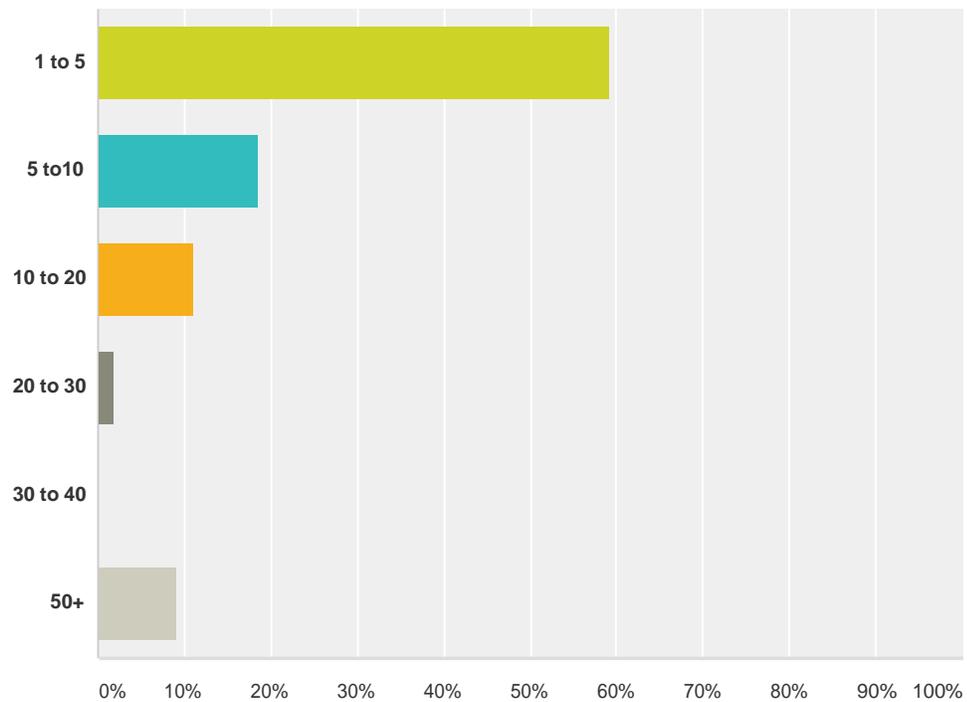




	1 Strongly disagree	2	3	4	5 Strongly Agree	Total
Complex	30.91% 17	23.64% 13	34.55% 19	3.64% 2	7.27% 4	55
Compatible with the needs of my business	0.00% 0	5.45% 3	23.64% 13	29.09% 16	41.82% 23	55
Advantages to developing my business	1.82% 1	5.45% 3	32.73% 18	18.18% 10	41.82% 23	55
Advantageous to expanding markets	1.82% 1	9.09% 5	25.45% 14	34.55% 19	29.09% 16	55
Too costly for the business	25.45% 14	36.36% 20	25.45% 14	9.09% 5	3.64% 2	55
Too time consuming	32.73% 18	34.55% 19	18.18% 10	12.73% 7	1.82% 1	55

Q10 How many mobile internet devices do you have in your company? (This includes smart phones, tablets, 3G data cards and mobile internet USB data sticks)

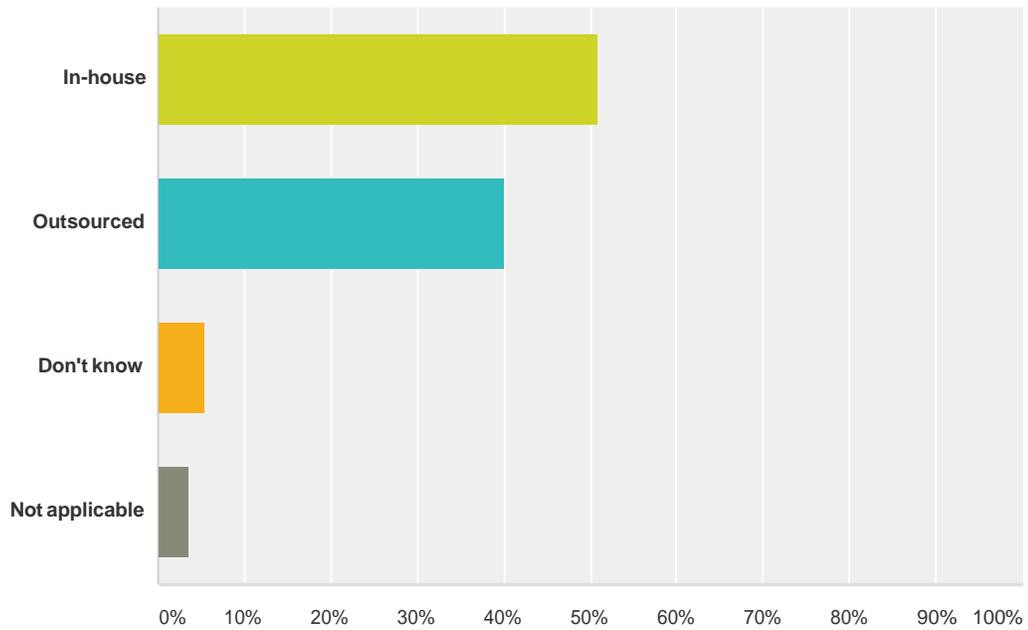
Answered: 54 Skipped: 3



Answer Choices	Responses	Count
1 to 5	59.26%	32
5 to 10	18.52%	10
10 to 20	11.11%	6
20 to 30	1.85%	1
30 to 40	0.00%	0
50+	9.26%	5
Total		54

Q11 Do you manage your IT infrastructure

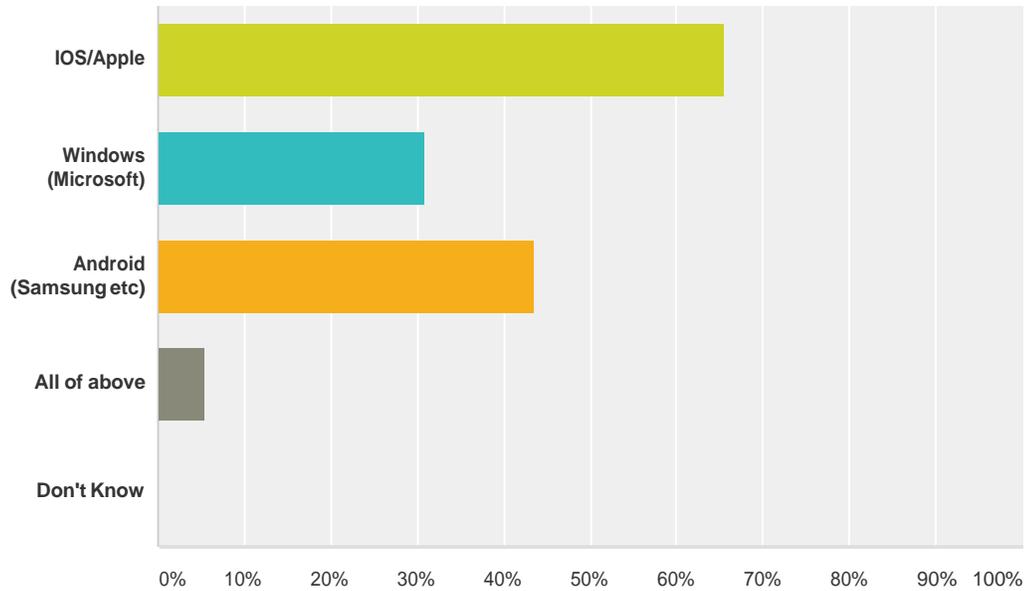
Answered: 55 Skipped: 2



Answer Choices	Responses
In-house	50.91% 28
Outsourced	40.00% 22
Don't know	5.45% 3
Not applicable	3.64% 2
Total	55

Q12 Please choose which mobile Operating System do you use? (This includes your smart phone and tablet)

Answered: 55 Skipped: 2

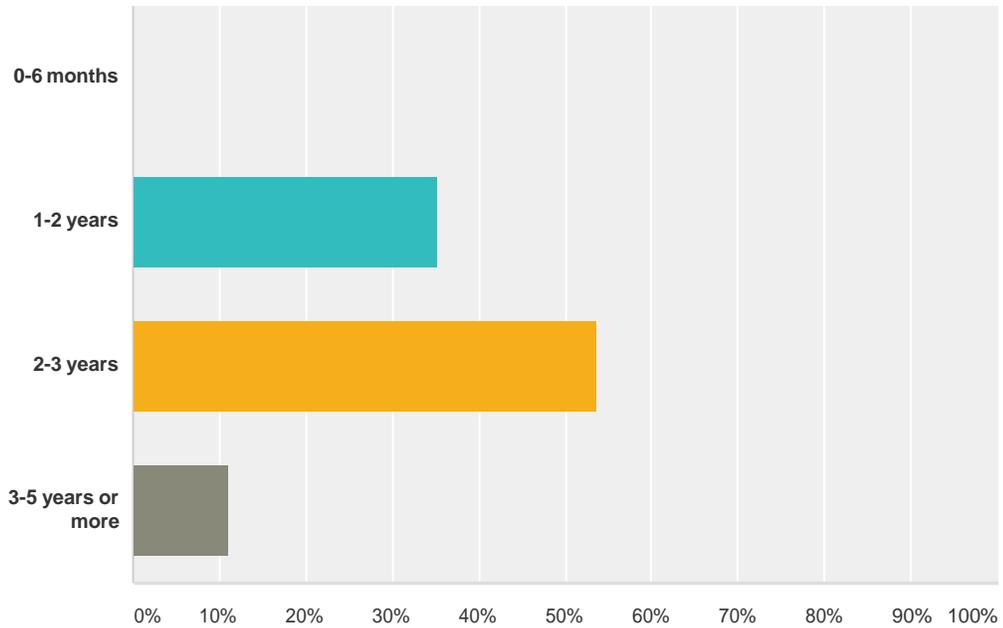


Answer Choices	Responses
IOS/Apple	65.45% 36
Windows (Microsoft)	30.91% 17
Android (Samsung etc)	43.64% 24
All of above	5.45% 3
Don't Know	0.00% 0
Total Respondents: 55	

#	Other (please specify)	Date
1	Telecom T-stick	7/1/2014 2:35 PM

Q13 How long do you use your mobile device (phone/tablet/usb stick) before you buy a new one (upgrade)?

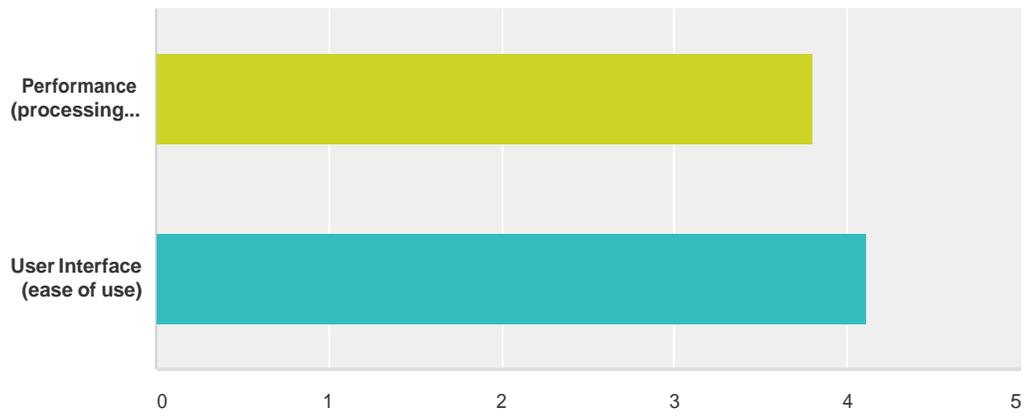
Answered: 54 Skipped: 3



Answer Choices	Responses	
0-6 months	0.00%	0
1-2 years	35.19%	19
2-3 years	53.70%	29
3-5 years or more	11.11%	6
Total		54

Q14 How satisfied are you with mobile device's

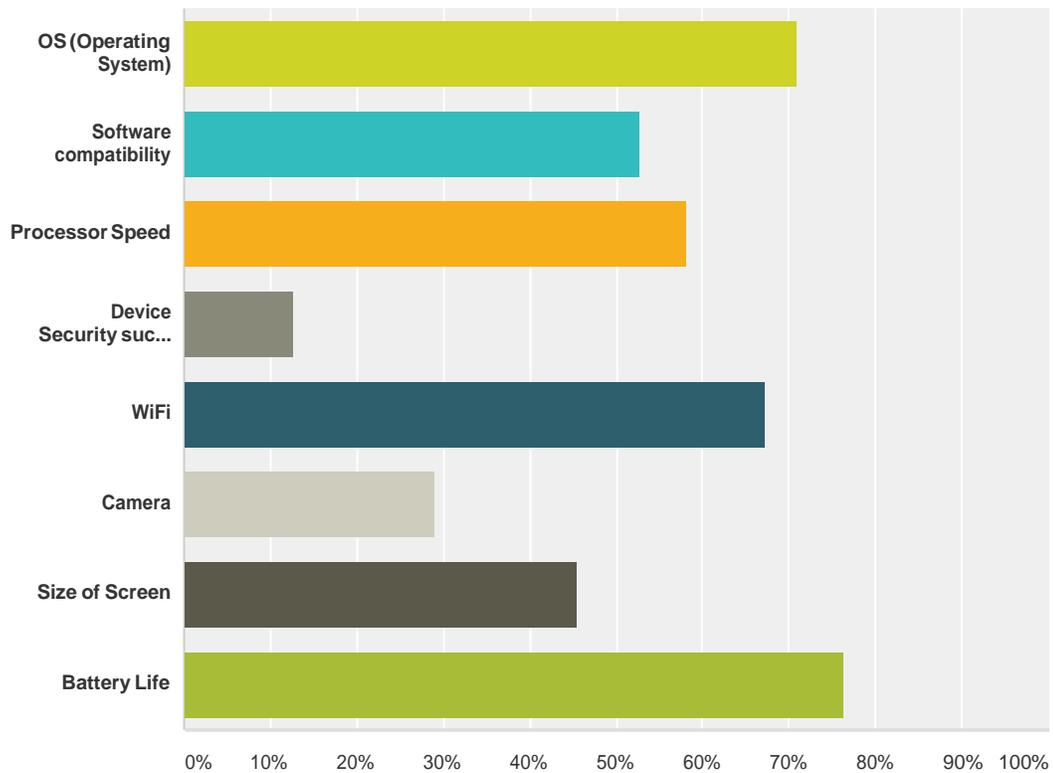
Answered: 55 Skipped: 2



	1 Very Dissatisfied	2	3	4	5 Very Satisfied	Total	Weighted Average
Performance (processing power to run applications and software)	3.70% 2	11.11% 6	16.67% 9	38.89% 21	29.63% 16	54	3.80
User Interface (ease of use)	1.85% 1	3.70% 2	12.96% 7	44.44% 24	37.04% 20	54	4.11

Q15 What are key considerations for selection of mobile/wireless device?

Answered: 55 Skipped: 2

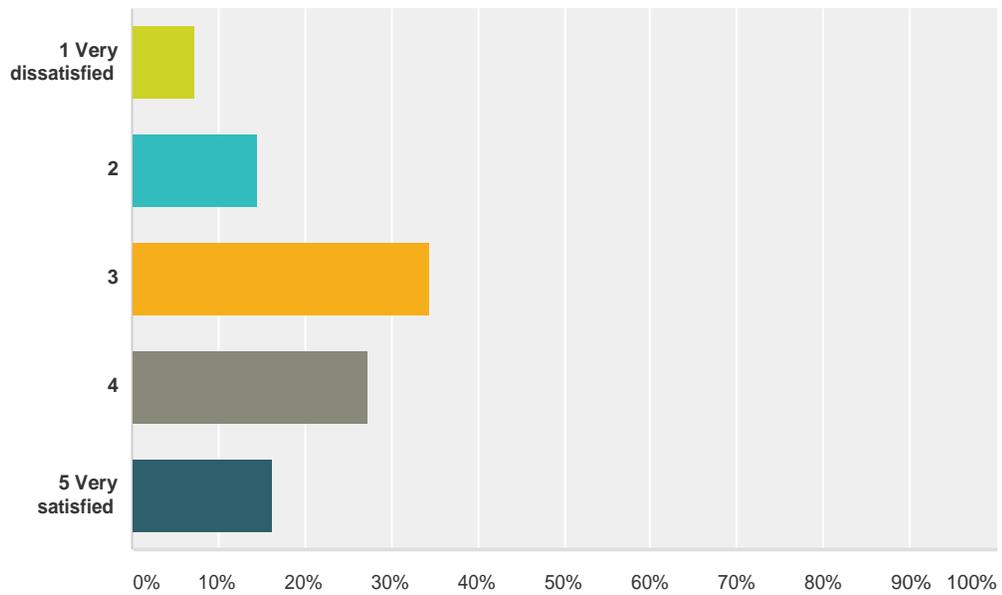


Answer Choices	Responses
OS (Operating System)	70.91% 39
Software compatibility	52.73% 29
Processor Speed	58.18% 32
Device Security such as finger print reader	12.73% 7
WiFi	67.27% 37
Camera	29.09% 16
Size of Screen	45.45% 25
Battery Life	76.36% 42
Total Respondents: 55	

#	Other (please specify)	Date
1	Ease of use	8/8/2014 6:25 PM
2	quality of product	6/13/2014 1:52 PM

Q16 How satisfied are you with the cost of mobile internet you currently paying?

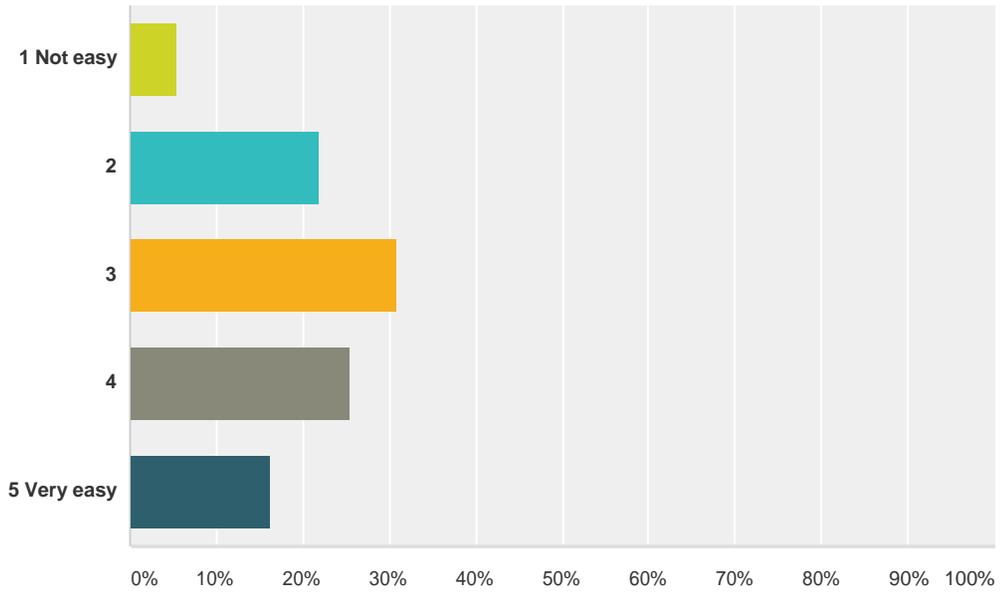
Answered: 55 Skipped: 2



Answer Choices	Responses	
1 Very dissatisfied	7.27%	4
2	14.55%	8
3	34.55%	19
4	27.27%	15
5 Very satisfied	16.36%	9
Total		55

Q17 How easy is it to understand the charge of mobile internet (Dollar amount over and above your data allowance e.g. cents per megabyte) by your service provider?

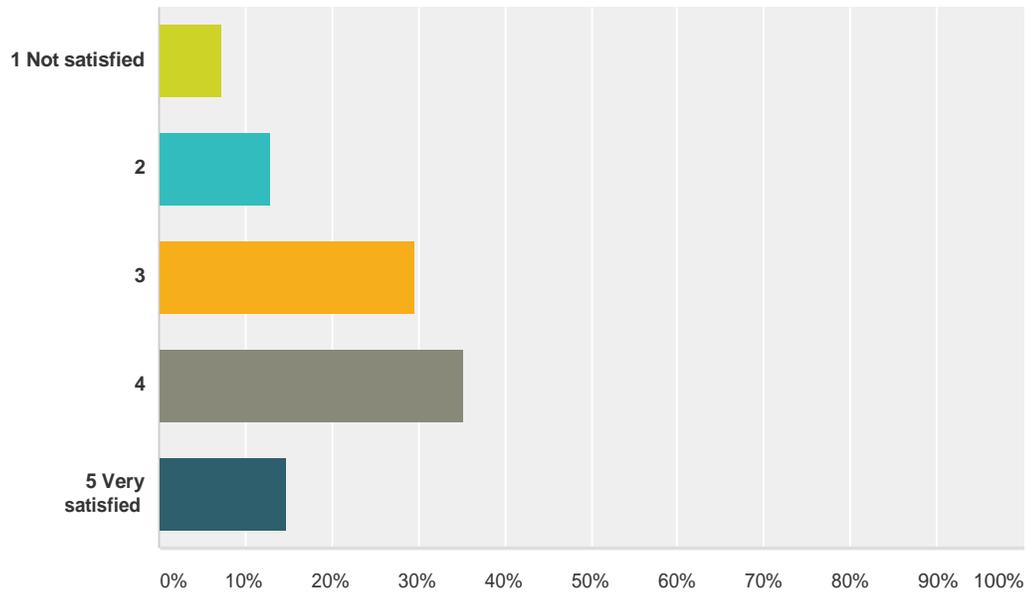
Answered: 55 Skipped: 2



Answer Choices	Responses
1 Not easy	5.45% 3
2	21.82% 12
3	30.91% 17
4	25.45% 14
5 Very easy	16.36% 9
Total	55

**Q18 How satisfied are you with the speed of mobile internet on your mobile device?
(This includes your smart phone, tablet and 3G data card)**

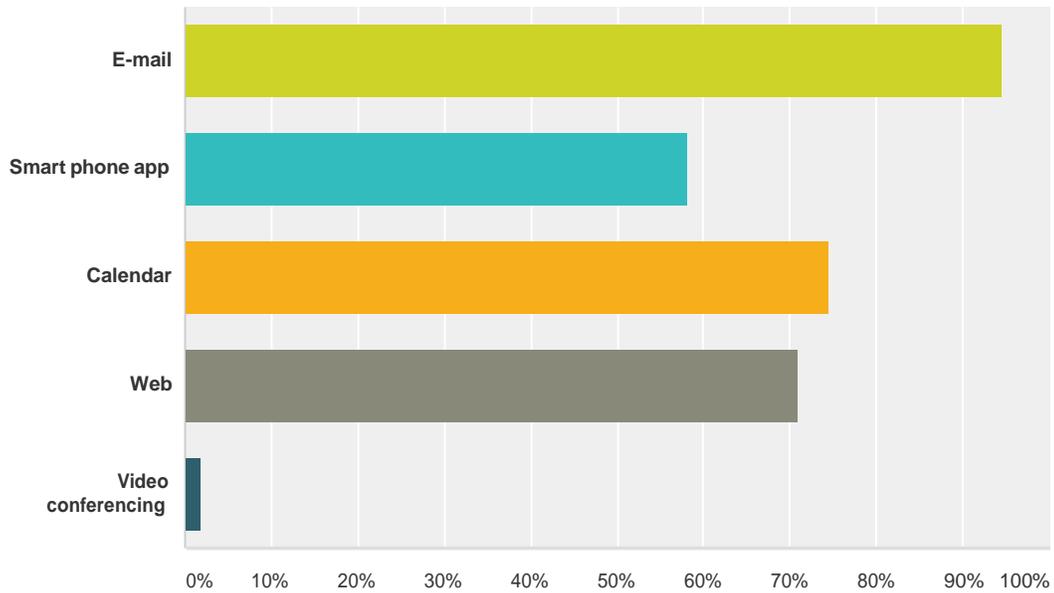
Answered: 54 Skipped: 3



Answer Choices	Responses
1 Not satisfied	7.41% 4
2	12.96% 7
3	29.63% 16
4	35.19% 19
5 Very satisfied	14.81% 8
Total	54

Q19 What are some of the most important business application you access on your mobile device remotely (while not in the office)? Please select all that apply.

Answered: 55 Skipped: 2

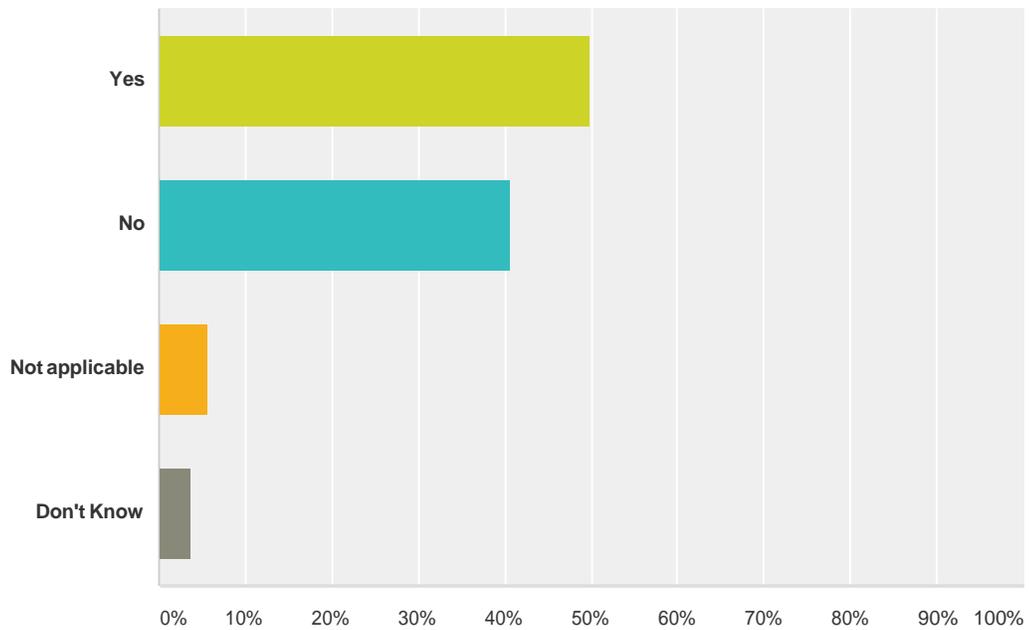


Answer Choices	Responses
E-mail	94.55% 52
Smart phone app	58.18% 32
Calendar	74.55% 41
Web	70.91% 39
Video conferencing	1.82% 1
Total Respondents: 55	

#	Other (please specify)	Date
1	Cloud Software	8/21/2014 2:14 PM
2	File Transfer	7/1/2014 2:37 PM
3	maps	6/13/2014 2:55 PM
4	Cloud apps	6/11/2014 10:15 PM

Q20 Do you use cloud computing for your mobile device?

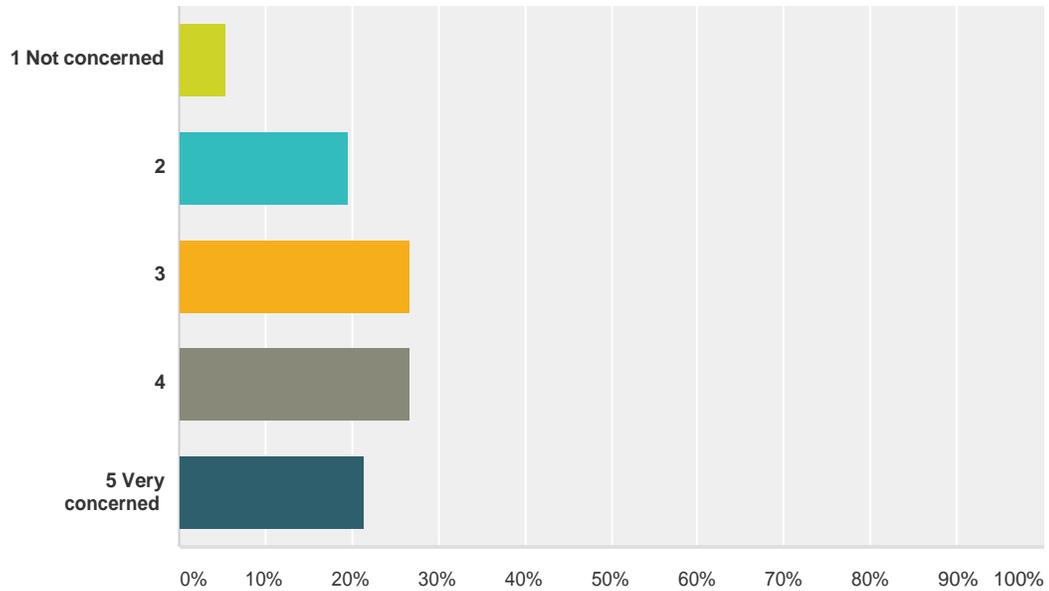
Answered: 54 Skipped: 3



Answer Choices	Responses
Yes	50.00% 27
No	40.74% 22
Not applicable	5.56% 3
Don't Know	3.70% 2
Total	54

Q21 How concerned are you about the security of your information transmitted via mobile internet/data?

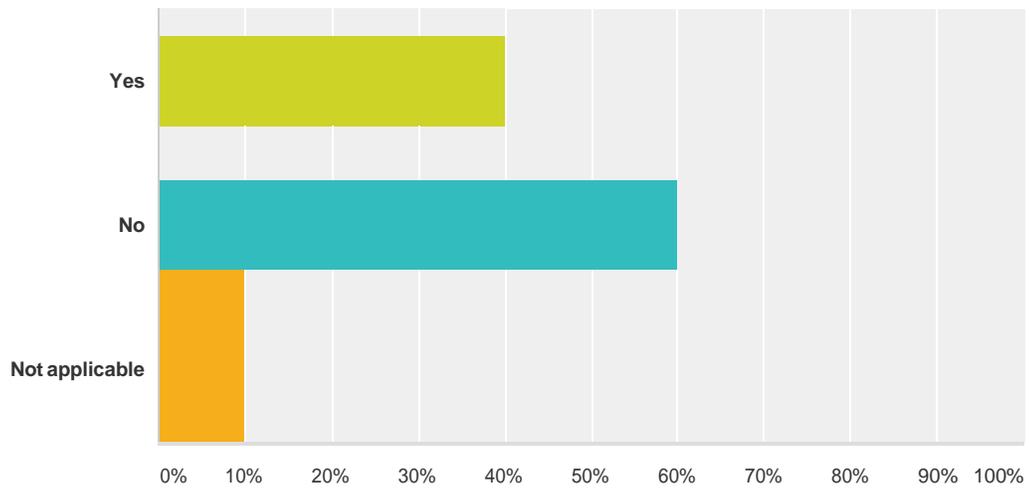
Answered: 56 Skipped: 1



Answer Choices	Responses
1 Not concerned	5.36% 3
2	19.64% 11
3	26.79% 15
4	26.79% 15
5 Very concerned	21.43% 12
Total	56

Q22 Do you use any anti-virus software on your mobile internet/smart device?

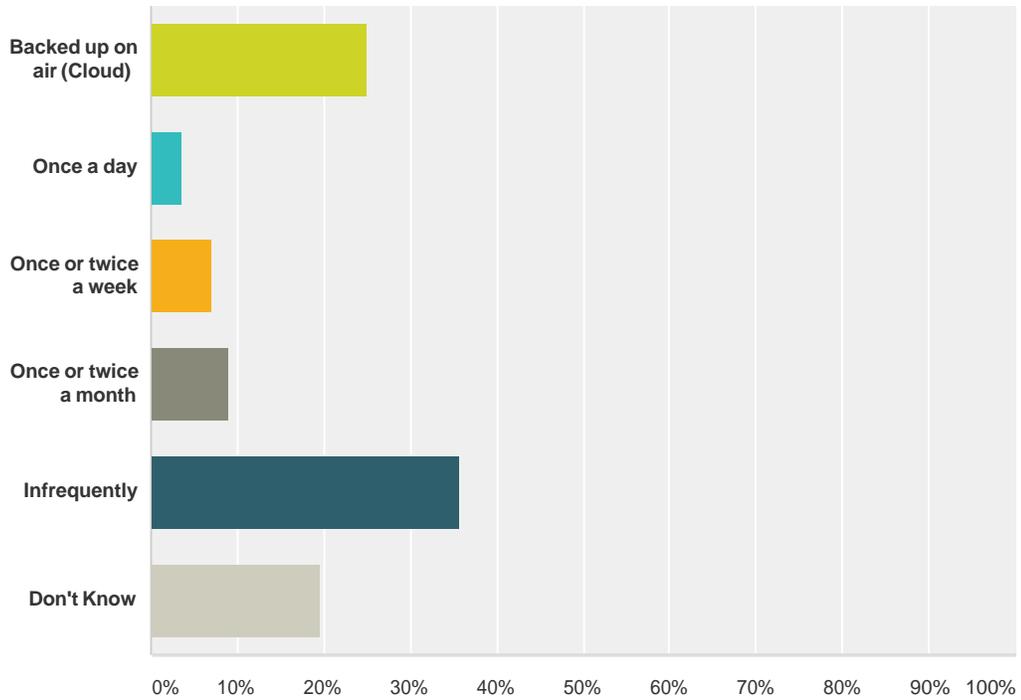
Answered: 56 Skipped: 1



Answer Choices	Responses
Yes	32.14% 18
No	60.71% 34
Not applicable	7.14% 4
Total	56

Q23 How often do you back up your mobile/wireless device's data for security reasons? Please choose suitable answer.

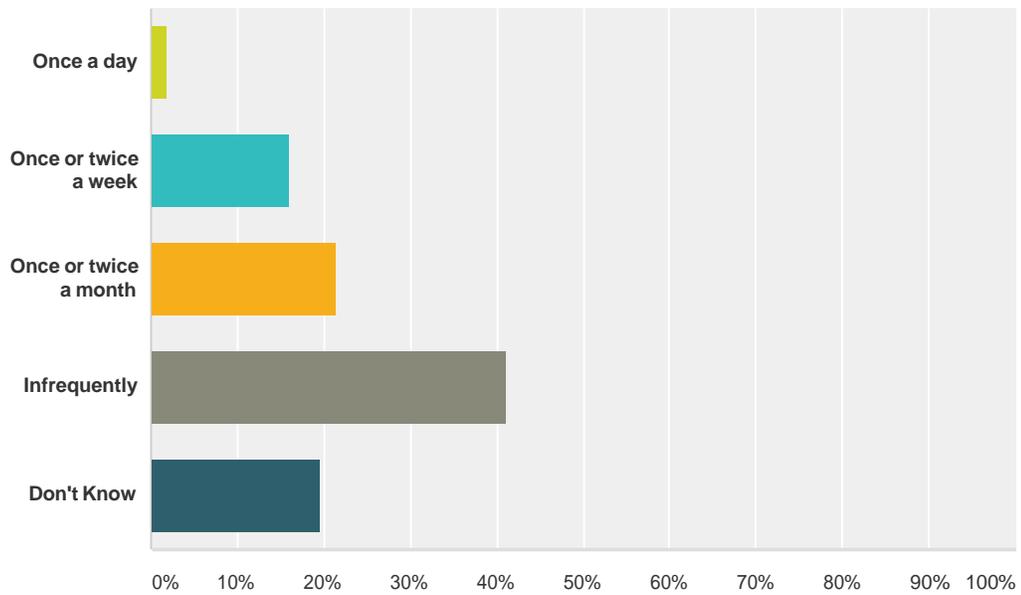
Answered: 56 Skipped: 1



Answer Choices	Responses
Backed up on air (Cloud)	25.00% 14
Once a day	3.57% 2
Once or twice a week	7.14% 4
Once or twice a month	8.93% 5
Infrequently	35.71% 20
Don't Know	19.64% 11
Total	56

Q24 How often do you do software update on your mobile device for security reasons?

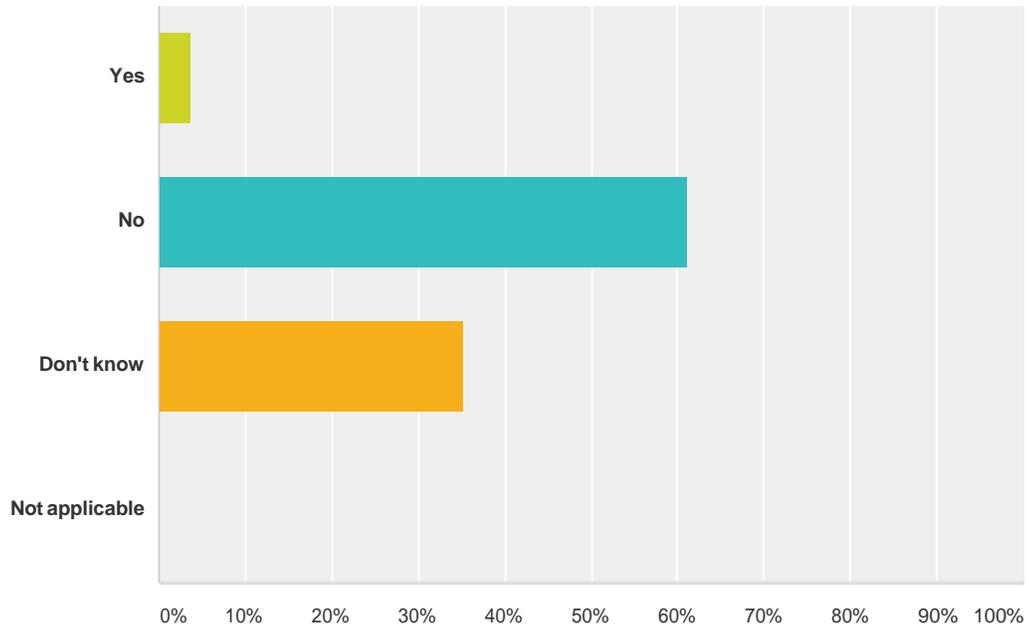
Answered: 56 Skipped: 1



Answer Choices	Responses	
Once a day	1.79%	1
Once or twice a week	16.07%	9
Once or twice a month	21.43%	12
Infrequently	41.07%	23
Don't Know	19.64%	11
Total		56

Q25 Do you use 'Mobile Device Management' (MDM) software to manage business devices?

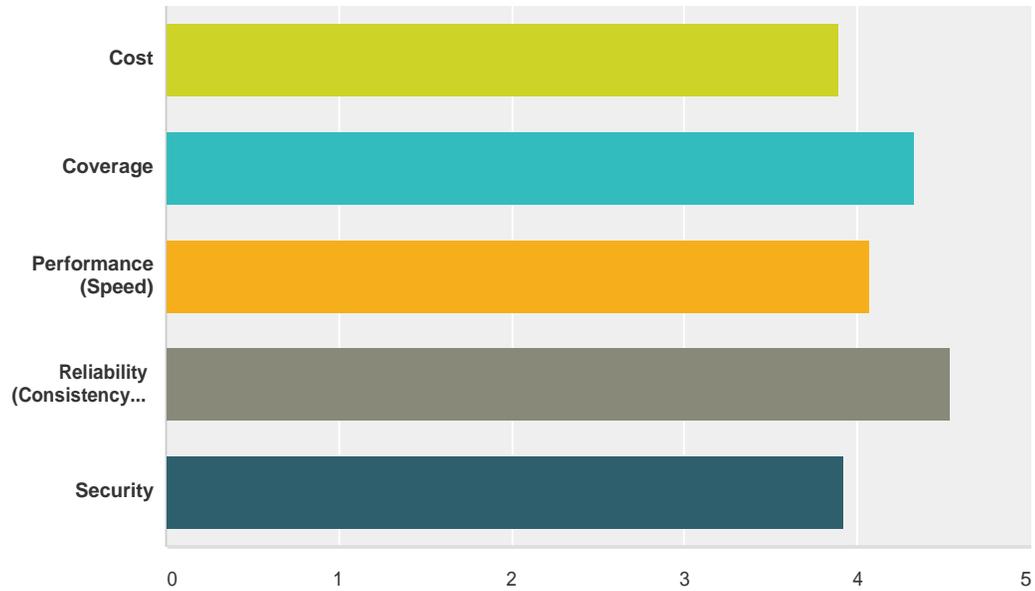
Answered: 54 Skipped: 3



Answer Choices	Responses
Yes	3.70% 2
No	61.11% 33
Don't know	35.19% 19
Not applicable	0.00% 0
Total	54

Q26 How important are following aspects of mobile internet before you choose your service provider?

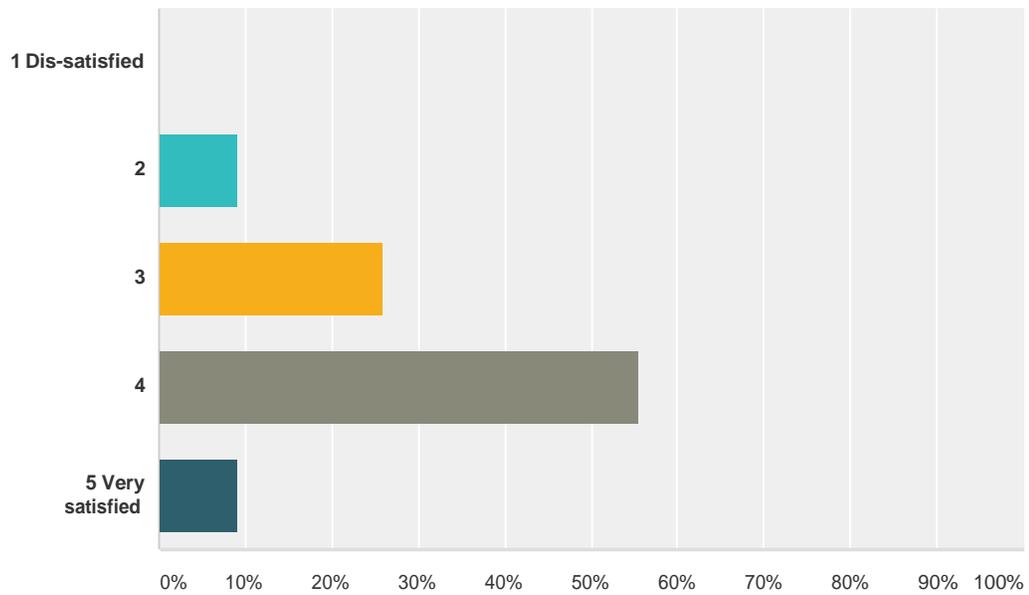
Answered: 56 Skipped: 1



	1 Not Important	2	3	4	5 Most Important	Total	Weighted Average
Cost	0.00% 0	5.36% 3	26.79% 15	41.07% 23	26.79% 15	56	3.89
Coverage	0.00% 0	0.00% 0	16.36% 9	34.55% 19	49.09% 27	55	4.33
Performance (Speed)	0.00% 0	1.79% 1	17.86% 10	51.79% 29	28.57% 16	56	4.07
Reliability (Consistency and Quality of Connection)	0.00% 0	0.00% 0	8.93% 5	28.57% 16	62.50% 35	56	4.54
Security	1.79% 1	5.36% 3	25.00% 14	33.93% 19	33.93% 19	56	3.93

Q27 How satisfied are you currently with the overall reliability of mobile internet?

Answered: 54 Skipped: 3



Answer Choices	Responses	
1 Dis-satisfied	0.00%	0
2	9.26%	5
3	25.93%	14
4	55.56%	30
5 Very satisfied	9.26%	5
Total		54

Q28 If you are happy to be included in the prize draw, please enter your e-mail below.

Answered: 52 Skipped: 5

#	Responses	Date
1	dan@designsigns.co.nz	9/11/2014 8:35 AM
2	Sherazmumtaz@yahoo.com	9/11/2014 7:45 AM
3	rebecca@mrwhippy.co.nz	9/11/2014 12:29 AM
4	lisarna@minimanager.co.nz	8/21/2014 2:16 PM
5	phil@marketknowledge.co.nz	8/18/2014 1:51 PM
6	sales@ayone.co.nz	8/14/2014 4:23 PM
7	howick@midasnz.co.nz	8/12/2014 9:15 AM
8	Benny@demar.co.nz	8/12/2014 12:51 AM
9	helen-shaw@xtra.co.nz	8/11/2014 11:23 PM
10	arnaud@branchelandscapes.co.nz	8/11/2014 7:46 PM
11	ajarvis@ccj.co.nz	8/11/2014 7:31 PM
12	rossbymolt@gmail.com	8/11/2014 4:10 PM
13	mary@blackrobindesign.com	8/11/2014 12:46 PM
14	lisa@hrtoolkit.co.nz	8/11/2014 10:00 AM
15	mc@martellimckegg.co.nz	8/11/2014 9:56 AM
16	lynda@quantumsolutions.co.nz	8/11/2014 9:22 AM
17	Paul@tinsoldier.co.nz	8/11/2014 8:39 AM
18	chrisa@rocketprint.co.nz	8/11/2014 7:44 AM
19	karel.polman@igroup.co.nz	8/8/2014 7:54 PM
20	team@ica.co.nz	8/8/2014 6:56 PM
21	eric@acebs.co.nz	8/8/2014 6:29 PM
22	easttamaki@embroidme.co.nz	8/8/2014 5:29 PM
23	Campbell@go2guys.co.nz	8/8/2014 12:40 PM
24	arthur@videolife.co.nz	8/7/2014 4:56 PM
25	Windthief@hotmail.com	8/1/2014 8:26 AM
26	Jbarr@genratec.com	7/31/2014 6:17 PM
27	tp@bonded.co.nz	7/31/2014 4:11 PM
28	liz.thrush@fisheye.co.nz	7/31/2014 3:08 PM
29	rochellewilliamswhite@gmail.com	7/14/2014 2:50 PM
30	ben4taylor@gmail.com	7/14/2014 10:48 AM
31	george@monkeycreative.co.nz	7/1/2014 2:39 PM
32	Philip.mcgowan@kellytarltons.co.nz	6/25/2014 10:36 PM

33	phil@hallelectrical.co.nz	6/25/2014 5:12
34	taufeeqhumayun@gmail.com	6/25/2014 11:10
35	avanisurti@hotmail.com	6/25/2014 9:59
36	elizabeth@powerstanfield.co.nz	6/18/2014 11:11
37	sarah.williams@nzhomeloans.co.nz	6/17/2014 10:55
38	kim@heatpumpservices.co.nz	6/14/2014 8:01
39	kate.ashcroft@buddlefindlay.com	6/13/2014 4:39
40	focalpoint.nz@gmail.com	6/13/2014 2:57
41	david@vitiscellars.co.nz	6/13/2014 2:53
42	warwick@ayreslegal.co.nz	6/13/2014 2:45
43	natalie@pureseo.co.nz	6/13/2014 2:38
44	peter.vdh@crowehorwath.co.nz	6/13/2014 1:53
45	tyrone@tjsproperty.co.nz	6/12/2014 10:33
46	sarah.bloxham@xtra.co.nz	6/12/2014 9:01
47	john.newmarket@embroidme.co.nz	6/12/2014 5:44
48	mitchellx@willis.com	6/12/2014 10:44
49	keith.dignan@telelink.co.nz	6/12/2014 9:47
50	Peterf@tcg.co.nz	6/11/2014 10:11
51	paul@paulc.co.nz	6/11/2014 9:36
52	ray.siesicki@2degreesmobile.co.nz	6/11/2014 9:17