

THE DRIVERS OF SERVICE INNOVATION IN
INSURANCE INDUSTRY

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DECLARATION

We hereby declare that:

- (1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information by they printed, electronic, or personal.
- (2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) Equal contribution has been made by each group member in completing the research project.
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PREFACE

The research study is one of the most important components which must be conducted in our course, Bachelor of Business Administration (Hons). In other words, the research study is essential for us to conduct in order to complete our degree course at University Tunku Abdul Rahman (UTAR). The research topic is “The Drivers of Service Innovation in Insurance Industry”.

In the research study, 6 important independent variables are selected that have influences towards service innovation of the insurance industry. These independents variables are technology, research and development, customer co-creation, organizational support, organizational capability and organizational culture. These selected independent variables are the possible factors that might influence the service innovation in Insurance Industry.

ABSTRACT

Service innovation has been found lacking in current insurance industry. Therefore, awareness on issues related to service innovation is getting concern form other researchers due to lack of previous studies done for it. The main objective of this research is to study the relationship between technology, research and development, customer co-creation, organizational support, organizational capability and organizational culture toward service innovation in the insurance industry.

In this research study, 400 sets of questionnaires were prepared and distributed to the targeted respondents who are working in insurance industry. After the data were collected, SAS software Version 7.1 was used to test the data in order to generate the final result. In the end, the final result shows that there is significant relationship between technology, research and development, customer co-creation, organizational support, organizational capability and organizational culture towards job performance.

CHAPTER 1: INTRODUCTION

1.0 Introduction

Our research is starts with Chapter 1 regarding the study of insurance industry in Malaysia. Insurance industry has contributed a vital role in Malaysia's economy. Therefore, innovation is important in this sector which it can improve their performance as well as Malaysia's GDP. The study purpose is to find out the influences of technology, customer co-creation, research and development, organizational structure, organizational capability and organizational culture on service innovation in insurance industry.

1.1 Research Background

Insurance is known as one of the most established and surely understood money related items among the people in the world; however, there are still numerous people who bashful far from it and reject to purchase it at own free will. People reject to purchase insurance is because it is a significant complex item, people feel that insurance will always include unfortunate circumstances and they refuse to accept it. In fact, insurance helps to limit and minimize the possibility of customers' cause in case of accidents (Mohammad et al., 2013).

Siti (2014) defines insurance as a development proposed to offer security to individuals and enterprises against specific eventualities. Insurance enables the parties involved to have assurance and security of their benefits in their life. In Malaysia, insurance industry had divided into two segments which specifically life and general insurance. General insurance embraces to pay damages to outsiders for an action to protect a lawfully subject. Life insurance likewise embraces to protect family against the loss of acquiring capacity of the guaranteed in case of his death and any injury. (Mohamad & Siti, 2014).

Based on Life Insurance Association of Malaysia (LIAM), life insurance is defined as a protection against financial loss that resulted from the premature death of an insured. In other words, it is a fund managed by an insurance company where the policyholders pay some money for it. The fund will be withdrawn to help ease the hardship when the policyholder is suffering a hardship. The life insurance policy contract will grant a protection against their immediate family members and themselves when accident incurred by providing an extra income and saving plan for the future. Life insurance has been categorized in several categories. It includes term insurance, whole life insurance, endowment insurance, investment-linked and life annuity plan, supplementary rider or cover and other plans.

According to Drucker (as cited in Charles & Doug, 2014), innovation is the act that furnish the resources with an endowment to create fortune. Innovation has the ability to increase the sales, profits and productivity of an activity to the sellers or the firms. Innovation also can produce value of certain product that will benefit the customers. In simple word, innovation is the execution of any inventive thought that can result in decrease the expenses or increase the sales, or both to create “esteem” for the customers and partners. If one company do not realize the importance of innovation, they will face a risk of been overtaking by others competitors.

Drucker (as cited in Friday, 2007) proposed that innovation is an apparatus of business, creativity is important for both innovation and business enterprise. Creativity is a procedure that will come out with new thoughts and new ideas. Creativity is the capacity to make or generally bring into presences something new, regardless a new solution for an issue or another creative question or shape.

Service innovation is the multidisciplinary procedure of outlining, acknowledging and showcasing combination of existing as well as new administrations and products with the last endeavor to increase the value of customer experiences (Witell, 2015). Service innovation is usually a renewal of an existing service which will bring advantages to the company that has acquired and apply it in their business; this type of service innovation will bring benefits to the customers. When the company manages to apply service innovation in their business, they will be able to fulfill the customers' needs and wants in a more valuable stage, and this is the main goal in their firm.

1.2 Problem Statement

A portion of Malaysia's insurance and *takaful*, or Islamic insurance has recorded a steady growth in the past few years. Insurance and *takaful* provide a vital road to general society to invest and save for their benefits. On top of these, insurance also offers hazard protection in some occasions such as retirement, handicapped and death. The focused on entrance rate for insurance and family *takaful* arrangements is 75%. The penetration rate was 54.9% starting at 2015, while it remained at 55.5% in year 2014. The consolidated cases proportion edged up from 58.4% out of 2014 to 60.2% of every 2015 in the general insurance and *takaful* portion, reflecting additionally

hardship business conditions, especially in the avionics, marine and travel line of business ("PressReader.com - Connecting People Through News", 2016).

The currency deterioration, the ringgit's value fell by 20.5% in year 2015; this had cause significant difficulties to the insurance stakeholders ("Reforms strengthen Malaysia insurance sector", 2016). In the non-life portion, for example, these components, joined with the current presentation of government deals impose (GST), have adversely affected development and extension since 2015, with industry partners especially contradicted to the GST.

Figure 1.1 Annual Growth Rate of Malaysia GDP



Source: [Tradingeconomics.com](http://tradingeconomics.com), Department of Statistics Malaysia, 2017

From the Oxford Business Group, we can know that the burden of GST had consolidated with the administration's choice to forbid insurance companies from asserting an assess credit on vehicle claims costs, which has additionally declined the situation. GST is a duty chargeable on the end-client of a decent or administration. Insurance agencies are not end-clients of protection benefits in this case however are

the specialist organizations. General Insurance Association of Malaysia (PIAM) sees this as an important issue in regard to this distinctive understanding on the capacity to assert input tax credit for repairs completed on a guarantee's property.

According to Deloitte (2008), the insurance industry has delighted in solid business condition in the course of the most recent couple of years yet compounding monetary viewpoint will probably posture impressive difficulties in the years ahead. Due to the challenges, the property portion will be affected, where developing evaluating weight as the market mellows will drive a requirement for cost-cutting and more prominent proficiency. Insurance is very important as all levels of organization will be affected; strategy level of customers and product procedure is hardly to be achieved (Sammy, 2014).

Numerous studies on the utilization of product innovation in improving competitiveness have been conducted in Malaysia. However, very little is known about the service innovation specifically in insurance industry in Malaysia have been done. According to Morgan Stanley (2014), it had found that insurance has the least interaction with insurers than with any other industry. Consequently, insurers have little insight into customer needs and hence tailor their insurance. In today's market, it is vital to be more consumer-centric and improve customized services as consumers nowadays are concern on their right and return. By implementing the innovation in services, it is believed that this situation could be improved.

Moreover, there is no study before which actually combined several crucial factors to measure the effect of it on service innovation. Previous studies mainly focused on explaining how the factor will influence service innovation; mainly one to one. But the decision to combine several factors and measure the impact it has on service innovation allows researchers to have a better understanding on how each independent variable act on service innovation as compared with others. Hence, by

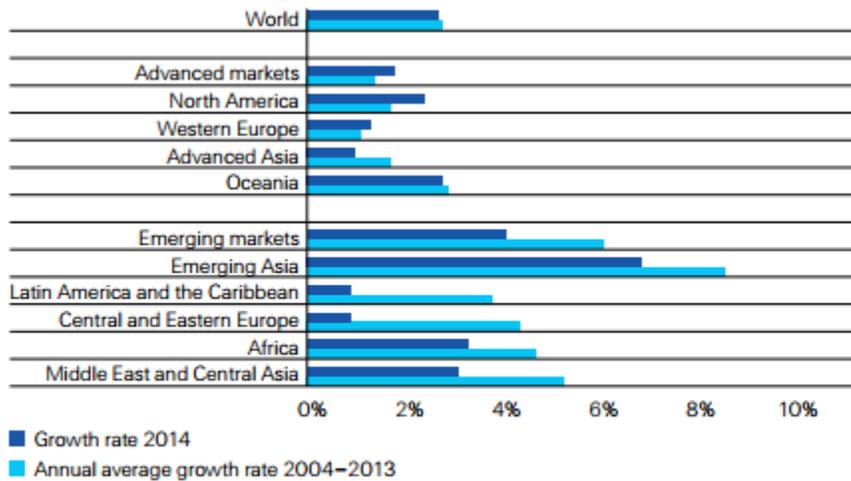
carrying out this research, it opens up the possibility of more factors affecting service innovation as well as bringing in new knowledge on how to better bring service innovation in an organization.

The operating and showcasing techniques is vital for the insurance agencies, they must be willing to drive the changes of the way they work. Insurance company need to oversee associations with an extended cluster of appropriation accomplices to guarantee they convey a high caliber, predictable experience to clients (Sammy, 2014). They need to end up noticeably more proficient and work in an inexorably incorporated manner or else they will face the hazard being to bankruptcy. The insurers also need to manage the relationships with their partners to ensure a high quality and consistent experience can be delivering to their customers; at the same time, they need to lower down the possibility to face the risk in the business. However, companies in insurance industry had made limited effort in innovating new insurance services, and these cause customers have limited knowledge about insurance, they do not realize that insurance is actually an important commodity to their life.

Life insurance is an insurance product that can help the customers to solve the possible income loss from death. According to Omar (2007), lack of trust and confidence by customers towards life insurance is the main problem facing by the insurance industry. This is because the customers do not understand the life insurance product in deep. Although life insurance is become more important and more popular in other developed countries, however life insurance still do not get the attention from Malaysian (Loke & Goh, 2013). According to the sigma study, the life insurance sector in Western Europe countries had increased in the year 2014 due to the strong securities exchanges and higher premium development, and this situation is believed to be continuing in the future. It is reported that the economic growth of western countries had increased at the same year, for example, UK's real GDP growth

reached 2.4%. So, we can believe that if Malaysian aware the importance of life insurance and start to purchase it, Malaysia’s economic growth will increase.

Figure 1.2 Countries’ Weighted GDP with Market Exchange Rates



Note: countries’ GDP weighted with market exchange rates.
 Source: Oxford Economics, WIW, Swiss Re Economic Research & Consulting.

Source: Oxford Economics, WIW, Swiss Re Economic Research & Consulting

These different symptoms have brought us the reason to conduct a research to understand the innovation in the insurance industry in Malaysia. Since the innovation strategies is important in insurance industry, in what ways an insurance company can improve the service innovation?

1.3 Research Objectives

The purpose of this research is to understand how service innovation occurs in an organization. After this research we can figure out factor of influence service innovation and can find out some accurate way to encourage service innovation in an organization.

1.3.1 General Objectives

The main intention of this research is to locate the variables that contributed to service innovation in insurance industry. There is a broad dimension on the factors such as technology, customer and organization.

1.3.2 Specific Objectives

1. To determine whether business environmental factors significantly explain the variance in service innovation.
2. To determine whether there is a significant positive relationship between technology and service innovation.
3. To determine whether there is a significant positive relationship between research and development and service innovation.
4. To determine whether there is a significant positive relationship between customer co-creation and service innovation.
5. To determine whether there is a significant positive relationship between organizational support and service innovation.
6. To determine whether there is a significant positive relationship between organizational capability and service innovation.

7. To determine whether there is a significant positive relationship between organizational culture and service innovation.

1.4 Research Question

Researchers have brought some significant question to be inquired in this research study:

1. Do business environmental factors significantly explain the variance in service innovation?
2. Does technology has a significant relationship with service innovation?
3. Does research and development has a significant relationship with service innovation?
4. Does customer co-creation has a significant relationship with service innovation?
5. Does organizational support has a significant relationship with service innovation?
6. Does organizational capability has a significant relationship with service innovation?
7. Does organizational culture has a significant relationship with service innovation?

1.5 Hypotheses of the study

Seven possible hypotheses of the study are listed as below:

Hypotheses 1: Business environmental factors significantly explain the variance in service innovation.

Hypotheses 2: There is significant relationship between technology and service innovation.

Hypotheses 3: There is significant relationship between research and development and service innovation.

Hypotheses 4: There is significant relationship between customer co-creation and service innovation.

Hypotheses 5: There is significant relationship between organizational structure and service innovation.

Hypotheses 6: There is significant relationship between organizational capability and service innovation.

Hypotheses 7: There is significant relationship between organizational culture and service innovation.

1.6 Significance of the study

Service innovation allows a firm to gain a competitive advantage in order to create a sustained competitive edge (Durst, Menton & Poutanen, 2015). According to Reinartz and Ulaga (2008), service innovation helps the organization to overcome the dilemma of stagnant growth in a soggy market as well. It can be benefited in many ways from a service-based strategy such as cost control, delivery speed, service offerings improvements and technology. Also, firms that succeed in innovation prosper will be outstanding from their less able competitors (Fagerberg, 2006). In other words, being innovative is able to boost the bottom line.

The study will assist the management of insurance industry players (insurance companies, brokers, agents etc) in acquiring a comprehensive knowledge on service innovation that they can employ to mitigate rivalry and enhance their customer base and hence the firm's productivity. Insurance is now a major component in the economies of developed countries such as Great Britain and Germany. Being innovative is one of the major factors in pushing insurance industry into national level.

At national level, innovation is to bring in novelty to the economic sphere to prevent it from settling into a "stationary state" with little or no growth. According to research, countries with high innovation contribute to higher productivity and income in correspondence to the less innovative one, contribute to better economic growth (Fagerberg, 2006). Insurance sector has played a major role in the growth of the financial services sector in Malaysia. By 2020, Malaysia is aimed to achieve the economic growth necessary to transform the country into a high-income nation and improve across all economic sectors to this end according to Economic Transformation Plan (ETP). The ETP calls for insurance and takaful penetration to achieve 75% of the population and for the sector's value as a GDP percentage to increase from 2.8% to 4% by 2020 in the insurance industry ("Reforms strengthen Malaysia insurance sector", 2017).

According to CEO of the Malaysian Insurance Institute, Syed Moheeb bin Syed Kamarulzaman, announced that penetration had rose from 41% to 56% in 2014, moving the country on the right track to meet its 2020 vision. However, Thomas Ng, associate director at Fitch Ratings Singapore also mentioned that it is still too early to comment on whether the 75% target is feasible due to the insurance sector is still undergoing a series of regulatory reforms amid a disputing operating environment. New policies have been actively introduced by BNM and it will depend on players' adaptability to these reforms and post growth in the future ("Reforms strengthen Malaysia insurance sector", 2017).

Hence, it is vital for the industry to strengthen its capacity to support more sophisticated and non-traditional risks, both financial level and technical in line with the development of the economy and its changing structure. In order to achieve the 75% penetration target set under the ETP, several critical initiatives are necessary to improve transparency, encourage product innovations and expand channels for delivery are expected to reduce these barrier and improve prospects.

There are several cases in Europe and Asia who have implement innovation strategies in the life insurance sectors and become a major player in their respective countries. For instant, a German start-up named *Community Life* engage customers in product development and providing simple, transparent disability as well as term life products by launching a digital portal, transforming the traditional life insurance distribution into user-friendly insurance contracts without technical jargon. Another example will be *Max Life Insurance* located in India has adapted innovation strategies into their company. A digital campaign regarding awareness creation on the necessity for protection through life insurance called “Second Chance” has been launched. This successfully attracts viewers at all age to learn more about their product. In Italy, a life insurance policy named I-Life is a mobile apps which can be accessed by users easily has been introduced by *Genertel Life*. Full quote is provided online is provided to prospective customers in around five minutes (Presutti, 2015).

These successful examples have one similar characteristic, innovative. They are accelerating their moves to attract new customers, deliver excel services and discover new markets to meet the new demand of the marketplace. Hence, with these successful role models, we are able to conclude that innovation is necessary to be adapt by Malaysia’s insurance industry in order to explore new opportunities as well as stay updated to the drastic changes in the market.

1.7 Chapter layout

Chapter 1: Introduction

An overview on the research has been provided. Also, the research's problems statement and objectives are listed out to provide a clear direction. Questions regarding the hypothesis are developed. Furthermore, the significance and contributions of the study is the highlight of this chapter.

Chapter 2: Literature Review

In order to strengthen our research, we reviewed, studied and summarized established journals articles done by previous researchers and other publications which related to this research. Also, relevant theoretical frameworks and models will be revealed. Following the summarization of related research, a conceptual framework is also developed to view the relationships between the variables.

Chapter 3: Research Methodology

The mean to carry out the research is determined in this chapter. It explains on how data analysis is run, data collection method, and sampling design.

Chapter 4: Research Results

Research result is identified and outlined to analyze the previous formed research question and hypothesis. Descriptive analysis use to analyze the demographic background of target respondents, scale measurement use to analyze the reliability results and inferential analysis use to conclude the result from Pearson correlation and linear regression analysis.

Chapter 5: Discussion and Conclusion

The statistical analysis is summarized. The major findings in connection with pervious chapter will be discussed and prove the research hypothesis and research objectives. The implication, limitation and recommendation of this research will become important to future researchers.

1.8 Conclusion

This chapter clearly stated and explained the research topic in brief. Our main research objective is to examine the factors that contribute to service innovation and also the ways to improve innovation in insurance industry. Through the research objectives, hypotheses formulation and significant of study, the view of the basic theory of this study will be enhanced. In Chapter 2, a more specific review on literature will be carried out and form a research framework by reviewing all relevant secondary data which are journal articles that done by previous researchers.

Chapter 2 : Literature Review

2.0 Introduction

There are two focuses in Chapter 2. First, literature review is to show the definition, terms and dimensions including service innovation, technology, customer co-creation, research and development, organizational support, organizational capability and organizational culture. Second, the relationship between those independent dimensions and service innovation will be evaluated. The conceptual framework between independent variables and dependent variable provide a better image to further investigate the research objectives.

2.1 Literature Review

2.1.1 Service Innovation

Innovation is perceived as a process of ingenious development or new concept exertion. It targeted on enhancing features and functionalities of a product or service in order to deliver services to the customers with improved quality (Fichman, 2001). The linkage of innovation with the commercialization of ideas had been developed by Freeman and Soete (1997) to achieve business growth which has then created an intimate relationship between invention and innovation. Innovation is needed in invention for application of users in the

way of adjustment and improvement. The alterations mentioned are completed by corporations to gain competitive advantages (Noorani, 2014).

The exclusive features consisted in service activities have clearly differentiated them from the physical outcome especially in manufacturing industry. This is because the services produced are generally not identical. It shows the uniqueness in their manufacturing and diversified features in respect of quality (Kon, 2004; Sundbo & Gallouj, 1998). Companies are looking new notions and developing the advance technology continuously in order to achieve efficient production and keeps remain of cost effective in long run production (Noorani, 2014). Services may be intensely personalized based on the customer's wants (Durst, Mention & Poutanen, 2015).

Nowadays, service innovation deal a great impact on society and caused the corporation studies being placed in great scrutiny, exclusively on the jobs creation and social economic development (Gallouj, 2007). Innovation is being progressed in numerous contexts of services, for instance the introduction of new services or enhancement on existing services. Service innovation plays a vital role especially in the knowledge-intensive sector, different efforts has been struggle on interpret or explain service innovation. For instance, the "four dimensional model of service innovation" has been introduced by Den Hertog (2000) which included: (1) Service concept, which is new concept perceived in the market; (2) Client interface, which involved clients in the conducting service; (3) Service delivery system, which confines novel methods in delivery of actual service to the client; (4) Technology, which ensure the services can be provided efficiently.

Around 18% have been rose by the value added from GDP of service activities in the Organization for Economic Cooperation and Development

(OECD) countries and achieved 73% in 2008 over the last four decades. Nonetheless, service industries have played an important role in the OECD countries' employment rate. However, the actual effect of service industries towards service innovation still under investigated and the knowledge is in arrears (Durst, Mention & Poutanen, 2015).

The term "value-added marketing" has used to reveal the methods of organizations attempted to enrich the clients (Nielson, 1992). Customer value is perceived can be enhanced by providing services. The term "added value" for extra services extends the existing value through the actual main offer (Gronroos, 1997). The idea of value-added services has been expressed through the notion of "customer service" as the supplement or complement for the main offer (Parasuraman, 1998). However, there is lack of direct association among insurance industry and the notions of customer services due to the services are generally responded after the accidents had been happened.

Value-added services have been widely utilized in nowadays firms' total offers many layers enclosing of main services and goods cum value-in-use perspective (Gummesson, 1994; Kotler, 1994; Belz *et al.*, 1997; Haller 2000). The main offers provided in insurance industry included car insurance, life insurance or health insurance where these offers usually strengthen and relevant whenever the clients needed the customer service of insurance firms. For more information, the customer services of insurance firms included of hotline for information and consulting purpose as well as the post-accident services.

Customer service would not affect the skills of the customer in the context of the service-dominant logic as well as the value-in-use concept. The offer is

consider an element of the equivalent value exchange constituted by the main insurance service and hence are more to a feature or characteristic lodged in related of total offers within insurance industry.

In contrast, services that added value into customer perception are generally separated from the main insurance services. The spotlight is on adapting to the continuous changing customers' role about their purchasing behavior, as well as the usage and pay for the insurance services. It is intently linked to the value-in-use approach instead of value-in-exchange. Moreover, value-added service is vital in insurance industry as it change and improve the viewpoint of value-in-exchange in general. This perception exerted in the reality to enrich the customer value within insurance companies by going through their diversified customer services (Vargo and Lusch, 2008; Grönroos, 2007). The essence of value-added services indicates that the customer is a value co-creator by their active responds. The customer preference can be constructed and affected by the aforementioned services which the customer capabilities may exerted as one of the prime factor for the preference structure. However, general concept within insurance industry which emphasizing on price, insurance levels and post-accident services will be spread if the customer preference structure is applied (Maas and Graf 2008; Haller 2000)

The research team and professionals from the insurance industry have been cooperated in conduct of related efforts and developed it into five aspects, which included (1) price or fee for insurance, (2) insurance franchise, (3) no claims bonus (NCB), (4) post-accident services and (5) value-added services. These five aspects have considered as key elements that subsequently drive the preference and perception of customers to insurance industry (Maas and Graf 2008; Watzdorf, Gebauer, Staake & Fleisch, n.d.).

In a nutshell, we can conclude that service innovation is getting more and more important to the overall economy growth as awareness of service industries is rising gradually in dealing impact on potential market in future instead of the existing product manufacturing industries. Service innovation also became an essential for sustaining the organization long term effectiveness and efficiency in term of costs and production as according to the past studies from some related researchers. Moreover, value-adding portfolio that developed by the service companies viewed as the compliment for the main service that delivered premium service which also a key factor for new trending and innovation process.

2.1.2 Technology

According to Swanson (1994), there are three different levels were suggested to categorized the information technology innovation among organizations, which innovation discovered within information technology capability (Type 1), individual or work group level (Type 2) and organizational level (Type 3). At the organizational level, there is a model developed by Scott Morton (1995) named as Scott Morton's MIT90 model. Generally, this model was developed to analyze and explain the concept of information technology adoption in respect of four components that built up this model. The four components are infrastructure for information technology; align strategies, structure of organization and learning capabilities of individual in order to align with the viewpoint of Type 3.

According to a statement by Joglekar and Yassine (2002), mentioned that adopting information technology may benefits on both internal operation and

external cross-enterprise over the supply chain processes. Jackson (1990) has stated that adoption of information technology can shorten the delivery times and response to customer's demand quickly. Not only that, it also provided customers a convenient service which they can get on track of their delivery services (Tinnilä & Vepsäläinen, 1995). Moreover, Avlonitis et al. (2001) have mentioned that new information technology adoption such as web and mobile services make a positive impact to the service innovation processes as it extrinsically obtained some primary data and customer information to support and improve the marketing strategy after all. Intrinsically, information technology adoption may assisted in the operation and administration efficiency by improving the quality of services with a minimize usage of scarce resources (Karagozoglu & Brown, 1993).

Besides, new information technology adoption is vital to grant the organization in a competitive position by innovating new services (Vermeulen & Dankbaar, 2002). Not only that, employees are capable to get experience and enhance their skills throughout the previous information technology usage, such as competitive intelligence and management of information, allowing them to improve service quality by assessing the past service innovation projects (Demirhan et al., 2006; Preissl, 1999).

Nowadays, service innovation widely use cloud computing as one of the information technology; it gathered the current information technology features which influenced information technology management and IT strategy, and this created a new business environment in response to lead a growth of IT-businesses (Son, 2011). Hage (1980) has supported the statement above by considering cloud computing as a synthetic innovation which innovating new products or services through a consolidation of existing technologies. He then expressed that although the technology components like service-oriented architecture (SOA), circulated and network registering, and

virtualization are not new information technologies, but it's innovative enough to provide new services by an aggregation of existing technologies.

According to a study of Yao and Yu (2011) in Harbin, China, technology capabilities and technology management capabilities as part of information technology is proved as a vital factor for innovation success. Additionally, an innovative culture and environment has been built up by strong technology adoption whenever the scarce resources are available for allocation and more high-skilled employees go in.

In short, it can be conclude that technology has a strong positive relationship with service innovation as it is supported by various researchers in different journals. In order for an organization to stay competitive in an industry, the organization must consider that technology is a vital component to improve service innovation.

2.1.3 Research and Development

According to Bronwyn (2006), definition of research and development (R&D) referred to the activities involved in the organization for the purpose of developing new and innovating products and services. There are three main activities included in R&D which are basic research, applied research and development that normally performed in universities and laboratories for testing and improvement purpose before the new products and services officially launch. However, the Frascati Manual of the OECD interpreted R&D as “creative work undertaken on a systematic basis in order to increase

the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.” after some standardized surveys regard to R&D are being created.

R&D nowadays plays a crucial role in the organization to remain competitiveness in the market. Li & Calantone (1998) and Thonke (2003) mentioned a statement which is to innovate more new services, the stronger the strength of organization’s R&D must be. In addition, the statement above was supported by De Brentani (2001) where he mentioned that the positive relationship between strength of R&D and level of innovativeness for new products and services is anticipated. However, Kemp et al. (2003) disagreed the viewpoint above where they stated that R&D expenditures deal a minor impact to the innovation outputs in term of efficiency given approximately 20-25 percent involvement in innovation process.

Nonetheless, Melissa (2008) has further identified R&D investment practiced in service innovation process with a construction of communication bridge for customers, suppliers, competitors and complements at global level. Furthermore, R&D investment is being accounted as a factor that influencing the economic growth where the creation of new and innovative products and services will cause a great impact to the overall economy (Paul & Charles, 2009).

A research in Pakistan is recently found out that R&D is either directly or indirectly affected service innovation by asking plenty of related questions from the respondents. The interviewer has same idea with the researcher where the innovativeness of new products and services is resulted from the effective R&D. He also further defined R&D is playing important role in getting outstanding results through implementation and application of

knowledge. Additionally, he agreed with the R&D investment provide a platform in connecting the customers, suppliers, competitors and complements as mentioned above (Ibrahim, 2014).

Another research done in Seoul, South Korea has proved that collaboration with R&D organization has an indirect impact toward innovation performance (Gun & Seung, 2015). Several empirical results supported by Belderbos (2004) and Nieto (2007) prove that the relationship of collaboration with R&D organization and innovation performance is positively associated. In addition, Mansfield's study (1990) provided direct and indirect evidence that collaborative relationship with external R&D organization helps in shorten the new product development cycles as it is part of innovation process.

In short, many researchers had provided their reviews as R&D has significant relationship with service innovation. If an organization has strong R&D, it will be easier for them to innovate new services. R&D not only will influence the revenue of the organization, it also will have impact on the economic growth. So, it is vital for an organization to strengthen the R&D so that can bring more profit and reach the goal of the organization.

2.1.4 Customer Co-creation / Engagement

In the recent years' academic and service marketing, the term customer engagement has been widely used (Brodie, 2011). Focusing on service literature, customer loyalty and customer contribution are positively affected by the important factor of customer engagement (Bowden, 2009). Psychological process through customer engagement models the underlying mechanism to maintain customer loyalty. In other word, customer engagement

is not the final stage that leads to customer loyalty; hence it consists of various behaviours and attitudes. Besides, solely involving individual's participation, customer engagement also creates a connection towards organization's activities or offering that can be triggered either by customers or the organization (Vivek, 2012). As a general significance of customer engagement, behaviour and strong interaction of behaviour is the key of an effective customer engagement, which is the main idea in this customer engagement, or what we called customer co-creation measurement (Vargo & Lusch, 2008).

Customer co-creation can be expressed as interaction with customer, enthusiastic connection among organization and its customers, and exchange knowledge between customers through data innovation. Handling engaging customers can be classified in three ways, engaging customers in process, create value and customer satisfaction (Cheung, F.M, 2011). Perceived value is the element behind the lasting of long-term relationship as well as customer dedication or loyalty. Through various activities of connecting and communication, values can be created thus leads to customer satisfaction and customer loyalty. Besides, these achievements are the results of customer engagements. Hence, it can be concluded that value creation can be influenced by customer engagements.

When asked marketing specialists for their opinion on the definition of customer engagement, they have a different point of view. Their interpretation on customer engagement tends to focus on the interactions and communications between the organization and customers (Stringer, 2006). Study done by Bendapuli & Leone (2003) explained that customers might be regarded as partial representative of the organization but customers actually portrait themselves as an administration experiences.

According to Paul Patterson and Ting Yu (2006), customer engagement is a higher-order construct, and it made up of 4 parts. These four parts are known as vigor, dedication, absorption, and cooperation. Vigor stands for vitality level and mental flexibility of a customer while correspondence with the service employees, the associations, or with different customers. Customer feel satisfied for the firm they patronise when they have the sense of belonging, named as dedication or devotion. Customer will be fully concentrated, glad, and profoundly charmed when they assimilate with the company. For instance, they do not get exhausted while interacting with service employees.

Due to today's dynamic and intuitive condition of business, customer engagement has the tendency to be more vital than any time. The significance of customer engagement has drawn the consideration towards researches and also businesses (Brodie & Hollebeek, 2011). To enhance organizational performance such as sales growth and profitability, customer engagement plays a major role under the dynamic and radical environmental changes (Voyles, 2007). Customers likewise play a vital role involving marketing activity through word-of-mouth to other potential customers (Van Doorn, 2010).

According to the researchers Dahlenader and Piezunka (2014), they offered narrative proof and individual contextual investigations implying that customer who had a negative affaire while consuming an innovated service might lead to negative word-of-mouth. Gebauer and colleagues (2012), researched on an universal online design shopping packs challenge and found that participants that disappoint with the outcomes tend to point out the negative responses after the challenge. Nonetheless, this study only analyzed negative impacts possibly turns out if specialists of organizations neglect to provide pleasant experience amid the innovation process.

Having a strong and solid customer engagement is the best way to expand the co-create innovation of an organization, whereby customers are included in the innovation procedure. Therefore, there is a positive connection between customer engagement and service innovation. For a company to enhance their performance, they ought to emphasize more on innovation activities.

2.1.5 Organizational Support

There are many factors affecting organization innovation and one of these factors is organization support (Altunoğlu & Bulgurcu Gürel, 2015). When exploring more into this matter, we will find that a leader plays the most influential roles in an organization innovation (Amabile, 1998; Jung, 2001; Mumford and Gustafson, 1988; Altunoğlu & Bulgurcu Gürel, 2015). One of the factors behind the failure of an organization is the ignorance of employees' cognitive and affective feelings when carrying out innovation (Kiefer, 2005). Organization support can be defined as employees' perceived assessment of working environment as supportive for innovation (Scott & Bruce, 1994).

Innovation is one of the factors behind superior performance by a company (Isaksen and Akkermans, 2011) and it involves interactions between who is innovating and who is affected by the innovation (Kheng and Mahmood, 2013). Innovation will be discouraged when the working environment is being affected (Amabile & Conti, 1999). This is where the organization support plays its role by having various methods in encouraging employees to be innovative at work. Employee's faith which the organization value can be measured by a measurement proposed by Eisenberger et. al. (1986), Perceived Organization Support (POS). POS suggested that employees will perform

better when they perceived that the organization is giving the essential support needed (Trybou et. al., 2014). With a positive emotion and mind-set, employees will have a sense of obligation towards the company due to the support given to them (Eisenberger et. al., 1986). Creative performance is encouraged with the presence of organization support and positive mind-set among the employees (Shalley et. al., 2004)

A theory proposed by Blau (1964) stated that the relationship between an employee's behaviour and the organization is built on social exchange theory, indicating an employee will seek for return of favour from the organization after completing their tasks. The higher the perceived assessment of organization support innovation, the higher the tendency for employees to show their innovation behaviour (Scott & Bruce, 1994). However, there are studies indicating that the key players in innovation is the members of the organization and does not depend on organization support (O'Meara, Sandmann, Saltmarsh, & Giles, 2011). It is said that the members' knowledge and attitude towards innovation will determine the success of innovation (Sahin & Thompson, 2006). Contradictory, research has been done on the relationship between trusts and innovative. It concluded that employees are better in overcoming the resistance to change when the organization or top management successfully building trust to organization among employees (Oreg, 2006). Organizational support plays a better influence on the success of innovation than members' attitude and knowledge.

2.1.6 Organizational Capability

It is crucial for an organization to remain fit and dynamic in order to compete in this competitive era. In order to practice innovation within the organization, the organization must first possess great capabilities such as constantly reconsider, renew and redeploy resources to adapt better and take the opportunities given (Teece, Pisano, and Shuen, 1997). An organization's innovative capabilities can be defined as the ability for an organization to develop new products in order to fulfil customers' demand (Adler & Shenbar, 1990; Sulistyoy & Siyamtinah, 2016). Studies have concluded that management and technological innovation bring positive affection to the performance of an organization (Tsai & Tsai, 2016; Sulistyoy & Siyamtinah, 2016). Besides, entrepreneurship of an organization brings certain impact to the overall performance and the degree of innovation (Lee & Hsieh, 2010; Sulistyoy & Siyamtinah, 2016). These fields will indicate whether an organization has the capabilities to practice innovation. Notwithstanding the needs for innovation, it is an extremely difficult task for many entrepreneur companies to remain dynamic and go after opportunities (Liao, Kickul & Ma, 2009).

It is said that the main key to the determinant of competitive advantage and sustainability is through innovation (D'Aveni, 1994; Rumelt, 1987,1984; Liao, Kickul & Ma, 2009). Studies have found out that positive relationship between innovation and excellent performance but surveys had concluded that there is a failure rate of 40% to 75% for new product introduced into the market every year (Calantone, Cavusgil, & Zhao, 2002; Hult, Hurley, & Knight, 2004; Keskin, 2006; Panayides, 2006; Thornhill, 2006). Hence, decisions on how the firms gather, synthesize, utilize information across all parties such as consumers, employees and suppliers while being creative in

delivering the services or products in the most effective and efficient way possible are some of the reasons why certain products or services succeed but others don't. (Hodgetts, Luthans, and Slocum 1999; Liao, Kickul & Ma, 2009). A good example will be Internet-based entrepreneurial firm. Such firm is evaluated based on their abilities to create, deploy and construct resources as well as opportunities in the market while flexible enough to renew, reconstruct and redeploy in order to adapt to the new market and environmental changes (Teece, Pisano, and Shuen, 1997; Dierickx and Cool, 1989; Liao, Kickul & Ma, 2009).

Organization innovation capability can be divided into two different sectors, internally and externally. The organization internal factors could be owner education and experience on the business, technical skills by work force, investment in training and human resource development whereas external factors could be support from the local government and relationship with external parties such as customers and suppliers. These factors will directly decide whether the organization has the capabilities to be innovative (Sulistyo & Siyamtinah, 2016).

The relationship that an organization has with external parties comes into account too when measuring the organization capability to have innovation. Better known as relational capital, it is one of the resources an organization owns that is associated with external parties such as customers and government (Youndt, Subramaniam and Snell, 2004; Sulistyo & Siyamtinah, 2016). A good relationship with external parties allows production process to be more systematic as well as improve product and process innovation (Mucelli and Marinoni, 2011; Rodrigues, Dorrego and Jardon, 2010; Sulistyo & Siyamtinah, 2016). Further studies done by Ahmadi, Ahmadi and Shakjeri (2011) have concluded that human, structural and relational capital can have an influence on the performance of an organization directly or indirectly.

Organization capability does not neglect the importance of resources. Resource stock consists of all the items and ingredients that fund to the organization's capability (Dierickx and Cool 1989; Penrose 1959). These resources, ranging from human resources, technological advancement; financial position to tangible and intangible assets, are the backbone to the organization's special advantage (Pisano 1997; Amit and Schoemaker 1993; Barney 1991; Liao, Kickul & Ma, 2009). Integrative capability is another aspect that is mandatory to an organization's capability to innovate as it allows a firm to better interpreting internal and external sources of knowledge. It is also the ability for an organization to relocate all the information into the right place based on entrepreneur vision and judgement (Cohen and Levinthal 1990; Henderson and Clark, 1990; Teece, Pisano, and Shuen, 1997; Rumelt, 1987,1984; Liao, Kickul & Ma, 2009).

After interpreting various journals by past researchers, it strongly concluded that level of organizational capabilities has a positive relationship on service innovation. To stay competitive, a business must take opportunity to improve both their internal and external factors besides acquiring all necessary resources needed for innovation to take place.

2.1.7 Organizational Culture

Organizational culture is the shared values and belief in an organization. These two elements play a role in shaping employees' behaviour pattern (Kotter & Heskett, 1992). Another definition by Gordon and Cummins (1989), stating that organization culture act as a mean of acknowledgement to the contributions of fellow organizational members. Organization culture also

provides a common understanding of goals that the organization wishes to achieve and how each member is going to achieve it. Organization culture could be the reflection of collective process of mind, differentiating one group from another. Such culture brings the members together and have them aiming at the same direction (Hofstede, 1990).

However, a study by Deal and Kennedy (1982) indicate that there is a relationship between human resource development with an organization's performance and culture. Case studies show that successful organization has strategies aligning cultural values and human resource development programme. An organizational culture includes the atmosphere of working in the organization, ranging from natural settings, rite and rituals to values of the company (Schein, 1990).

Schneider and Smith (2004) argued that culture initiate from the top. Leaders will showcase these cultures and moved down to the bottom of the hierarchy. Such force hence moulded the human behaviour and the climate of the organization. These will then brainwash the organization's employees on the actual way to react on all sorts of opportunities and threats faced by the organization. It can be viewed as an unseen forces that are acting to the workplace; a template shaping everyone to be part of the organizational culture.

Different organizations practice their organizational culture differently. The differences can be in terms of assumptions, values or beliefs. In the business world, some organizations emphasize more on organization while the others focus on employees. There will be organizations that look forward for organization growth and performance management. On the other hand, some organizations prefer to put their employees in the frontline and carry out various actions to retain and develop their human force. These factors will

come in place to determine the performance of an organization; hence, organization culture is a form of social culture that cannot be neglected.

As mentioned before, organizational culture plays a crucial role, shaping the attitude of participants and even the organization as a whole. It is an undeniable strong force shaping and determining the future of the organization. When a practice is being introduced and the organization has been following the practice for some time, old and new participants of the organization will learn and accept the norms and repeating it consistently. The practice eventually will become a part of the organization and employees.

Besides that, organizational culture plays a bigger role to the environment. Due to the norms that were formed in the organization due to the idealization of common experience, organizational culture acted as a social balance between integration and coordination mechanism. Thus, it forms a bond between organization and its environment. This bond could be reflected from the decision of the organization on respect consumer's right, ethical conduct, and protection of the environment. It determines the desired relationship of the organization with its external as well as internal environment.

A research was done by University of Malaya (2012) on organizational culture and innovation among Malaysian Employees both from private and public sector. There is an unexpected finding indicating that there is a weak relationship between organizational culture and innovation. This study portrays there is insignificant relationship among team orientation, capability development, empowerment and customer focus with innovation. Therefore, this result from University of Malaya did not support the earlier studies done by Ashley & Bryan (2009) where they found a positive significant relationship between organizational culture and innovation.

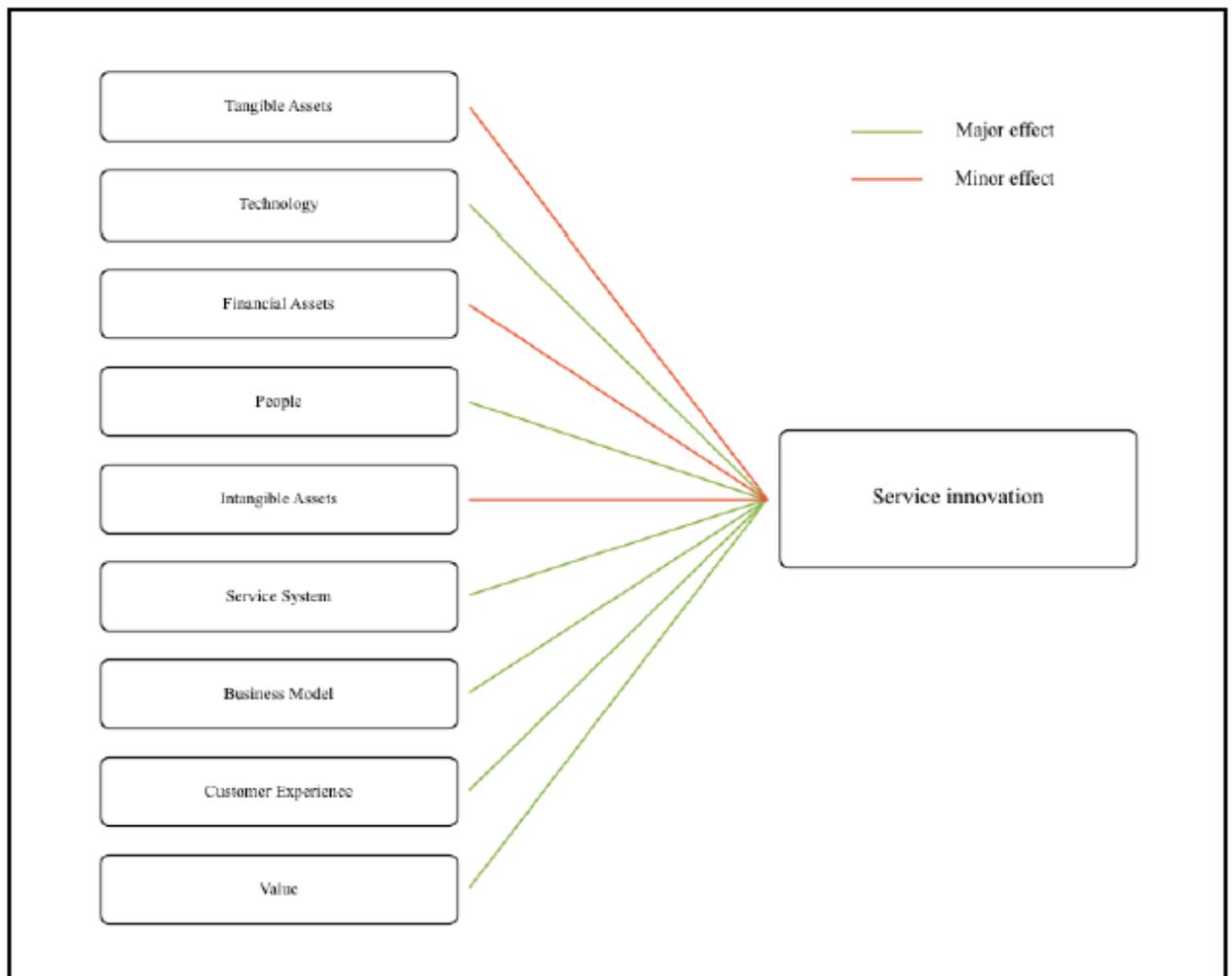
All these findings and research indicated that organizational culture is an important element in determining the innovativeness of an organization. Such

innovation must not lack in a successful business line as it will determine the future and performance of the organization in long run. A good organizational culture, such as ethical values should be embedded in the organization as it brings positive vibes and energy to the organization as well as the environment.

2.2 Review of Relevant Theoretical Models

2.2.1 Model 1

Figure 2.1 Conceptual Model on the reaserach of th factors influencing service innovation in service SMEs



Adapted from: Kenneth M.K. (2013). The Drivers of Service Innovation. *A study of the drivers of service innovation in a startup firm versus an established firm in the Norwegian healthcare sector*. Published by: University of Agder, Faculty of

Economics and Social Sciences, Department of Economics and Business Administration.

The model above shows the drivers of service innovation in SMEs carried out in Norway. Two case studies with total respondents of 209 are included in this study. There are total 9 independent variables which are tangible assets, technology, financial assets, people, intangible assets, service system, business model, customers experience and value. All these independent variable are categorized into 3 levels, through connection of the resources, the management ability to deliver value and the value delivered. Every variables represents a part of a service firm (Furseth & Cuthberston, 2013).

First level: Resources

In the first level which includes tangible and intangible assets, technology, financial assets, and people. Furseth and Cuthberston (2013) mentioned that resources in first level might not be large drivers of service innovation and organizations might have large or small resources. However, excessive resources will not be suitable environment for service innovation.

People and technology availability is considered as more important than the other resources. This is supported by service industries have competitive advantage because of its people and technology. The differences that arise between competing service firms provide opportunities for the firms' continuous innovation. Jong and Vermeulen (2006) stated that managerial focus on innovation is important to create new products and services. This argument was strongly supported by Khan and Manipichetwattana (1989) saying "There is a strong relationship between innovation and proactiveness

of managers with a correlation of 0.78 at the 0.01% level”. From these two studies, it’s clear that people, especially managers are expected to be drivers of service innovation.

Organization that carries out research and development activities to create new technologies tends to promote radical innovation (Lee, 1995). This makes a rational justification that technology will have a major effect on service innovation.

Second level: Management

The second level of service innovation includes the management ability to deliver value with the drivers service system, business model and customer experiences. Skilled managers ensure to have a strong relationship and take full advantage with all these three elements since they know it’s important in innovative processes.

Antonic and Hisrich (2001), argue that service system will contribute as a major innovative capability. To further explain this argument, the way a service firm is organized to deliver its products and services to the customer will impact the firm’s ability to innovate. “Customer orientation advocates a continuous proactive disposition towards meeting the exigencies of the customers. A focus on total customer satisfaction, thereby should lead to a focus on continuous innovation”, (Han, Kim & Srivastva, 1996). They also strengthen the point that successful customer orientation indirectly creates innovative ideas that benefits customers.

Third level: Value

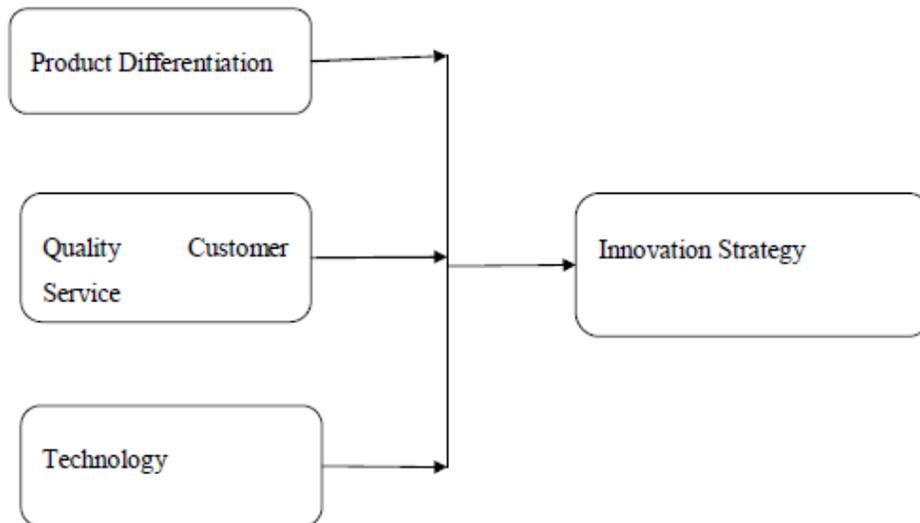
Third level which is also the top level will be the ultimate goal of every service firms which is to create value for all of its stakeholders. Service firms market its service offerings which the objective to create value for owners, suppliers and customers of the firm.

According to Oke (2007), radical product innovation and radical service innovation are closely related to innovation performance. While innovation performance is significantly influence the incremental of innovation in the firms.

This study showed that organization must emphasize on radical and incremental innovation in their daily work to create value. To conclude, value must be created within the organization in order to promote service innovation.

2.2.2 Model 2

Figure 2.2 Conceptual Framework on the relationship between product differentiation, quality customer service, technology and innovation strategy.



Adapted from: Karanja, S.W. (2009). Innovation Strategies Adopted by Insurance Companies in Kenya. Finding out the relationship between product differentiation, quality customer service, technology and innovation strategy.

The purpose of the model shown in this study is to examine the relationship between the product differentiation, quality customer service, technology and innovation strategy. This research was carried out with 43 insurance companies located in Kenya

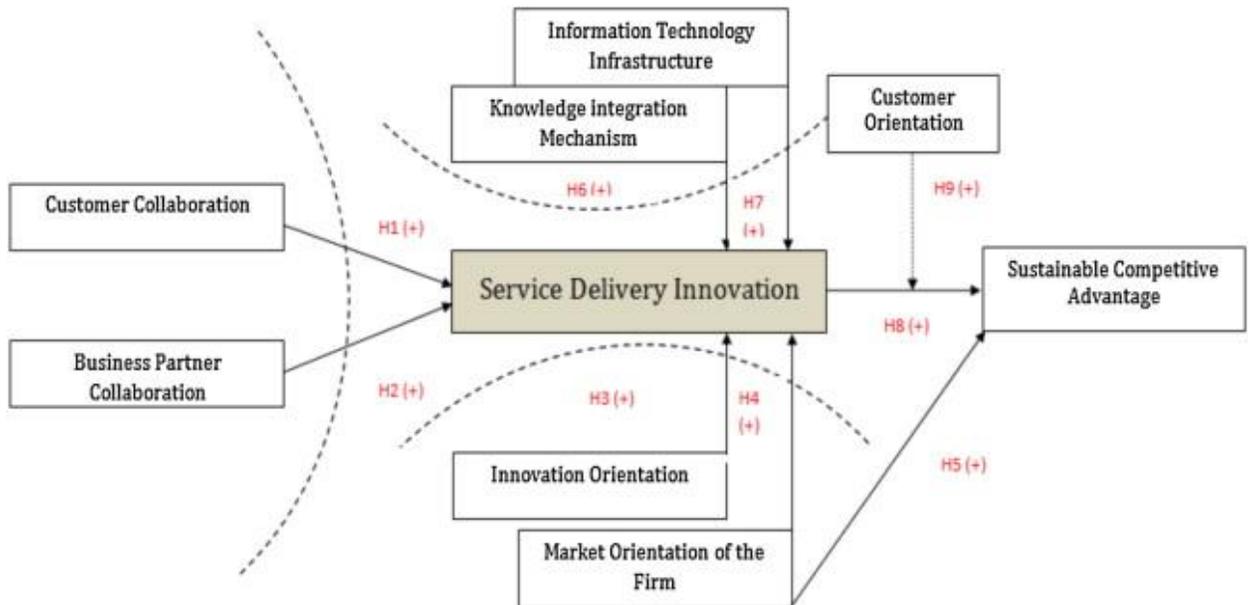
From this study, product differentiation, quality customer service and technology are found that deal a great impact to the improvement of innovation strategy. The researchers have been indicated the development and sustainable innovativeness, creativeness, and organizational learning within a

firm is the fundamental of success for differentiation in term of the strategy implementation. Turban et al, (2002) has defined the customer service as an activities flow designed to improve the customer satisfaction which give a meaning of the actual performance of product or service needed to be outstanding enough to delight the customer expectation. According to Zeithaml et al, (1990), customer satisfaction level and loyalty play a vital role in securing the high money value for the company through quality products and services, which also a success factor for the long term survival within the industry. Therefore, from the views of the researchers, quality customer service can be concluded to have indirect influence toward the company strategy management. Besides, Pennathur (2001) and Hensmans et al, (2001) also pointed out the traditional insurance company, as a service-based company, integrated the information technology strategy along with the business strategy as well as moving forward by adopting the click strategy. It will retain the competitive advantages against their competitor in term of innovation as control over the payment networks.

The result found to be concluded that the product differentiation, quality customer service and technology deal a different level of impact as well as positive influence on the improvement of innovation strategy within the firm.

2.2.3 Model 3

Figure 2.3 Conceptual Framework on the Service Delivery Innovation



Adapted from: Verma, R., & Jayasimha, K. (2014). Service delivery innovation architecture: An empirical study of antecedents and outcomes. *IIMB Management Review*, 26(2), 105-121.

Figure 2.3 above shows the collaborative efforts, technology and organizational resources towards service delivery innovation. The study was carried out in Mexico from 203 financial and information technology service sector professionals. This model is aimed to study the factors which enhance an organization's competitive position. There are three main segments in this model.

First is collaborative effort which includes both customer and business partner. It justified that need for service firm to emphasize customer as it will co-create value to the firm. It views the collaborative processes with customers and business partner are essential to innovation and it will improve product marketability.

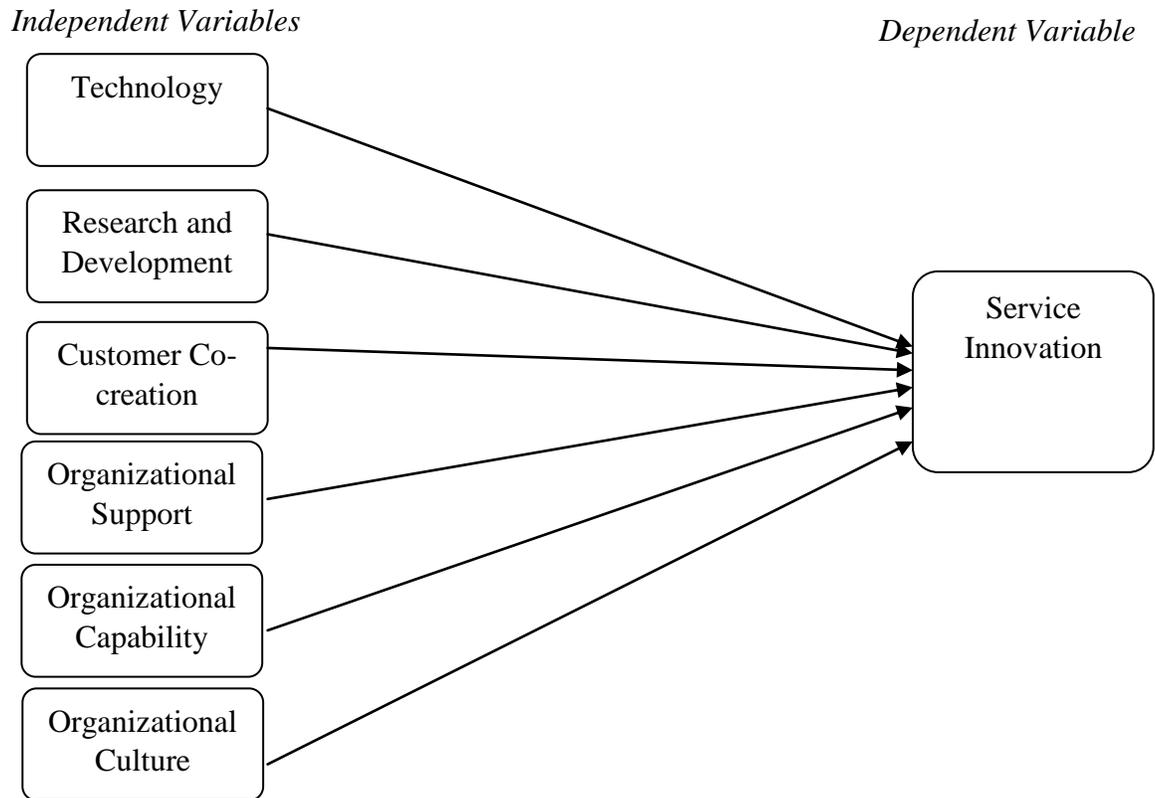
Second segment is technology. It comprises of technological advancement and knowledge integration mechanism. Based on the study, effective use of technological advancement and strong base of knowledge integration mechanism have played a major role in encouraging knowledge sharing and facilitating service innovation.

Last but not least are the organizational resources which market and innovation orientation are stated in. From the study, it indicates that innovation and new product development act as the key contributors to firm performance. Besides, it also helps the company to preserve intangible assets such as new service ideas through innovation orientation. While market orientation or organizational culture creates the superior value for buyers and improve business performance. This orientation also acts as the central element to a successful innovation process.

In short, this research suggests that customer and business co-creation, innovation orientation, market orientation, IT infrastructure and knowledge integration mechanism are the major contributors in service innovation process.

2.3 Proposed Theoretical / Conceptual Framework

Figure 2.4: Proposed Theoretical Framework



Source: Developed from research

Figure 2.4 has depicted the proposed framework for this research. It is formed by six independent variables, which are technology, research and development (R&D), customer co-creation, organizational support, organizational capability and organizational culture to investigate the impact on service innovation.

This research aims to find out how service innovation of insurance companies in Malaysia is affected by business environment factors as mentioned above. Since the study among these relationships in Malaysia is limited, therefore this research may suggest how these business environmental factors becoming significant factor of service innovation in Malaysia insurance industry. Further study and investigation are required to prove this relationship.

2.4 Hypotheses Development

We have identified several crucial independent variables related to our research in theoretical framework. Next, hypotheses are developed from relevant information originated from previous studies' information which have been proved and tested.

2.4.1 Technology and Service Innovation

The new information technology adopted by the firms nowadays proposed a change in all the key activities related with service innovation like supply chain process and customer relationship management (Agarwal & Sambamurthy 2002; Barua & Mukhopadhyay 2000). Some researchers like Corso & Paolucci (2001), Dewett & Jones (2001) and Xu et al. (2005) also agreed on information technology as one of the important component of innovation process. Furthermore, Joglekar and Yassine (2002) have mentioned that adopting information technology may benefits on the both internal operation and external cross-enterprise over the supply chain

processes. This statement have been supported by Jackson (1990) where he stated that adoption of information technology can shorten the delivery times and hence deal a quick respond to the customer's demand. Not only that, it also provided a convenient for the customer to get on track of their delivery services (Tinnilä & Vepsäläinen, 1995). Moreover, Avlonitis et al. (2001) have mentioned that new information technology adoption such as web and mobile services make a positive impact to the service innovation processes as it extrinsically obtained some primary data and customer information to support and improve the marketing strategy after all. Intrinsically, information technology adoption may assisted in the operation and administration efficiency by improving the quality of services with a minimize usage of scarce resources (Karagozolu & Brown, 1993). Besides that, adopting information technology provided numerous opportunities for the service innovation process as patent and copyright serve as intellectual property are difficult to be protected since the boundaries and scopes are too widen to define. Even so, new information technology adoption is vital to grant the organization in a competitive position by innovating new services (Vermeulen & Dankbaar, 2002). Employees are capable to get experience and enhance their skills throughout the past IT applications, like information management and business intelligence, allowing them to improve service quality by assessing the past service innovation projects (Bouman, Vos & Haaker, 2010; Demirhan et al., 2006; Preissl, 1999).

H2: There is a significant relationship between technology and service innovation.

2.4.2 Research and Development (R&D) and Service Innovation

According to Bronwyn (2006), research and development (R&D) is usually referred to the activities undertaken by the organization for the purpose of creating novel and innovating products and services. R&D nowadays is playing a crucial role in the organization to remain competitiveness in the market. It drives to outstanding service innovation process by differentiating the organization among the rivalry. Li & Calantone (1998) and Thonke (2003) mentioned a statement of the more strengthens the organization's R&D, the more innovative of new products and services will be. In addition, the statement above was supported by De Brentani (2001) where he mentioned that there is positive relationship between R&D and innovativeness of new products and services is anticipated. Moreover, Melissa (2008) is further identified R&D investment practiced in service innovation process with a construction of "communication bridge" for customers, suppliers, competitors and complements at global level. R&D investment is being accounted as a factor that influencing the economic growth where the creation of new and innovative products & services deal a great impact to the overall economy (Paul & Charles, 2009).

H3: There is a significant relationship between R&D and service innovation.

2.4.3 Customer Co-creation and Service Innovation

According to a research done in Taiwan, customer co-creation in service innovation is referring to service providers interact with customers in different phases of the development of new service. Besides, sales growth, market share, return on investment, and profitability are believed to be increased when there is high customer engagement taking place, hence co-create the value for the company (Van Doorn, 2010). Therefore, we can conclude that by including customers in the innovation process, it can increase the company innovation level as well as their performance due to their understanding on market's demand. All of the customer co-creations have positive effects and impacts on service innovation (Jimmie & Daniel, 2011; Dahlenader & Piezunka, 2014).

H4: There is a significant relationship between customer engagement and service innovation.

2.4.4 Organizational Support and Service Innovation.

Based on the previous review on organizational support, we can say there is a positive relationship between the organizational support and service innovation. As proposed in the review above, organizational support can be built on social exchange theory. When one offered something, they expect for a return of favor from the other party (Trybou et. al., 2014). Hence, the possibility of innovation could be improved through a proper method of supporting innovation among employees through certain action such as reward system. Members prefer to improve the organization that is perceived

to value their contribution and cared for them as Perceived Organization Support (POS) has a positive impact on organization innovation (Hazril & Aerni, 2016). Kiefer (2005) supported the viewpoint above where he stated that ignorance of employees' cognitive and affective feelings when processing the innovation stage may become one of the factors that lead to organization failure. In contrast, with the presence of organization support, the employees tended to be more creative when performing their jobs and tasks (Shalley et al., 2014). Besides that, it can be concluded the employees are better in overcoming the resistance to change when the organization or top management successfully building trust to organization among employees (Oreg, 2006).

H5 : There is a significant relationship between organizational support and service innovation.

2.4.5 Organizational Capability and Innovation

The data analysis carried out by Sulistyo & Siyamtinah (2016) has severely emphasized the relationship between organizational capability and innovation. An organizational capability consists of marketing capabilities, relational capability and integrative capability. These capabilities will determine on the ability for an organization to carry out innovation and sustain itself in the market. Research carried out by Battor and Battor (2010) concluded on the influences of customer relationship management capability (marketing capability) on innovation while Mucelli and Marinoni (2011) concluded on the success of an organization because of the ability to do relational capital. All these researchers have reached to a common understanding that

organizational capability significantly influence on the ability to be innovative and have an excellent performance. The hypotheses are formed based on these reviews.

H6: There is a significant relationship between organizational capability and service innovation.

2.4.6 Organizational Culture and Service Innovation

Based on previous researcher on Postal Corporation of Kenya (PCK), skills, rewards and recognition are being recognized as the key drivers to implementation of innovation in the insurance company. When innovation took place in an organization, it provides an environment that enabling and motivating condition, encouraging a flexible for innovation adaptation (Yesil & Koska, 2012). In the era of knowledge-based economy, it is crucial for an organization efficiently and consistently uses their skills and knowledge within organization to outstand and survive. Hence, being innovative is much relies on a firm's ability to be creatively utilized and integrated the new knowledge and abilities into the company (Dasayanaka, 2009; Valencia, 2010). Therefore, past researcher has also emphasized the significance of external courses on improving organizational culture such as self-study program, conferences and job rotation in order to enhance the innovative level within the firm (Cole, 2011). They also mentioned when a practice is being introduced and the organization has been following the practice for some time, old and new participants of the organization will learn and accept the norms and repeating it consistently. For instance, O'Riordan and Humphreys (2012) suggested there are many areas of a department needed to be change in term of organizational culture as changing of the organizational culture is always required for innovation practice.

H7 : There is a significant relationship between organizational culture and innovation.

2.5 Conclusion

Independent variables and dependent variable have been clearly explained in this chapter. From the earlier literature reviews and several relevant theoretical frameworks, conceptual framework has been developed and proposed to further investigate the relationship in between the variables.

Chapter 3 : Methodology

3.0 Introduction

The process of collecting data and information for analysis purposes is carried out in Chapter 3 and it is considered as a vital part of this study. Research methodology is used to study the several factors that affect the service innovation in the insurance industry.

3.1 Research Design

There are two types of business research called basic business research and applied business research. Basic business research is a research conducted with an attempt to enhance the general knowledge without solving a specific pragmatic complication. On the contrary, applied business research is a research which works toward a tailored business decision for a specific organization. Applied business research is adopted in this research as we tend to conduct specific types of research to investigate the influences of technology, research and development, customer co-creation, organizational support, organizational capability and organizational culture on service innovation among the insurance industry. Furthermore, applied business research may help the researchers determine the specific cause and effect relationship from any variable in the research study (Zikmund, Babin, Carr & Griffin, 2013).

As stated by Zikmund et al. (2013), qualitative business analysis is a research that enables the researcher to provide explanation of phenomena without relying on numerical measurement to form business objectives. It focuses on disclosing true inner meanings and novel insights. Observation and interpretation are often used in qualitative research as well as used in exploratory research design. On the other hand, quantitative business analysis is a research that delivers research methods through verifiable evaluation which accommodates the use of mathematical measurements and analysis. Quantitative business analysis is relying more on measurement and test and is more often used in descriptive research and causal research design.

In this research, quantitative research method is found to be suitable than qualitative research method to investigate the drives on service innovation. The reason behind is we are to analyze the hypothesis in accordance to having a basic and grounded theory to support our hypothesis and our questionnaire also consists of fixed alternative questions. Moreover, quantitative criterion measurement is more reliable and valid as compared to qualitative research method.

3.2 Data Collection Methods

In a research, the process of collecting the data is the most vital process. However, there are two classifications under the method of collecting data which are the primary and secondary data (Lim & Ting, 2013). The data collection method is severely influential to the results of a research analysis as well as it will also help the researchers on the road to an excellent and successful research project. Both the primary and secondary data are derived to be used in data collection and concluding a hypothesis for this research analysis.

3.2.1 Primary Data

Primary data collection is about collecting fresh and first hand information related to the research topic (Khan, 2011). Primary Data are the information that gathered specifically from direct involvement by the researchers in order to do well for the research project, which means that the original data is collected in the first hand source (Grimsley, n.d.). Interviews, questionnaires and surveys are the examples of primary data that researchers will collect for the research projects. Questionnaires are used to collect necessary data from the respondents. Questionnaire is a famous and essential tool in obtaining data on open knowledge, at the same time questionnaire can give significant information which is useful for the research project. Researchers will gain the information of the respondents' social attributes, attitudes to issues and behavior through the observation by questionnaire (Bird, 2009). It is also a standout amongst the most well-known and institutionalized strategies that a large portion of the researchers will use to gather the information with no inclination.

This strategy is received in our research. By utilizing questionnaire, it enables us to gather direct data about the respondents. Other than that, questionnaire technique likewise encourages in efficient to gather the important information for the exploration extend (Lietz, 2010). We used questionnaire as our primary data in the research project as it is very cost effective and time convenience. By using questionnaires as the primary data, we are able to collect the results from many respondents; it can even able to be collect by sending emails or link. The result of primary data is up to date and the researcher can get a more realistic view about what is the current trend that can be accepted by the respondents.

3.2.2 Secondary Data

Unlike primary data, secondary data is the data originally collected for a different purpose and reused for another research question (Hox & Boeije, 2005). This is an adaptable approach. Besides, it can be used in several ways, it is likewise an exact exercise with procedural and evaluative strides, similarly as there are in gathering and assessing essential information (Johnston, 2014). The secondary data is very affordable and can be easy to get it. It gives an idea to the researchers that in which area he/she can focus or get some knowledge to be use in the research project. However, the reliability and the accuracy of the data need to be confirmed as the data gathered by the researchers may not be proven; so, the identification process of the database should be done before using it.

The usual sources of the secondary data are journals, books, newspaper, diaries, magazines and film. In our research project, we get the journals from the web as our secondary data sources. We had fully utilized the Internet web crawler; we searched for the online journals from the web, for example, Google to acquire the information in our research. Beside of Google, we also utilize the Universiti Tunku Abdul Rahman (UTAR) Library online database in order to get more information and previous studies. It is very useful as we can get a lot of journals that we can study and get ideas for the research project.

3.3 Sampling Design

Sampling design that involves in research analysis are population of the study, location sampling, sampling frame, sampling elements, sampling technique and sampling size.

3.3.1 Population of Study

The initial step of sampling design is to define target population. Based on the statement by Sekaran and Bougie (2013), target population refers to a classified group of people whom researchers are keen to study in their research analysis. This research is about the influence of customer co-creation, research and development, organizational support, organizational capability and organizational culture on service innovation among insurance industry. So, the target populations for this study are the people engaged in the insurance industry based in Malaysia which are 29,629 individuals as shown in the table below (Table3.1).

Table 3.1: Statistic for Financial Services in Malaysia as at 2015

Jadual 1.2: Perangkaan utama perkhidmatan kewangan mengikut aktiviti, 2015
Table 1.2: Principal statistics of financial services by activities, 2015

Aktiviti Activities	Bilangan pertubuhan Number of establishments	Nilai output kasar Value of gross output (RM '000)	Nilai input perantara Value of intermediate input (RM '000)	Nilai ditambah Value added (RM '000)	Bilangan pekerja pada bulan Disember atau pada tempoh gaji akhir Number of persons engaged during December or the last pay period	Gaji & upah yang dibayar Salaries & wages paid (RM '000)	Nilai harta tetap yang dimiliki pada akhir tahun Value of fixed assets owned as at the end of the year (RM '000)
Jumlah/ Total	15,945	122,403,773	44,833,070	77,570,703	319,633	17,311,843	245,588,021
Aktiviti perantaraan kewangan Monetary intermediation activities	2,257	61,876,309	16,347,532	45,528,777	146,837	9,729,254	11,972,141
Aktiviti perkhidmatan kewangan lain dan aktiviti sokongan kepada perkhidmatan kewangan Other financial service activities and activities auxiliary to financial services	13,528	35,928,728	20,237,391	15,691,337	139,858	5,436,284	228,287,873
Aktiviti insurans/takaful, insurans/takaful semula dan tabungan pencen & hemat Insurance/takaful, reinsurance/tetakaful and pension & provident funding activities	92	24,026,618	8,085,628	15,940,990	29,629	1,977,888	5,242,735
Aktiviti sokongan kepada insurans/takaful dan tabungan pencen Activities auxiliary to insurance/takaful and pension funding	68	572,118	162,519	409,599	3,309	168,417	85,272

Source: Department of Statistics Malaysia, 2017

3.3.2 Sampling Location and Sampling Frame

Sampling frame here refers to a list of all the elements in a population from which a representative sample is derived (Bryman & Bell, 2007). Nevertheless, there might be complications such as inaccuracy that current documents might encounter when selecting sample size from population. The sampling frame therefore might be inaccurate, but researchers somehow do not often pay attention to this problem due to tiny threshold between the target population and sampling frame.

The sampling location used in this study is located in Perak, Malaysia. It is hard to set sampling location in every state of Malaysia insurance companies due to time constraint and limited costs. So, we only focus on one state to represent whole Malaysia insurance industry. In this study, we decide to hand out our self-designed questionnaire to some insurance companies such as Allianz General, Ing Insurance and Prudential Assurance located in Perak. Our questionnaire is circulated among the employees who are from various departments and positional statuses in the insurance company; understanding that employees at different position will have different reaction on the questions.

3.3.3 Sampling Element

The sampling elements based on this study emphasizes on the formal employees who are working at the insurance company. However, the employees must (1) binding a legal employment contract with the insurance

company or (2) insurance agents. The reason of including the former employees like supervisor, executives, managers and chief executive officer (CEO) is because we are focusing and seeking respond from those employees who familiar with the insurance company since they are working in the organization. Yet the insurance agents are the first line employees that can get the direct feedbacks from customers. Apart from that, the questionnaire is also given out in accordance to the employees' gender, age, ethnicity, educational level.

3.3.4 Sampling Technique

Probability sampling refers to each individual in the population who has the equitable possibility of being selected, whereas non-probability sampling provide a random chances to all individuals being chosen (Sekaran & Bougie, 2013).

Convenience sampling under the category of non-probability sampling is adopted in this study. It is also known as availability sampling which relies on data collection from the sampling group whom are conveniently available to involve in study. Besides, convenience sampling is often used in the research due to its speed and efficiency in getting some basic information.

3.3.5 Sampling Size

Table 3.2: Sample Size for a Given Population Size

Population	Sample
20000	377
30000	379
40000	380
50000	381

Source: Krejcie, R.V., & Morgan, D.W. (1970).

As previously mentioned, the total amount of formal employees worked in the insurance industry is 29,629 peoples. As refer to the Table 3.2, Krejcie and Morgan (1970) had simplified the size decision by providing a sample size table showed that 384 respondents are required in this research. Hence, we need to distribute 384 questionnaires over 29,629 target population. Since there is a possibility to deal with non responses bias within a quantitative research design as according to Barlett, Kotrlik and Higgins (2001), total 400 sets will be distributed to avoid some of the respondents decline to respond to the survey.

3.4 Research Instrument

Questionnaires acted as an tool for primary data collection in this research. Questionnaires have to be designed in proper way and prevent complex and misleading questions. Simple direct questions are hence practiced while conducting this survey. A well-designed questionnaire enables us to receive relevant result from respondents which also help to achieve research objectives and provide accurate information directly at the mean time.

Fixed-alternative questionnaire or closed-ended question is used as our data collection method where respondents will choose the one closest to their own opinion from the multi-choice answer given. This method can save respondents time to answer and easier to compute the result by tabulating the result

In Section A, 9 questions regarding respondent's demographic information of age, educational level, marital status, gender, service years in the company, service years in the insurance industry, position and range of income will be asked.

Likert Scale of 5 points are used to measure respondent answers which ranged from "strongly agree, agree, neutral, disagree to strongly disagree" in both Section B and C. Total of six independent variables are used to rule out the factors affecting service innovation in insurance industry as mentioned in Section B. The factors comprise of technology, research and development, customer co-creation, organizational support, organizational capability and organizational culture. For Section C, it consists of six questions to measure the level of service innovation in the company.

3.4.1 Pilot Study

We have distributed a total of 30 sets of questionnaire to the respondents to ensure the reliability of the questionnaire before the running the full test. These questionnaires are distributed randomly to the respondents at insurance companies located in Perak area such as Prudential Assurance, Ing Insurance and Allianz General. These 30 sets of questionnaires were then collected back from the respondents and tested with Statistical Analysis System (SAS) software to test for the reliability. When the alpha value is higher than 0.60, the variable is considered as a good reliability. From the pilot test, all of the variables are more than 0.60 had justified that the reliability test's result on this pilot test is good and reliable. The result is shown as below:

Table 3.3: Reliability Analysis Results (Pilot Test)

Variable	Dimension	Cronbach's Alpha Value
1 st independent variable	Technology	0.8041
2 nd independent variable	Research and Development	0.7863
3 rd independent variable	Customer Co-creation	0.8541
4 th independent variable	Organizational Support	0.9707
5 th independent variable	Organizational Capability	0.8204
6 th independent variable	Organizational Culture	0.8017
dependent variable	Service Innovation	0.7911

Source: Developed for the research

3.5 Construct Measurement

Measurement is describing some objects of a phenomenon by conveying number in valid and reliable way as according to Zikmund et al. (2013). The number tells the information of the objects. In order to provide accurate description, the rule must be implied when assigning number to an observation. It consists of nominal scale, ordinal scale, interval scale and ratio scale. Scale measurement gives a mean for researcher to determine the mathematical comparison among the variables.

Nominal scale can be described as a qualitative scale that gives basic and general information of the objects or individuals (Sekaran & Bougie, 2013). Researcher can assign the answer into certain categories or groups through nominal scale. It is simple and convenient category label without intrinsic value. An example of a question with nominal scale that can be found in our questionnaire is gender.

Figure 3.1: Nominal Scale's Example

1. Please indicate your gender:
- Male Female

Source: Developed from research

Ordinal scale is a qualitative scale which involved the ranking scale measurement to distinguish categories into some preference (Sekaran & Bougie, 2013). It provides better information than nominal scale. Educational level is one of the questions that using ordinal scale.

Figure 3.2: Ordinal Scale's Example

5. Highest Educational Level:

- | | |
|---------------------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> SPM/ O Level | <input type="checkbox"/> A Level/ STPM/ Foundation |
| <input type="checkbox"/> College Certificate/ Diploma | <input type="checkbox"/> Bachelor's Degree |
| <input type="checkbox"/> Master's Degree | <input type="checkbox"/> Doctorate Degree |
| <input type="checkbox"/> Others (Please Specify): _____ | |

Source: Developed from research

There are two separate sections in our questionnaire. Section A is respondent's demographic profile which includes the details in of marital status, gender, race, educational level, age, income range and service year. In section A, both Nominal scale and Ordinal scale are used in the question setting.

Interval scale is a quantitative value which comprises of both nominal and ordinal scale but does not clearly represent some conditions and an erratic origin. There is a method named Likert scale that used to identify the degree of respondents agreeableness with the statements. This method is adopted to study the influence of independent variable on dependent variable in this research. Likert scales are easily constructed and produce good reliability. Respondents will find it easy to read and understand due to the simplicity of it. Five-point scale is given to respondents; the range of descriptions is shown as follow:

Figure 3.3: Interval Scale’s Example

No	Technology	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My company frequently improves internal processes such as speed, reliability and information management.	1	2	3	4	5

Source: Developed from research

3.6 Data Processing

Data analysis played a vital role to ensure the quality of accuracy of data after the result of questionnaire collect back from respondents. There are few steps to follow to analyze the collected data.

First step is data checking. It helps to locate any missing or omission of answer which will make the reliability test result become not reliable. For instant, we make sure that 30 sets of questionnaire distributed are all collected back to make sure the measurements made are reliable and consistent for reliability test.

The following step is data editing. All questionnaires will be reviewed to check if there are any omissions, consistency and legibility. Adjustment is made when there is any missing or defect answer. However, the researcher needs to remove the invalid questionnaire if too many questions did not fill up.

The third step is data coding. This is a process which assigns the number to the participants' response before key into the database. It will then continue done by SAS software to analyze data once the responses has been tabulated and catalogued into the database.

Final step in data processing is data transcribing where all the collected data are converted into coding while entering into computer software data, SAS Enterprise Guide 7.1. Furthermore, editing and amendment of data of inconsistent response is necessary to get the correct and accurate information.

3.7 Data Analysis

3.7.1 Descriptive Analysis

Descriptive statistics minded out a picture for researcher about a way to summarize responses obtained from large pool of target respondents in a simple statistics. Pie chart and frequency bar chart are used in demographic profiles obtained from the responses as a summary. According to Zikmund et al (2013), distinctive feature of the adopters and non-adopter, various independent variables in this study can be understand through this analysis.

3.7.2 Scale Measurement – Reliability Test

Reliability provided a meaning of the consistency of instruments measure of the research which indicates to what range the questionnaire is free from bias. Reliable data is crucial for answering research questions. Thus, Cronbach's alpha test is the widely used method which usually functioned as evaluation of the reliability for each dimension. Cronbach's alpha would be almost get to 1 when the internal consistency reliability is greater (Sekaran,2003).

Table 3.4 Cronbach's Alpha Range

Level of Reliability	Range of Coefficient Alpha, α
Poor	<0.60
Fair	0.60 --- 0.70
Good	0.70 --- 0.80
Very Good	0.80 --- 0.95

Source: Sekaran, U., & Bougie, J. (2016). *Research methods for business*. Chichester: Wiley.

As illustrated in the table above, the coefficient alpha ranges determine the level of reliability. A poor reliability will be resulted when the coefficient alpha value is less than 0.60; coefficient alpha range of 0.60 - 0.70 is considered as fair reliability and range of 0.70 - 0.80 for good reliability. Lastly, range of 0.80 - 0.95 resulted greater reliability compared to previous levels.

A pilot test of 30 insurance industry employees has been done to evaluate the reliability of all constructs which adopted from prior researchers. The results are summarized as below:

Table 3.5: Reliability Test Result for Pilot Study

Construct	Items	Cronbach's Alpha Value	Alpha Coefficient Range	Strength of Association
Technology	6	0.8041	> 0.8	Very Good
Research & Development	6	0.7863	> 0.7	Good
Customer Co-creation	6	0.8541	> 0.8	Very Good
Organizational Support	6	0.9707	> 0.9	Very Good
Organizational Capability	6	0.8204	> 0.8	Very Good
Organizational Culture	6	0.8017	> 0.8	Very Good
Service innovation	6	0.7911	> 0.7	Good

Source: Developed from research

As each variable's reliability result is above 0.6, this shows that the questionnaire is credible.

3.7.3 Inferential Analysis

Five-Point likert scale which implement to our design of questionnaire functioned as a rating scale regards the respondents' degree of agree or

disagree with the statement. It is an interval scale that used to investigate the relationship among the variables. The variables in our research are metric which allow us to measure the items differences in sizes.

3.7.3.1 Pearson Correlation Coefficient

H1: Business environmental factors significantly explain the variance in service innovation.

H2: There is significant relationship between technology and service innovation.

H3: There is significant relationship between research and development and service innovation.

H4: There is significant relationship between customer co-creation and service innovation.

H5: There is significant relationship between organizational structure and service innovation.

H6: There is significant relationship between organizational capability and service innovation.

H7: There is significant relationship between organizational culture and service innovation.

The association between two continuous variables is measured using Pearson's correlation coefficient. It shows the orientation, intensity and significance of the relationship of the bivariate relationship among all the variables. The correlation coefficient is measured by the range

from -1.0 and +0.1. The variables are perfectly negative correlated if the value of r is fall under -1.0, vice versa. When r equal to 0, it indicates that the variables has no correlation.

Table 3.6: Rules of Thumb of Pearson Correlation Coefficient

Pearson Coefficient Range	Strength of Association
± 0.91 --- ± 1.00	very strong
± 0.71 --- ± 0.90	high
± 0.41 --- ± 0.70	moderate
± 0.21 --- ± 0.40	small but definite relationship
± 0.00 --- ± 0.20	slight, almost negligible

Source: Hair, J. (2008). *Research methods for business*. Chichester: Wiley

3.7.3.2 Multiple Regression Analysis

Multiple regression analysis is an analysis reviewing on the variance between one dependent variable with multiple independent variables (Sekaran & Bougie, 2013). It is also known as R^2 . It gives a way of explaining the variance in the dependent variable. This analysis allows one dependent variable with few independents to be examined at the mean time. The multiple regression analysis equation is shown as below:

$$Y_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_nX_n + e_i$$

3.8 Conclusion

The research methodology used had outlined in chapter 3 for conducting the research. Furthermore, the design of this research and the way to collect the data has been justified. A pilot study has been done to determine to reliability of the research, hence sampling designs, research instruments and construct measurement have been determined for the questionnaire setting. Then, the way to data processing and data analysis has been listed with details and interpreted throughout this chapter. Therefore, the finding of questionnaire's result of our research will be disclosed in the next chapter.

CHAPTER 4: RESEARCH RESULTS

4.0 Introduction

Research findings related to previous chapter will be further discussed. Descriptive analysis analyzes and shows the demographic profile of respondents, including the method of central tendencies constructed by graph and pie chart. Then, scale measurement will discuss about the reliability test. Lastly in the inferential analysis, the results of the hypothesis are given and be discussed.

4.1 Descriptive Analysis

Descriptive analysis will be used to interpret the quantitative data. Charts and tables are added as well to ease readers to understand. There are a total number of 400 questionnaire have been distributed in our research survey, total 384 respondents are needed for the full test. However, we removed 31 respondents' data from the final data analysis due to their response are considered as outliers: some with incomplete responses and some with all 'strongly disagree' answer. Therefore, all the results and data generated for the following sections will base on the response from the remaining 369 respondents.

4.1.1 Respondent Demographic Profile

A total of 9 questions are included in Section A (demographic profile) of the research survey. The details of the questions are about the marital status, age, race, education level, gender, duration of working in both company and insurance industry, current position level in the company and lastly the monthly income range.

The analysis of the following demographic characteristics for this section is based on the frequency analysis.

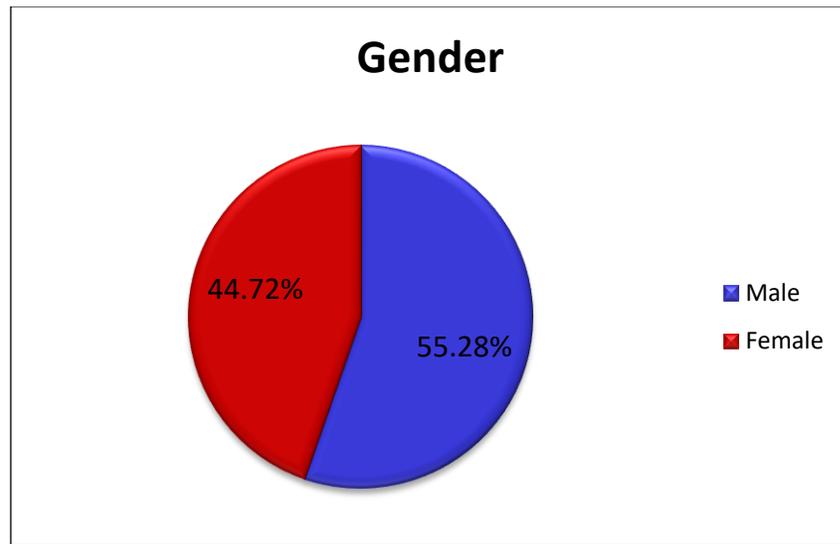
4.1.1.1 Gender

Table 4.1: Gender

	Frequency	Percentage (%)	Cumulative Percentage (%)
Male	204	55.28	55.28
Female	165	44.72	100
Total	369	100.00	

Source: Developed for the research

Figure 4.1: Gender (Pie Chart)



Source: Developed for the research

As shown in Table 4.1 and Figure 4.1, a total of 204 respondents out of 369 respondents are male, while the remaining 165 respondents are female. Thus, the percentages are 55% for male respondents, 45% for female respondents. Most of the respondents that participated in our research study are male respondents.

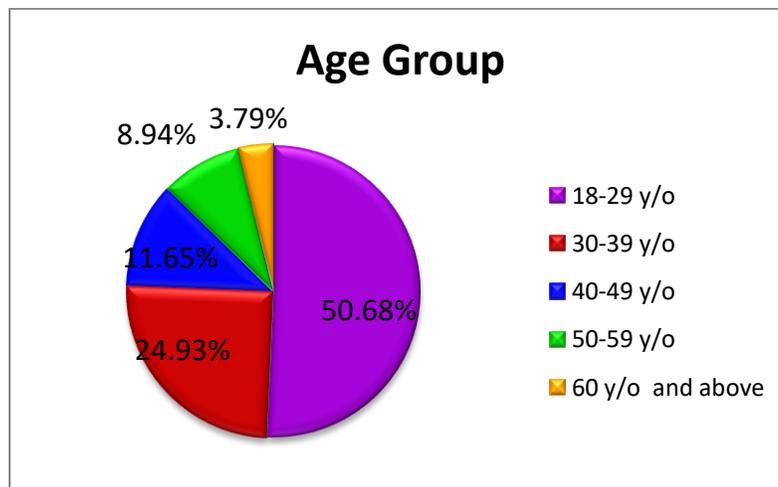
4.1.1.2 Age Group

Table 4.2: Age Group

Age	Frequency	Percentage (%)	Cumulative Percentage (%)
18-29	187	50.68	50.68
30-39	92	24.93	75.61
40-49	43	11.65	87.26
50-59	33	8.94	96.20
60 and above	14	3.79	100.00

Source: Developed for the research

Figure 4.2: Age Group (Pie Chart)



Source: Developed for the research.

Table 4.2 and Figure 4.2 illustrate the respondents' age range. The age group is divided into 5 categories: 18-29 years old, 30-39 years old, 40-49 years old, 50-59 years old and 60 or above. The majority of the

respondents who participated in this research came from 18-29 years old group, which are 187 respondents (50.68%). The following are 30-39 years old group, 92 respondents (24.93%); 40-49 years old group, 43 respondents (11.65%) and lastly 50-59 years old group, 14 respondents (3.79%)

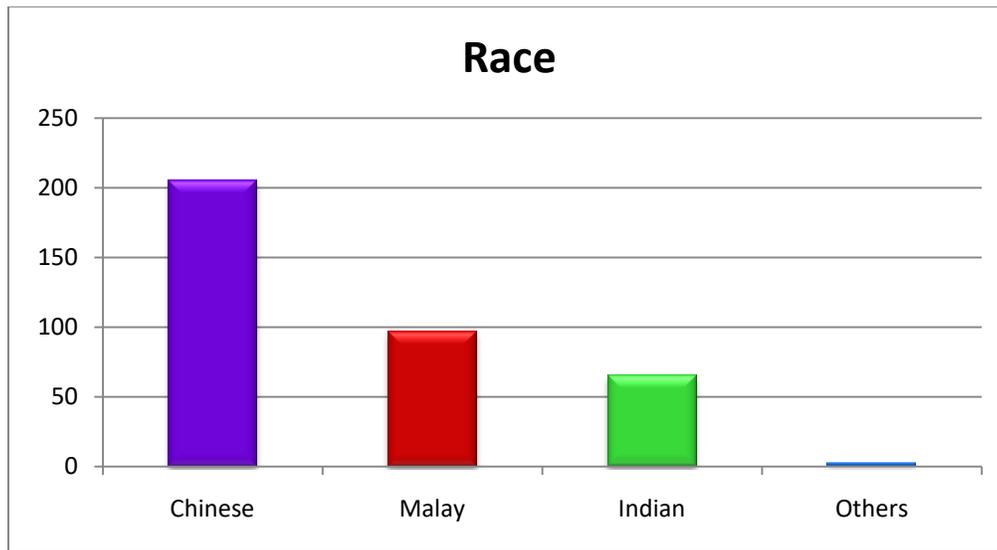
4.1.1.3 Race

Table 4.3: Race

Race	Frequency	Percentage (%)	Cumulative Percentage (%)
Chinese	205	55.56	46.34
Malay	97	26.29	81.85
Indian	65	17.61	99.46
Others	2	0.54	100.00
Total	369	100.00	

Source: Developed for the research.

Figure 4.3 : Race (Bar Chart)



Source: Developed for the research.

Table 4.3 and Figure 4.3 indicate that most of the respondents are Chinese, consisting of 205 respondents, standing at 55.56%. There are 26.29% of Malay respondents, which are 97 out of 369 respondents and 17.61% Indian respondents (65 respondents). There are also two respondents who are from different races, Kadazan and Sikh; they are equivalent to 0.54% in this research study.

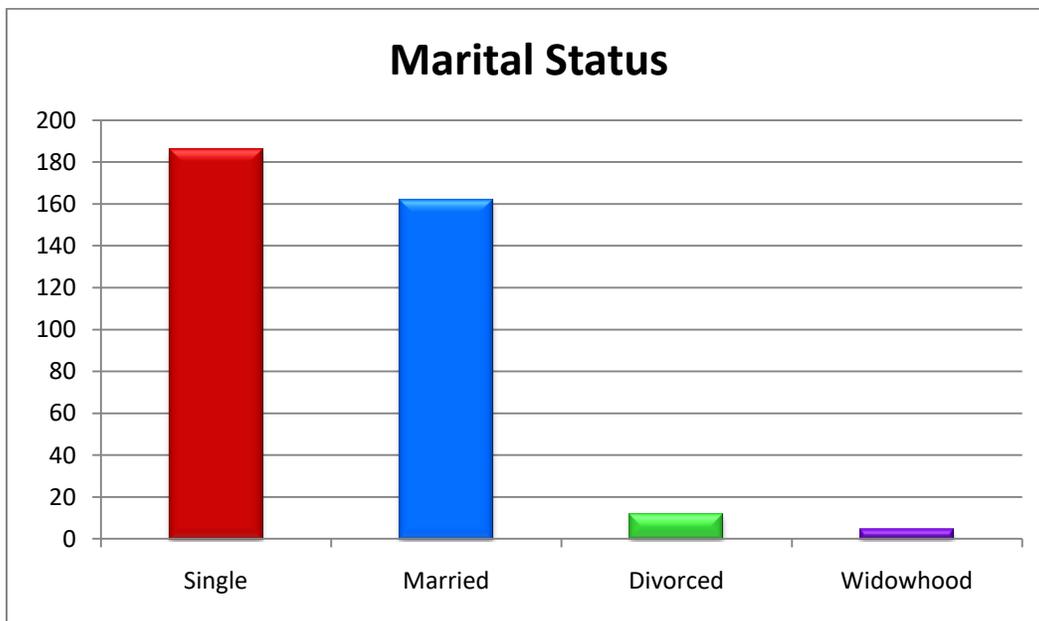
4.1.1.4 Marital Status

Table 4.4: Marital Status

Marital Status	Frequency	Percentage (%)	Cumulative Percentage (%)
Single	186	50.41	50.41
Married	162	43.90	94.31
Divorced	12	3.25	97.56
Widowhood	9	2.44	100.00
Total	369	100.00	

Source: Developed for the research.

Figure 4.4: Marital Status (Bar Chart)



Source: Developed for the research.

The Table and Figure above indicated that 186 out of 369 respondents (50.41%) are currently single, while 162 respondents (43.90%) are married. The remaining 12 respondents (3.25%) are divorced and there are 9 respondents are widowhood currently, with 2.44%.

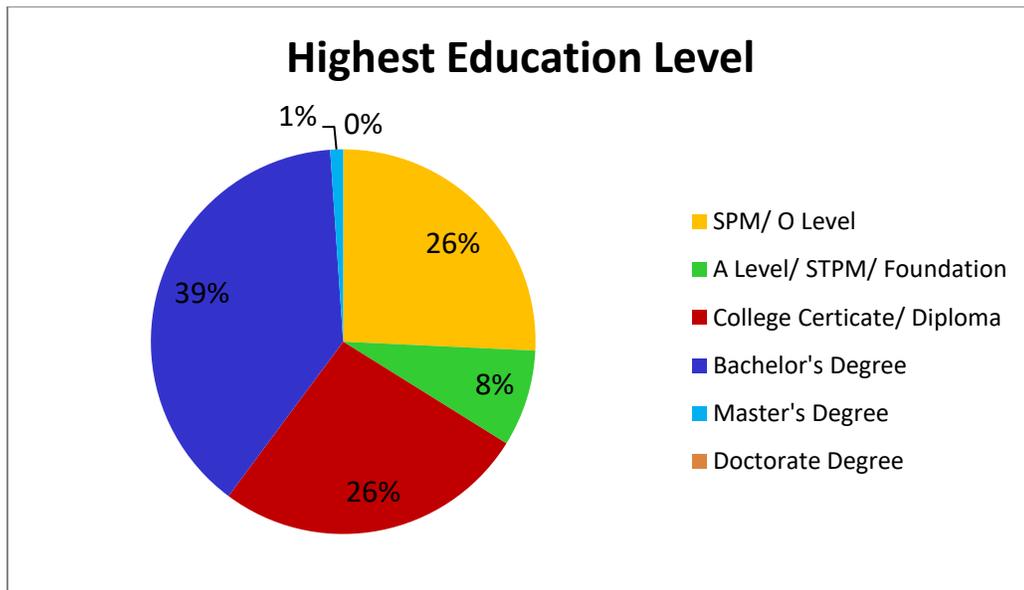
4.1.1.5 Highest Education Level

Table 4.5: Highest Education Level

Highest Education Level	Frequency	Percentage (%)	Cumulative Percentage (%)
SPM/ O Level	95	25.75	25.75
A Level/ STPM/ Foundation	30	8.13	33.88
College Certificate/ Diploma	97	26.29	60.17
Bachelor's Degree	143	38.75	98.92
Master's Degree	4	1.08	100.00
Doctorate Degree	-	-	100.00
Total	369	100.00	

Source: Developed for the research.

Figure 4.5: Highest Education Level (Pie Chart)



Source: Developed for the research.

Table 4.5 and Figure 4.5 indicate the education level of the respondents. The highest number of respondents of education level is Bachelor’s Degree, which consists of 143 out of 369 respondents with 38.75%. Then follow by SPM/ O Level consists of 95 respondents with 25.75%. The numbers of respondents that have college certificate or diploma are 97 respondents with 26.29%. Respondents who owned an A Level/ STPM/ Foundation have a total number of 30 respondents with 8.13%; 1.08% of respondents are qualified as Master’s Degree, which consists of only 4 respondents. There are zero number of respondents who participated in this research study is qualified as Doctorate Degree.

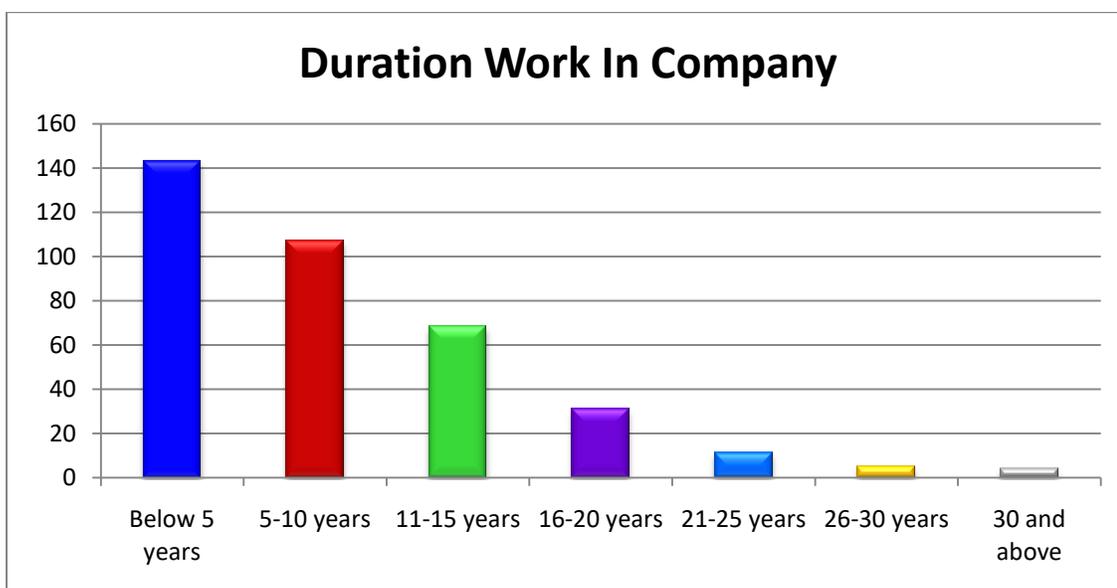
4.1.1.6 Duration Work in Company

Table 4.6 Duration Work in Company

Work In Company (Years)	Frequency	Percentage (%)	Cumulative Percentage (%)
Below 5	143	38.75	38.75
5 – 10	107	29.00	67.75
11 – 15	68	18.43	86.18
16 – 20	31	8.40	94.58
21 – 25	11	2.98	97.56
26 – 30	5	1.36	98.92
30 and above	4	1.08	100.00
Total	369	100.00	

Source: Developed for the research.

Figure 4.6: Duration Work in Company (Bar Chart)



Source: Developed for the research.

In Table 4.6 and Figure 4.6, it shows the duration of the respondents work in their company. Most of the respondents work in their company for below 5 years, which consists of 143 respondents with 38.75%. 107 respondents (29.00%) had been working in their company for 5 – 10 years, 68 out of 369 respondents work for 11 – 15 years in their company with 18.43%. Then, 8.40% which is 31 respondents had work for 16 – 20 years in the company. 11 respondents (2.98%) had work for 21-25 years in the company; 5 respondents (1.36%) had work for 26-30 years in the company. Lastly, 30 years and above is the lowest range of duration work in company which only consists of 4 respondents with 1.08%

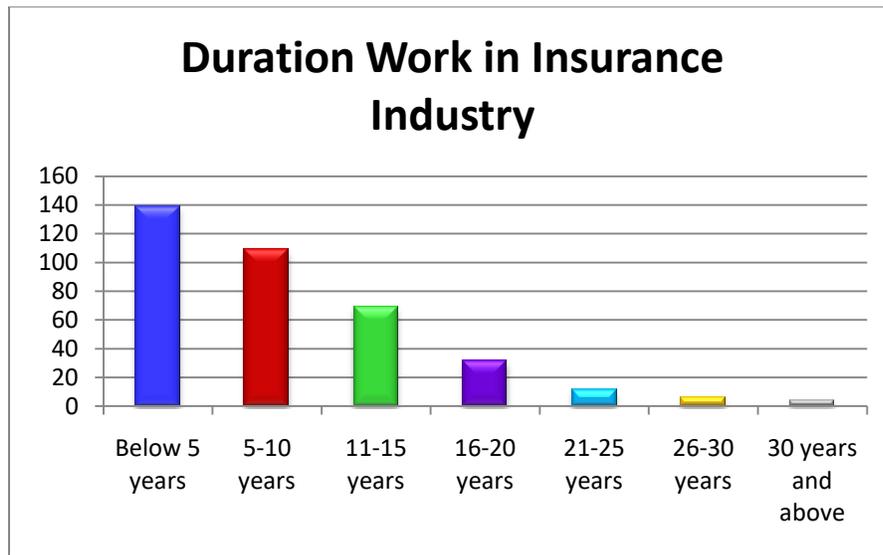
4.1.1.7 Duration Work in Insurance Industry

Table 4.7: Duration Work in Insurance Industry

Work in Insurance Industry (Years)	Frequency	Percentage (%)	Cumulative Percentage (%)
Below 5	139	37.67	37.67
5 – 10	109	29.54	67.21
11 – 15	69	18.70	85.91
16 – 20	31	8.40	94.31
21 – 25	11	2.98	97.29
26 – 30	6	1.63	98.92
30 and above	4	1.08	100.00
Total	369	100.00	

Source: Developed for the research.

Figure 4.7: Duration Work in Insurance Industry (Bar Chart)



Source: Developed for the research.

Table 4.7 and Figure 4.7 show the duration of respondents work in insurance industry. 139 out of 369 respondents work in insurance industry for below 5 years, with 37.67%; 109 respondents work between the range of 5 – 10 years, with 29.54%. Then, 69 respondents work for 11-15 years in insurance industry, with 18.70%. 8.40% of the total number of respondents involve in insurance industry for 16-20 years, which is 31 respondents. 11 respondents or 2.98% of the total number had work in insurance industry for 21-25 years; 6 respondents (1.63%) of respondents had work in insurance industry for 26-30 years. Lastly, 4 respondents or 1.08% of the respondents from this research study had involve in insurance industry for 30 years and above.

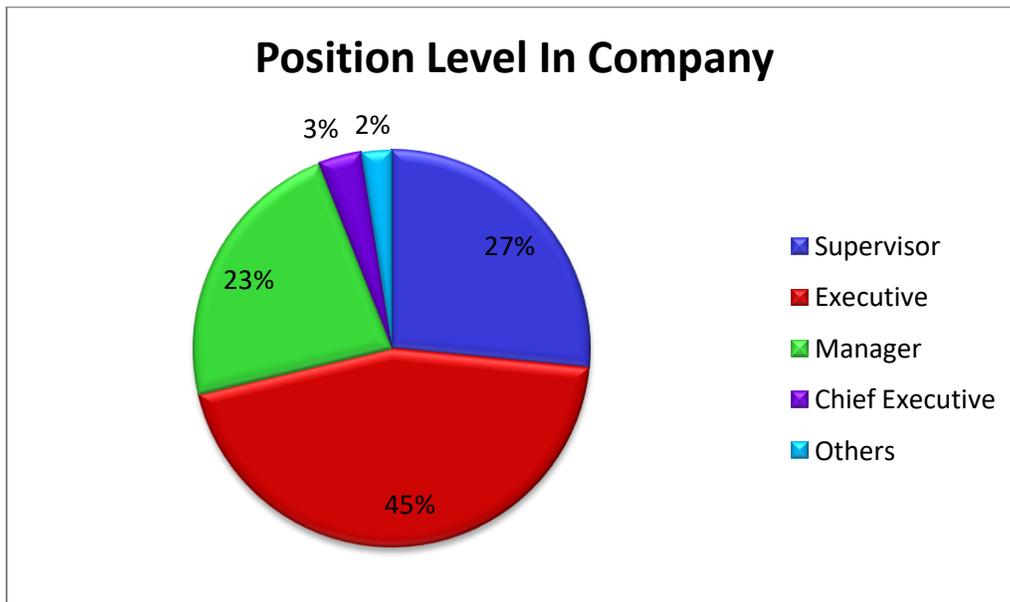
4.1.1.8 Position Level in Company

Table 4.8: Position Level in Company

Position Level	Frequency	Percentage (%)	Cumulative Percentage (%)
Supervisor	98	26.56	26.56
Executive	165	44.72	71.28
Manager	84	22.76	94.04
Chief Executive	13	3.52	97.56
Others	9	2.44	100.00
Total	369	100.00	

Source: Developed for the research

Figure 4.8: Position Level in Company (Pie Chart)



Source: Developed for the research.

Table 4.8 and Figure 4.8 above shows the data of the respondent's position level in the company. 98 out of 369 respondents (26.56%) are at supervisor level, 165 respondents (44.72%) are at executive level, 84 respondents (22.76%) are at manager level and 13 respondents (3.52%) are at chief executive level. There are 9 respondents (2.44%) are from others position level, which is agent level. Most of them work as agent in insurance company.

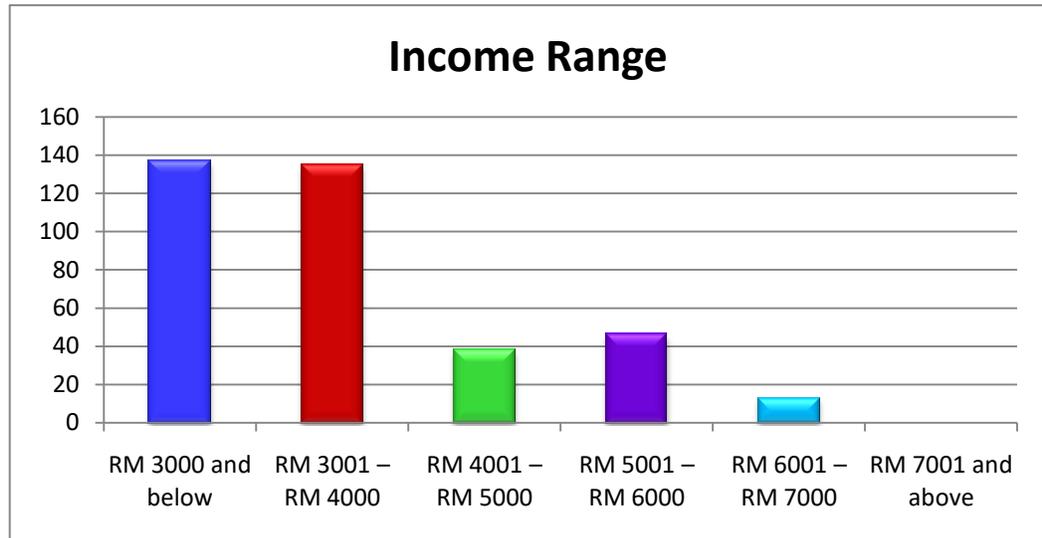
4.1.1.9 Income Range

Table 4.9: Income Range

Income Range	Frequency	Percentage (%)	Cumulative Percentage (%)
RM 3000 and below	137	37.13	37.13
RM 3001 – RM 4000	135	36.59	73.72
RM 4001 – RM 5000	38	10.30	84.02
RM 5001 – RM 6000	46	12.47	96.49
RM 6001 – RM 7000	13	3.51	100.00
RM 7001 and above	0	0	100.00
Total	369	100.00	

Source: Developed for the research.

Figure 4.9: Income Range (Bar Chart)



Source: Developed for the research.

Table 4.9 and Figure 4.9 show the income range of the respondents in this research study. The common income range is below RM3000, which include 137 respondents (37.13%). It is then followed by the income range between RM 3001 – RM4000, which are 135 respondents (36.59%), just a slightly different with the common income range. There are 38 respondents earned between RM4001 – RM 5000 (10.30%), 46 respondents (12.47%) earned between RM 5001 – RM 6000. The remaining respondents, 13 respondents earned the highest income range, which is RM 6001 – RM 7000, with 3.52%. There are no respondents that earned at the income range RM 7001 and above.

4.1.2 Central Tendencies Measurement of Constructs

4.1.2.1 Technology

Table 4.10: The Central Tendencies Measurement of Constructs: Technology

No	Technology	Mean	Standard Deviation	Rank
T1	My company frequently improves internal processes such as speed, reliability and information management.	3.9837398	0.8564056	1
T2	My company allocates resources for investments in latest technologies and future forecasted technological changes.	3.7018970	0.9429496	3
T3	My company purchases and uses technologies to position itself ahead of competitors.	3.4769648	0.9891452	6
T4	My company has allocated an adequate budget for purchasing IT hardware and service.	3.6422764	0.9873940	4
T5	My firm's policy is to adopt up-to-date technologies.	3.5392954	0.9635761	5
T6	My firm is often to be first to try out new methods and technologies.	3.7344173	0.9696101	2

Source: Developed for the research

Table 4.10 above illustrated on central tendencies measurement of technology. The higher the mean is, the higher the agreement of respondents on the statement. The statement T1 “My company frequently improves internal processes such as speed, reliability and information management” topped the rank with mean value of 3.9837398. This indicated that majority of the respondents agree to this statement. Second and third ranked were T6 and T2 with the mean of 3.7344173 and 3.7018970 respectively. T4 and T5 placed at

fourth and fifth place with mean value of 3.6422764 and 3.5392954. The lowest ranking was T3, standing with a mean value of 3.4769648.

In term of standard deviation, T3 was the highest with the value of 0.9891452. T4, T6 and T5 has the second, third and fourth highest standard deviation value of 0.9873940, 0.9696101, and 0.9635761 respectively. T2 was at the fifth place has a value of 0.9429496 while T1 has the lowest ranking with the value of 0.8564056.

4.1.2.2 Research and Development (R&D)

Table 4.11: The Central Tendencies Measurement of Constructs: Research and Development

No	Research and Development (R&D)	Mean	Standard Deviation	Rank
RD1	My company undertook in-house R&D activities.	4.1680217	0.7724584	1
RD2	My company bought machinery and computers related to R&D.	4.0216802	0.8434958	2
RD3	My company engaged in training activities related to R&D.	3.4661247	0.9552864	6
RD4	My company acquired R&D service and invested in the acquisition of external knowledge.	3.8834688	0.8242077	4
RD5	My company emphasize on developing new products and services.	3.5826558	0.9379224	5
RD6	My company often put effort in the development of new things.	3.9674797	0.9172409	3

Source: Developed for the research

Table 4.11 is the central tendencies construct of research and development. The first ranked statement is RD1 with the mean score of 4.1680217. This shows that most respondents agree to the statement of “My company undertook in-house R&D activities”. The second ranked item was RD2 with the mean value of 4.0216802 while the third ranked item was RD6 which has the value of 3.9674797. Follow by RD4 and RD5 at the fourth and fifth place with the mean of 3.8834688 and 3.5826558 respectively. RD3 was the lowest ranking with the mean of 3.4661247.

RD3 has the highest standard deviation with 0.9552864 as according to the table above. The second highest goes to RD5 with standard deviation value of 0.9379224. RD6 was the third while RD2 is the fourth with the value 0.9172409 and 0.8434958. RD4 was at the fifth place with 0.8242077. RD1 only achieved standard deviation value of 0.7724584 thus was at the last place.

4.1.2.3 Customer Co-creation/ Engagement

Table 4.12: The Central Tendencies Measurement of Constructs: Customer Co-creation/ Engagement

No	Customer Co-creation	Mean	Standard Deviation	Rank
CC1	My organization co-defines value with our customers.	4.2384824	0.7128738	1
CC2	In my organization, customers are viewed as potential sources of new ideas and offerings.	4.1734417	0.7534337	2
CC3	In my organization, customers actively give feedback	3.5067751	0.9357528	6

	and suggestions.			
CC4	In my organization, customer is a source of knowledge and new ideas.	4.0081301	0.6934782	4
CC5	My organization cooperated with a customer for developing new services.	3.6124661	0.9022657	5
CC6	Relations with customers are very strong and stable.	4.1327913	0.8250382	3

Source: Developed for the research

Table 4.12 shows the central tendencies measurement of customer co-creation or engagement. CC1 has the highest mean value of 4.2384824. CC2 ranked second with the mean value of 4.1734417. CC6 has the third highest mean value of 4.1327913. The rank is then followed by CC4 and CC5 with the value of 4.0081301 and 3.6124661. CC3 was the last ranked with a mean value of 3.5067751.

CC3 ranked first with standard deviation of 0.9357528. It is then followed by CC5 with standard deviation value of 0.9022657. CC6, CC2 and CC1 were placed at third, fourth and fifth place which has a value of 0.8250382, 0.7534337 and 0.7128738. CC4 ranked the last with the standard deviation of 0.6934782.

4.1.2.4 Organizational Support

Table 4.13: The Central Tendencies Measurement of Constructs: Organizational Support

No	Organizational Support	Mean	Standard Deviation	Rank
OS1	My company constantly emphasizes development of particular and patent products.	3.8861789	0.8584926	1
OS2	My company constantly emphasizes and introduces advanced managerial practices (<i>e.g. computer-based system, new employee reward/training schemes, new departments or project teams, etc.</i>).	3.4471545	1.0016556	6
OS3	Proposals for new ideas are always welcome in my organization.	3.6639566	0.9183081	3
OS4	Management actively encourage new ideas generation by employees.	3.7262873	0.9517647	2
OS5	My company will offer incentives/promotion to members involved in the development of new business.	3.5311653	0.9861701	5
OS6	My company promotes and supports new ideas, experimentation and creative processes.	3.5880759	0.9687895	4

Source: Developed for the research

Table 4.13 reveals the central tendencies measurement of organizational support. We noticed that OS1 has the highest mean value of 3.8861789 as refer to the results above. OS4 was the second highest ranking with a mean value of 3.7262873, followed by OS3 which has a mean value of 3.6639566. The fourth ranked goes to OS6 with 3.5880759 and fifth place was OS5 with the mean of 3.5311653. The lowest ranking was OS2 with mean value of 3.4471545.

Based on the table shown, OS2 has the highest standard deviation value with 1.0016556. OS5 was the second ranked with 0.9861701 while OS6 was the third with the standard deviation value of 0.9687895. OS4 was the fourth ranking and OS3 was the fifth ranking with a respectively standard deviation of 0.9517647 and 0.9183081. Lastly was OS1, with a standard deviation value of 0.8584926.

4.1.2.5 Organizational Capability

Table 4.14: The Central Tendencies Measurement of Constructs: Organizational Capability

No	Organizational Capability	Mean	Standard Deviation	Rank
OCB1	My company involve in enhancement of technology acquisition.	3.9078591	0.8673849	1
OCB2	I am prepared to go an extra mile for the company.	3.8211382	0.8880167	2
OCB3	My company provides staff training programs to enhance our skills.	3.5176152	0.9698379	6
OCB4	My work organization often improves work conditions and environment.	3.5718157	1.0219691	4
OCB5	Productivity of my company is higher than industry average.	3.5636856	0.9566037	5
OCB6	My company has sufficient resources to develop new services.	3.7506775	0.9398519	3

Source: Developed for the research

Table 4.14 is the construct about organizational capability. From the result shown we noticed that OCB1 has the highest mean value of 3.9078591. OCB2 and OCB6 were the second and third highest ranked with the respective mean value of 3.8211382 and 3.7506775. OCB4 was placed at fourth ranked with the mean value of 3.5718157. Besides, OCB5 was placed at ranking number five with a mean value of 3.5636856. OCB3 was the last with the lowest mean value of 3.5176152.

In term of standard deviation, OCB4 has the highest standard deviation which was 1.0219691. OCB3 was the second highest ranking with standard deviation of 0.9698379. The third highest ranking was OCB5 has value of 0.9566037, followed by OCB6 and OCB2 with respective standard deviation value of 0.9398519 and 0.8880167. Lastly was OCB1, with a standard deviation value of 0.8673849.

4.1.2.6 Organizational Culture

Table 4.15: The Central Tendencies Measurement of Constructs: Organizational Culture

No	Organizational Culture	Mean	Standard Deviation	Rank
OCL1	Members of this company have a strong sense of participation.	3.8238482	0.8777908	2
OCL2	The company posses a fine spirit in completing task.	3.5907859	0.8489262	6
OCL3	In my organization, there is always someone to address work problems.	3.6097561	0.8904763	5

OCL4	My team supports knowledge and technical information sharing.	3.7967480	0.8656427	3
OCL5	This company’s members meet freely to discuss the coordination of new ideas.	3.7018970	0.9544072	4
OCL6	During our spare time, team members of this organization socialize and hold various social activities.	3.8265583	0.9709080	1

Source: Developed for the research

Table 4.15 reveals central tendencies measurement for organizational culture. OCL6 ranked first with mean value of 3.8265583. OCL1 was at the second place with mean value 3.8238482; whereas OCL4 has the mean value of 3.7967480 was at the third place. Besides, OCL5 was fourth highest with 3.7018970 mean value, followed by OCL3 with 3.6097561 mean value. OCL2 ranked last with mean value of 2.5907859.

0.9709080 was the highest standard deviation value, belongs to OCL6. OCL5 was the second highest at 0.9544072. OCL3 was the third place followed by OCL1 with respective standard deviation of 0.8904763 and 0.8777908. The fifth was OCL4, with a standard deviation value of 0.8656427 and OCL2 at the bottom with standard deviation of 0.8489262.

4.1.2.7 Service Innovation

Table 4.16: The Central Tendencies Measurement of Constructs: Service Innovation

No	Service Innovation	Mean	Standard Deviation	Rank
SI1	At work, I seek new service technique and methods in developing new services.	3.7452575	0.8939017	4
SI2	At work, I often propose my creative ideas to improve service and try to convince my company.	3.7262873	0.7285987	5
SI3	At work, I try to propose a suitable plan for developing new ideas and services.	3.7533875	0.7419097	3
SI4	Overall, I consider myself a creative member of my team in my company.	3.8401084	0.9142091	2
SI5	I make innovative suggestions to improve the overall quality of my organization.	3.6287263	0.7663711	6
SI6	We manage to cope with market demands and develop new products and services quickly.	4.0054201	0.6915428	1

Source: Developed for the research

Central tendencies measurement of service innovation is shown in Table 4.16. The highest mean value was 4.0054201 from SI6. Second and third ranked were SI4 and SI3 with the mean of 3.8401084 and 3.7533875 respectively. SI1 and SI2 were placed at fourth and fifth place with mean value of 3.7452575 and 3.7262873 respectively. The lowest ranking was SI5 at 3.6287263.

As for standard deviation, SI4 was the highest at 0.9142091. T1, T5 and T3 have the second, third and fourth highest standard deviation value of 0.8939017, 0.7663711, and 0.7419097 respectively. SI2 was

at fifth place with a value of 0.7285987. SI6 has the lowest ranking with the value of 0.6915428.

4.2 Scale Measurement

Table 4.17: Cronbach's Alpha Reliability Analysis

Topic	Coefficient Alpha Value	No. of items
Technology	0.772240	6
Research and Development	0.815811	6
Customer Co-creation	0.828907	6
Organizational Support	0.780634	6
Organizational Capability	0.778820	6
Organizational Culture	0.865404	6
Service Innovation	0.838030	6

Source: Developed from research

We determined that most of variables are categorized in very good reliability. Based on the table above, organizational culture has the highest coefficient alpha value of 0.865404 among all variables. Customer co-creation has the second result of 0.828907, followed by service innovation and research and development with a respective alpha value of 0.838030 and 0.815811. These are the variables within the range of very good reliability (0.80 to 0.90).

The remaining variables are grouped at good reliability which alpha value range from 0.70 to 0.80. Those variables are technology, organizational capability and

organizational support which have alpha value of 0.772240, 0.778820 and 0.780634 respectively.

In short, all Cronbach's Alpha value falls between 0.70 to 0.90 indicating that the questionnaires are reliable and consistent in all dimensions. Thus, the questionnaire developed for this research was considered as good and reliable.

4.3 Inferential Analysis

4.3.1 Pearson Correlation Analysis (N=369)

Table 4.18: Pearson Correlation Analysis (N=369)

		Service Innovation
Technology	Pearson correlation	0.28390
	Sig. (2-tailed)	<.0001
R&D	Pearson correlation	0.52781
	Sig. (2-tailed)	<.0001
Customer co-creation	Pearson correlation	0.60852
	Sig. (2-tailed)	<.0001
Organizational support	Pearson correlation	0.43410
	Sig. (2-tailed)	<.0001
Organizational capability	Pearson correlation	0.38892
	Sig. (2-tailed)	<.0001
Organizational culture	Pearson correlation	0.54863
	Sig. (2-tailed)	<.0001

Source : Developed for the research

Pearson Correlation Analysis indicated the direction, strength and significance among two variables by using the “Rules of Pearson Correlation Coefficient Alpha”. As refer to the usable data of 369, there is a negligible association between technology and service innovation. This is because the correlation coefficient value 0.2839 is fall under the range of ± 0.00 to ± 0.30 , which interpreted as negligible association among technology and service innovation.

Furthermore, there is a correlation value of 0.5278 for R&D variable with service innovation variable. The correlation coefficient value 0.5278 is fall under the range of ± 0.50 to ± 0.70 , meaning that there is a moderate and positive association among R&D and service innovation.

Moreover, the customer co-creation results a correlation value of 0.6085 along with the service innovation variable. Since the correlation coefficient value 0.6085 is fall under the range from ± 0.50 to ± 0.70 , a moderate and positive association between customer co-creation and service innovation interpreted as based on the table above.

Organizational support has a correlation value of 0.4341 with the service innovation variable. Therefore, there is a low but positive association between organizational support and service innovation due to the correlation coefficient value 0.4341 is fall under the range from ± 0.30 to ± 0.50 .

Besides that, organizational capability results a correlation value of 0.3889 with the service innovation variable, which means that organizational capability also deal a low but positive association with the service innovation variable. Such interpretation is based on the table above where the correlation coefficient value 0.3889 is fall under the range from ± 0.30 to ± 0.50 .

Lastly, organizational culture results a correlation value of 0.5486 with the service innovation variable. Since the correlation coefficient value 0.5486 is fall under ther range from ± 0.50 to ± 0.70 , therefore the organizational culture has a moderate and positive association with the service innovation variable.

4.3.2 Multiple Regression Analysis

Multiple regression analysis is utilized to explain the relationship of one dependent variable and one or more independent variable(s).

Hypothesis 1

H₀: Business environmental factors (Technology, R&D, Customer Co-creation, Organizational Structure, Organizational Capability and Organizational Culture) have no significantly relationship with service innovation.

H₁: Business environmental factors (Technology, R&D, Customer Co-creation, Organizational Structure, Organizational Capability and Organizational Culture) have significantly relationship with service innovation.

Table 4.19 : Multiple Regression Analysis

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	61.95904	10.32651	56.47	<.0001
Error	362	66.19679	0.18286		
Corrected Total	368	128.15583			

- a. Independent Variables: Technology, Research and Development, Customer Co-creation, Organizational Capability, Organizational Support and Organizational Culture
- b. Dependent Variable: Service Innovation

Source: Developed from research

In Table 4.19 above, P-value of <0.0001 is below alpha value (0.05). F-statistic (56.47) indicate that it is significant. The model developed is a good descriptor between independent variables and dependent variable. Therefore, the independent variables (Technology, R&D, Customer Co-creation, Organizational Structure, Organizational Capability and Organizational Culture) are significant to (Service Innovation) in insurance industry. The alternate hypothesis is supported by the data.

Table 4.20: Summary of Multiple Regressions

Root MSE	R-Square	Dependent Mean	Adjusted R-Square	Coefficient Variance
0.42763	0.4835	3.78320	0.4749	11.30330

- a. Independent Variables: Technology, Research and Development, Customer Co-creation, Organizational Capability, Organizational Support and Organizational Culture

b. Dependent Variable: Service Innovation

Source: Developed from research

The R square from the above table 4.20 indicates the degree of independent variables can describe the variations in dependent variable. From this study, independent variables (Technology, R&D, Customer Co-creation, Organizational Structure, Organizational Capability and Organizational Culture) are 48.35% of the variations to the dependent variable (Service Innovation). However, 51.65% (100% - 48.35%) is still left unexplained from this study. In other words, this study has unconsidered additional variables that are important in explaining the service innovation in insurance industry.

Table 4.21: Parameter Estimates

Variable	DF	Parameter Estimates	Standard Error	t-value	Pr > t
Intercept	1	0.78245	0.18001	4.35	<.001
Technology	1	-0.20981	0.07522	-2.79	0.0056
Research and Development	1	0.11037	0.05144	2.15	0.0325
Customer Co-creation	1	0.28447	0.05835	4.87	<.0001
Organizational Support	1	0.10287	0.04127	2.49	0.0131
Organizational Capability	1	0.27722	0.07809	3.55	0.0004
Organizational Culture	1	0.22246	0.03863	5.76	<.0001

Source: Developed from research

The table above allows the significance level of each independent variable to the dependent variable. First of all, technology has a significant level of 0.56% compare to alpha value which is 5% to our dependent variable (service innovation). Next, research and development variable is also significant to service innovation (dependent variable), where the p-value is 3.25% which less than alpha value of 5%.

Third, customer co-creation has a significant level to service innovation (depending variable) too; with the lowest p-value <0.01% as compared to the alpha value of 5%. On the other hand, organizational support has a slightly higher p-value than customer co-creation, which is 1.31%. However, it is still significant to service innovation (dependent variable).

The following independent variable is organization capability. It has a significant level of 0.04% which is lower than the alpha value. Lastly, organizational culture has the significant to the prediction of service innovation. Organizational culture has a lowest p-value <0.01% compare to alpha value of 5%.

These six independent variables show a significant relationship and can be used to determine the dependent variable. The following regression equation can express the relationship between the two variables.

$$Y = a + b_1 (X_1) + b_2 (X_2) + b_3 (X_3) + b_4 (X_4) + b_5 (X_5) + b_6 (X_6) + e$$

By substituting the result collected:

$$Y = \text{Service Innovation}$$

$$a = \text{constant}$$

$X_1 = \text{Technology}$

$X_2 = \text{R\&D}$

$X_3 = \text{Customer Co-creation}$

$X_4 = \text{Organizational Structure}$

$X_5 = \text{Organizational Capability}$

$X_6 = \text{Organizational Culture}$

$B = \text{regression of coefficient of } xi$

$i = 1, 2, 3, \dots$

$e = \text{an error term, normally distributed of mean } 0 \text{ (assumes } e = 0)$

Service Innovation = 0.78245 – 0.20981 (technology) + 0.11037 (R&D) +
0.28447 (customer co-creation) + 0.10287(Organizational Support) + 0.27222
(Organizational Capability) + 0.22246 (Organizational Culture)

Table 4.22: Summary of Hypotheses Testing

	Hypotheses	Beta	Relationship	P-Value	Result
H ₁	Business environmental factors have significantly relationship with service innovation.	-	-	-	-
H ₂	There is significant relationship between technology and service innovation.	-0.20981	Negative	0.0056	Accept
H ₃	There is significant relationship between research and development and service innovation.	0.11037	Positive	0.0325	Accept
H ₄	There is significant relationship between customer co-creation and service innovation.	0.28447	Positive	<.0001	Accept
H ₅	There is significant relationship between organizational structure and service innovation.	0.10287	Positive	0.0131	Accept
H ₆	There is significant relationship between organizational capability and service innovation.	0.27722	Positive	0.0004	Accept
H ₇	There is significant relationship between organizational culture and service innovation.	0.22246	Positive	<.0001	Accept

Source: Developed from research

Table 4.22 above shows the summary of hypotheses testing based on Beta and P-value derived from Multiple Regression Analysis. Beta shows the positive or negative relationships between the variables. As according to the data above, all independent variables (R&D, customer co-creation, organizational support, organizational capability and organizational culture) except technology had showed a positive relationship with service innovation. Positive relationship indicates the service innovation will increase when the independent variable increase, vice versa. As referred to the P-value, all hypotheses are accepted as the P-value is less than 0.05 which shows all independent variables are significantly explained the service innovation.

Table 4.23: Ranking of Independent Variables on Beta Value

Variable	Beta	Ranking
Technology	-0.20981	6
Research and Development	0.11037	4
Customer Co-creation	0.28447	1
Organizational Support	0.10287	5
Organizational Capability	0.27722	2
Organizational Culture	0.22246	3

Source: Developed from research

The above table shows the Beta Value of Independent Variables ranking. When arranging these variables in ascending order, it starts with customer co-creation, organizational capability, organizational culture, research and development, organizational support and technology. The higher the ranking of the variable, the more it contributes to service innovation.

4.4 Conclusion

The distributed questionnaires have been collected, filtered and summarized by using SAS software. Multiple test and analysis were conducted in this chapter (Demographic profile analysis, inferential analysis on Pearson Coefficient and Liner Regression Analysis, scale measurement and central tendencies measurement of constructs). A further discussion will be carried out on the research results in the following chapter.

Chapter 5: Discussion and Conclusion

5.0 Introduction

This chapter aim to outline the conclusion and discussion based on the entire research project that had been conducted. Firstly, we summarized the descriptive and inferential analysis which is obtaining from the previous chapter. The major finding of this study is to show the influences of on service innovation in insurance industry.

Besides, implication obtained from this study is also included in this chapter. Several shortcomings are found during the research process thus recommendations are provided for future research. Lastly, a final outcome has been concluded to summarize the entire research project.

5.1 Summary of Statistical Analyses

5.1.1 Descriptive Analysis

There are total 369 respondents whom 55.28% are male and 44.72% of female involved in this research. There are five age groups being categorized in this research. The highest coverage of age group is from 18 – 29 years old which contributed to 50.68% among the respondents, while the least is the age range 60 years old and above which consists of only 3.79%. The result clearly shows that there are more youngster involve in insurance industry compare to seniority. This is because people believe that if young people enter an industry and receive a clear instruction, they will have the chance to become expertise in a short period of time (Moorcraft, 2017). The age group 30 – 39 years old,

40 – 49 years old and 50 – 59 years old are 24.93%, 11.65% and 8.94% respectively. Furthermore, majority of our target respondents are Chinese, follow by Malay, Indian and others which have a respective percentage of 55.56%, 26.29%, 17.61% and 0.54% from the total respondents. For the marital status of target respondents, it shows there is 50.41% of single, 43.90% of married, 3.25% of divorced and 2.44% of widowhood among those respondents.

From the research, it shows that most of the respondents are Bachelor's Degree holders which having 38.75%. While there is 25.75% of respondents are SPM or O-Level educated and 26.29% are college certificate or diploma holders. Whereas the rest of the respondents are A-Level or STPM or Foundation holders and Master's Degree holders, which are 8.13% and 1.08% respectively.

Moreover, most of the respondents working in the same insurance company less than 5 years having 38.75% among all respondents. While respondents who work more than 30 years in the same company is the least is only 1.08%. For the category 5 – 10 years, 11 – 15 years, 16 – 20 years, 21 – 25 years and 26 – 30 years are 29%, 18.43%, 8.40%, 2.98% and 1.36% respectively. As for the experience working in the insurance industry, most of the respondents which consists of 34.96% is also less than 5 years. Follow by 5 -10 years, 11 – 15 years, 21 – 25 years, 16 – 20 years, 26 – 30 years and more than 30 years which are 26.02%, 18.70%, 8.40%, 7.32%, 2.44% and 2.16% respectively.

For the respondents' position level in company, majority are executive which consists of 44.72%, while the least are fall under the category of others that having 2.44%. The respondents at manager level are having 22.76%, 26.56% for supervisor level and 3.52% for Chief Executive Level. In term of income range, respondents who earn below RM3000 monthly is the majority that having 37.13%. Follow by RM3001 – RM4000, RM 5001 – RM 6000, and

RM 4001 – RM5000 are 36.59%, 12.47%, 10.30% and 3.52% respectively. Whereas there is none of our respondents earn more than RM7001.

5.1.2 Scale Measurement

There are 7 variables being tested on reliability in total. These variables are technology, research and development, customer co-creation, organizational support, organizational capability and organizational culture. After the test, the coefficient alpha value shown that higher than 0.70 proved all the variables are considered reliable. The result shows that the technology is 0.772240, research and development is 0.815811, customer co-creation is 0.828907, organizational support is 0.780634, organizational capability is 0.778820, organizational culture is 0.865404 and service innovation is 0.838030.

5.1.3 Inferential Analysis

5.1.3.1 Pearson Correlation Coefficient

All the independent variables have show significant association with service innovation according to the result obtained from the test. The value of 6 independent variables is in the range from ± 0.20 to ± 0.70 . Technology has 0.28390 which shows that the variable has slight but definite association with service innovation. Organizational capability has moderate association with service innovation with the value of 0.38892. Research and Development, customer co-creation, organizational support and organizational culture are showing moderate association with service innovation with the respective coefficient value of 0.52781, 0.60852, 0.43410 and 0.54863.

5.1.3.2 Multiple Regression Analysis

According to the result of multiple regressions analysis, it shows that all the six independent variables have significant relationship with service innovation as the p-value is less than 0.05. Among the variable, customer co-creation has the highest contribution with the beta of 0.28447. Followed by organizational capability, organizational culture, research and development and organizational support, which shown a respective beta of 0.27722, 0.22246, 0.11037 and 0.10287. The least contribution is technology variable which only has the beta of -0.20981.

5.2 Discussion of Major Findings

5.2.1 Technology

H₂: There is significant relationship between technology and service innovation.

Technology had shown a positive 0.28390 association with service innovation in Pearson, while a negative result of -0.20981 in Multiple Regression. Pearson is looking the variables in isolation where technology has a positive association with service innovation, whereas when all independent variables are taken into consideration, it shows a negative relationship with service innovation. The key idea is confounding and suppression where the sign of the effect changes in a complex model relative to a simple one. When more variables are added into the model, it adds more values and meaning to the service innovation. In the multiple regression model, the estimated coefficients are sorts of a partial correlations, different signs are not contradictory.

As mentioned in Chapter 2, Scott Morton's MIT90 model (1995) is an information technology innovation developed at the organizational level with the adaption of four components which are information technology infrastructure, strategy, organizational structure as well as individual skills and roles. Other than that, with the detail analysing on management process, this model proved positive relationship of service innovation with other components. In Harbin, China, a study done by Yao and Yu (2011), has proven that technology capabilities and technology management capabilities are the absolute factors for innovation success. This study has adopted powerful technology which results in creation of innovation culture and environment.

In general, there are many analyst that concluded and proven the positive impact that technology can drive the service innovation level of an industry. Previous studies have mentioned that technology as an important factor in contributing to innovation. They termed "technology" as utilization of information and communication technology, more precisely the internet into the operations such as using social media, e-commerce, cloud computing and RFID chips to improve their innovation level in providing better product or services (Bouman, Vos & Haaker, 2010; Verma & Jayasimha, 2014; Hillebrand et al., 2016). These results have proved that technology is having a positive association with service innovation where it had shown in Pearson.

However, from the results obtained from Chapter 4 it showed technology is the least emphasized variable in the service innovation. This is due to the term we used in the questionnaire is more on R&D technology rather than information technology. Hence, it might contrast the results this research get with previous studies as the term of technology used are differ, but this also provides a new point of view to this research.

Furthermore, many studies have showed vital relationship between technology and product innovation. For instant, a research was done by Wan and Nordin (1999) in Malaysian manufacturing companies studying on nature of new product development drivers. According to them, new product development can be originated from internally which is through consequence of technological innovation or externally through the analysis of market demand and need.

From this study explained that technology is widely applied in innovation of production rather than service. It is somehow believed that technology would not preserve in the insurance world as insurance companies provide services with intangible products due their involvement in mostly direct approaches. Service provider like insurances companies rely more on service based innovation rather than technology based innovation as it emphasizes wholly on direct customers service satisfactory values. In other words, Malaysian insurance companies does not focus or invest heavily in technological R&D as they believe it will not bring a profitable gain to the company.

5.2.2 Research and Development

H₃: There is significant relationship between research and development and service innovation.

There are many researches completed based on the relationship between organization's R&D activities and innovation performance, and likely most of the results produced are positively correlated. According to the researchers Li & Calantone (1998) and Thonke (2003), strongly mentioned that the more the R&D activities taken by an organization, the more innovative in producing new products and services. De Brentani (2001) supported the statement by

adding a positive relationship between R&D strength and innovativeness of new goods and service. To further sustain this statement, another positive empirical results between R&D organization and innovation performance was done by Belderbos (2004) and Nieto (2007).

Research and development activities that includes both in-house research and adaptation of external expertise are called open innovation (Swapan & Krishna, 2015), and these are the major components in realising and improving service innovation in insurance industry. However, external R&D tend to influence the larger insurance companies greater when compared. This statement has supported by a study carried out on Korea's service sector proving that the flow of innovation development in large companies say that some environment is worthy to invest heavily on external resources and support open innovation (Si-jeoung Kim & Eun-mi Kim, 2016).

According to Edwards and Croker (2001), mentioned that for promoting a service, technical innovation is essentially required. Besides, they also said that the current service industry are gradually focusing on R&D investment both for internal and external activities aiming to improve their service offering. As an overall, the service industry, serve as a non-technical industry, emphasize the development of new products and services on the basis of advanced technologies combined with the existing product improvement. From all these academic studies, research and development activities are compulsory for a more advance service innovation.

5.2.3 Customer Co-creation/ Engagement

H₄: There is significant relationship between customer co-creation and service innovation.

According to a research done in Taiwan targeting insurance companies focus on the customer engagement bring impacts to service innovation. Companies are motivated to be innovative as innovation is the driver for them to survive. Customers play a major role when engage to company introducing or recommending a new innovated service, brands or products as customers act as marketing medium such as word-of-mouth and customer-to-customer interactions (Van Doorn, 2010).

From a case studying on customers' negative experience during consuming an innovated service might lead to negative word-of-mouth (Dahlenader & Piezunka, 2014). This relationship identify that customers are responsible towards the long-term survival of a newly introduced service by a company. Gebauer (2012) strengthen this stand by investigating an international online design contest for shopping bags and found that disappointed participants showed negative reactions after the contest.

There are three stages of customer's engagement that influences the innovation. The first stage which is idea generation stage whereby the organization collects information from customers and further analyse before implementation for innovating new service. The second stage, development stage which is also perceived more complex. It requires an information exchange about the process to create information of value. The final stage is the evaluation and feedback. In this stage, customers will first experience a service before giving comments on the particular service thus demands the least involvement of customers (Jimmie & Daniel, 2011).

These days customers believe that they can contribute more than they do, thus customers are capable to create innovation that is strongly influenced by their needs. Thus, companies must never ignored customers ideas and make them in part of the innovation process. By involving customers from the beginning of service development, it can help it fasten the innovation process.

5.2.4 Organizational Support

H₅: There is significant relationship between organizational support and service innovation.

Amabile and Conti (1999) mentioned that bad working environment will discouraged innovation. To solve this issue, organizational support especially from the top leaders have to come up with various methods in encouraging employees to be innovative at work.

Perceived Organization Support (POS), is a tool used to measure the level of employees' faith that the organization values their commitment and work introduced by Esisenberger et. al. (1986). POS suggested that if the organization is giving necessary support needed, the employees will perform better (Trybou et. al., 2014). In other words, the level of innovation of employees at work is highly influenced by the support given by the organization.

The method to develop employees' interest towards creative activities and to be creative person requires organizational support. Furthermore, when an employee is given the rights to make decision in work place, resolving a challenging task, and opportunity to learn new knowledge, had been the key to motivate and enhance employees' knowledge, capabilities and skills.

From a research done in Penang, Malaysia focusing on the level of employees' creativity rely on support from organization explain that when an organization provides support to develop and overhaul their abilities, which will readies and prepares the employees to be aware towards and development innovation (Hazril & Aerni, 2016). Based on the term reciprocity, the employees will more willing to contribute and involve more in service innovation when they feel that getting sponsor and support through the training and instructing activities. (Coyle & Conway, 2005).

5.2.5 Organizational Capability

H₆: There is significant relationship between organizational capability and service innovation.

According to past researchers, factors such as management and technological innovation and entrepreneurship of an organization bring positive relationship with degree of innovation (Lee & Hsieh, 2010). These factors indicate whether the organization capabilities are align with the practice of innovation in the organization. Developing a strong organizational capabilities is the main key to guarantee an organization's competitive advantage and sustainable development through innovation (D'Aveni, 1994; Rumelt, 1987,1984; Liao, Kickul & Ma, 2009)

From the finding of the study, organization that has higher capabilities will have positively influencing to the innovation. In other word, organizational capabilities are the core to insurance companies to define successful innovations. However, the top barriers of innovation in insurance industry are lack of capabilities and skills. To solve this issue, a transformation needs to be done by changing from previously risk-adverse culture to a culture that encourages and energizes experimentation while alleviating financial risk.

This means organizations have a need to explore and discover into new ideas of innovation, for example obtaining fresh thoughts and opinions from employees, customers, shareholders, and having on-going leadership from the top management (Jayani & Yan, 2017).

5.2.6 Organizational Culture

H₇: There is significant relationship between organizational culture and service innovation.

A research was conducted by the Postal Corporation of Kenya (PCK) on methods business entities must adopt in order to survive in the current business environment by studying on how organizational culture effects innovation in service industry. Results obtained from researches concluded that organizational culture is an essential part of the effectiveness and productivity of the organization. To ensure continues successes, organizational culture driven by ethical values influence the innovation of the organization.

Based on a study carried out in Sri Lanka (2015) concentrating on how dimensions of organizational culture in service industry impact service innovation, revealed that there is a positive relationship between organizational culture dimensions and service innovation. This results is strongly supported by the empirical studies done by Vincent (2004) and Valancia (2012) found organizational culture positively effects innovation. Another study on adhocracy culture including characteristics such as creativity, empowerment, freedom and autonomy, and risk taking proven that adhocracy culture is the most important role in service innovation (Yesil & Koska, 2012). To support the role of adhocracy culture, Dasayanaka (2009)

mentioned that companies should concentrate on characteristics related to adhocracy culture and implement within the organization.

The overall results indicate that organizational culture has prominent effect on service innovation. Organization must create an environment which effectively allows service innovation to take place by emphasizing on innovative, entrepreneurial and creative workplace culture (Valencia, 2010).

5.3 Implications of Study

Before this study was conducted, several studies of the service innovation with the influence of technology, customers, organization and research and development respectively had been done. However there is no study combining these several factors with service innovation. Such findings shall contribute to developing countries educational context such as our country, Malaysia.

Based on the results, a conclusion that each factor of technology, customer co-creation, research and development, organizational structure, organizational capability, and organizational culture has a significant influence on service innovation can be drawn. Of all these factors, customer co-creation and organizational support shows the highest significant value to the service innovation. Tailoring a service according to customers' demand and preferences with support from the organization is a crucial element in staying innovative and different from competitors, especially in insurance industry.

As mentioned by Kon (2004) and Sundbo & Gallouj (1998), services are unique products with a range of qualitative aspect involved which are hard to be produced

identically by others. It can be seen as a symbol and image of a company if it is accepted well by the customers. This research proved the importance of both external and internal factors in determining a company's success in being innovative and different from others. This research can also be perceived as the foundation for more research on service innovation in other industry.

In Malaysia educational context point of view, the data and results from this study gave a better view on the capacity of both internal and external factors in determining the innovativeness of an organization. This result from this study comes in handy for the insurance industry in Malaysia as it has pointed out the factors influencing the innovativeness of their products. It gives a better understanding on the importance of service innovation so that can maintain their competitive advantage in the industry.

5.3.1 Managerial Implications

This research is targeted at service innovation in the insurance industry hence the outcome of this research shall bring impact to insurance companies. The results indicated that technology, customer co-creation, research and development, organizational structure, organizational capability, and organizational culture have a significant influence on the company's innovation. Noorani (2014) stated that companies nowadays are finding ways to produce their products effectively and efficiently. Services are being tailored according to customers' needs too in order to remain as competitive if not more (Durst, Mention & Poutanen, 2015).

Managers nowadays shall not neglect the importance of these factors when it comes to decision making. Top management shall set a good example to the rest of the management level by development a good organizational structure and culture and adopting innovativeness. They should encourage the lower management to adopt innovativeness in their field of work too. Top management should always encourage instead of controlling their employees with strict rules.

Next, managers should do a better work in maintaining the relationship between company and customers. The results indicated the importance of customer co-creation in bringing service innovation. With a good relationship with customers, company can know better of what is the market needs, the opportunities as well as threats in the external environment. It is a valuable asset that company should put it effort to utilize it to the company's favour.

5.3.2 Researchers Implications

The findings from this research stated that there is significant relationship between technology, customer co-creation, research and development, organizational culture, organizational structure, and organizational capability with service innovation in insurance companies. This study could act as a foundation research to allow further research in this area.

This research can be the starting point of many researches to come. First of all, researchers could explore more factors that bring bigger impact to service innovation in an industry. The six independent variables which were identified

in this study could only be a small part of the whole service innovation. These variables could be changed from time to time and adjusted to the industry that future researchers are studying.

New research could also be carried out in identifying ways to carry out service innovation in an organization or industry. Application method could be the direction of study for future researchers. They can identify ways to perfect these factors that played a part in service innovation. One of the finding in this study indicated that there is a negative relationship between technology and service innovation. Studies could be done on these two variables; explaining other possible reasons for it and suggestions to overcome it.

Studies shown that innovation in a service firm could be affected by various factors in the environment, whether internal or external (Verma & Jayasimha, 2014). Thus, organizations who wish to implement service innovation should take into consideration of such factors playing their roles in the practice. We suggest that new studies could be done on the impact of external and internal environment to the implication of service innovation as well as ways to overcome it.

5.4 Limitations of the Study

It is inescapable that each research study will have downsides and limitation throughout the entire process. The primary deficiency of this research study is it is a cross-sectional study, which is an observational study design. We only collect the data and study the participants at the same time, unlike other study, we do not collect

the data needed throughout a few years then only draw to a conclusion. It is difficult to consider this research study as a causal study, for the purpose of to confirm the relationship between all the variables. So, it will have possible bias that the responds are not taken throughout a long period.

Due to time constraint and limited costs, it is difficult to distribute the questionnaire to the insurance companies in every states of Malaysia. Therefore, our research is only based on the respondents from insurances companies that located at Perak, like Allianz General, Ing Insurance and Prudential Assurance. Furthermore, there is not every employee of the insurance companies willing to spend their time on answering our questionnaire although we put in effort in order to get responds from every department of the companies. As the responds resulted based on Perak isn't represented the whole industry in Malaysia and it weakening our research.

Another limitation found in our research is the language used in the questionnaire. The language used in the questionnaire is English but there is different races living in Malaysia as this may confused them because not everyone is English educated or understand some specific terms. Some of the respondents may simply fill in the questionnaire without understanding some terms may make the result inaccurate and meaningless results as well, which consequently make that questionnaire results unusable. Besides, it may also time consuming if the respondents have to get a clear picture or fully understand some terms before they answer.

5.5 Recommendations for Future Research

Nothing is perfect in the world, even our research study as well. Here are some recommendations provided for future researcher that encounter the same challenges or limitations.

Future researchers are recommended to propose a longitudinal study, which is a research study that carries out throughout a few years, doing the observation repeatedly with the same variables. By carry out the longitudinal study, the researchers observe and understand the changes of the respondents' behaviours and attitudes over time, which will makes the results become more valid. The researchers also can produce more information throughout the longitudinal study and provide a more detail research study.

Future researchers are encouraged to broaden their target population as it can find out more facts regards of the industry but not only the particular region. The future researchers are expected to be more accurate so that variety of the data is necessary as it can be collected around the nation. Besides, online survey may be another recommendation for future researchers as it provided convenient and time saving to them.

Future researchers are encouraged to conduct multi-lingual questionnaire that can ease every races in Malaysia and fit in our multinational society. Chinese, Malay and Tamil are recommended to add-in as to assist the respondents on their understanding but not a simply guess anymore. The respondents are most likely preferred their own language will also increase their willingness to answer the questionnaire. Last but not least, it is crucial for improve the accuracy of the information obtained.

5.6 Conclusion

The understanding for drivers of service innovations in insurance industry had been making better after completion of this research. These drivers are technology, research and development, customer co-creation, organizational support, organizational capability and organizational culture. Based on the results, all of the factors except technology have significant relationship to service innovation in insurance industry. Technology may be perceived as less important in its contribution on service innovation in Malaysia after the research had been completed. Among all the factors, customer co-creation has ranged as the highest contributor to the service innovation as it is believed that innovation will be improved with the engagement of customer in developing the service. All in all, this research able to offer and confess some insights to the importance of service innovation to the companies in insurance industry. In this chapter, several limitations and recommendations have been given for future researchers as reference.

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APPENDICES

Appendix 1.0: Summarized Demographic Profile of Respondents

Demographic Factors	Categories	Frequency	Percentage (%)
Gender	Male	204	55.28
	Female	165	44.72
Age Group	18 – 29 y/o	187	50.68
	30 – 39 y/o	92	24.93
	40 - 49 y/o	43	11.65
	50 – 59 y/o	33	8.94
	60 and above	14	3.79
Race	Chinese	205	55.56
	Malay	97	26.29
	Indian	65	17.61
	Others	2	0.54
Marital Status	Single	186	50.41
	Married	162	43.90
	Divorced	12	3.25
	Widowhood	9	2.44
Highest Educational Level	SPM/ O Level	95	25.75
	A Level/STPM/Foundation	30	8.13
	College Certificate/ Diploma	97	26.29
	Bachelor's Degree	143	38.75
	Master's Degree	4	1.08
	Doctorate Degree	-	-

Work in the Company (Years)	Below 5	143	38.75
	5 – 10	107	29.00
	11 – 15	68	18.43
	16 – 20	31	8.40
	21 – 25	11	2.98
	26 – 30	5	1.36
	30 and above	4	1.08
Work in Insurance Industry (Years)	Below 5	139	37.67
	5 – 10	109	29.54
	11 – 15	69	18.70
	16 – 20	31	8.40
	21 – 25	11	2.98
	26 – 30	6	1.63
	30 and above	4	1.08
Position Level	Supervisor	98	26.56
	Executive	165	44.72
	Manager	84	22.76
	Chief Executive	13	3.52
	Others	9	2.44
Income Range	RM3000 and below	137	37.13
	RM3001 – RM4000	135	36.59
	RM4001 – RM5000	38	10.30
	RM5001 – RM6000	46	12.47
	RM6001 – RM7000	13	3.51
	RM7001 and above	-	-

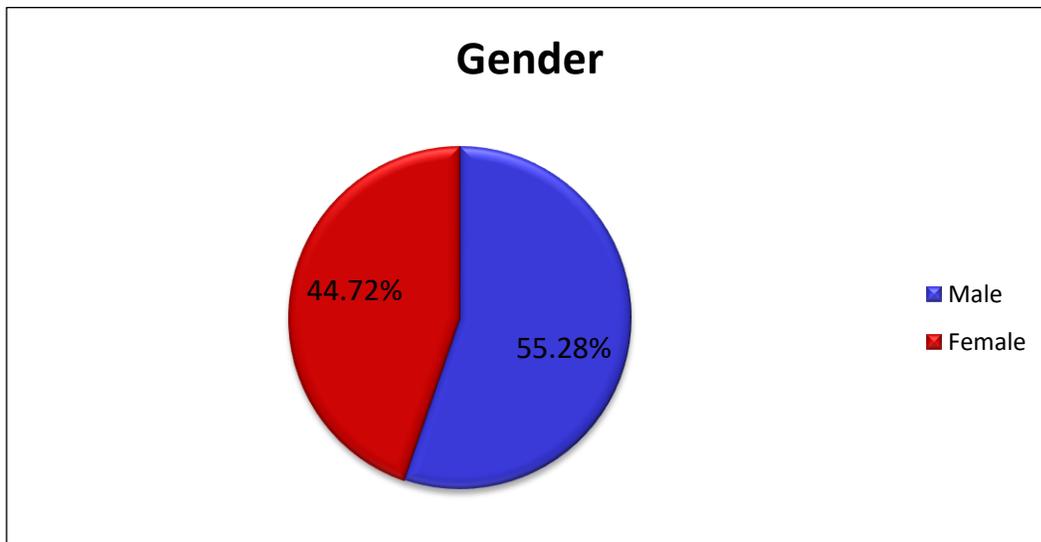
Total Respondents 369 100.00

Source: Developed from research

Appendix 2.0 Table of Demographic Profile

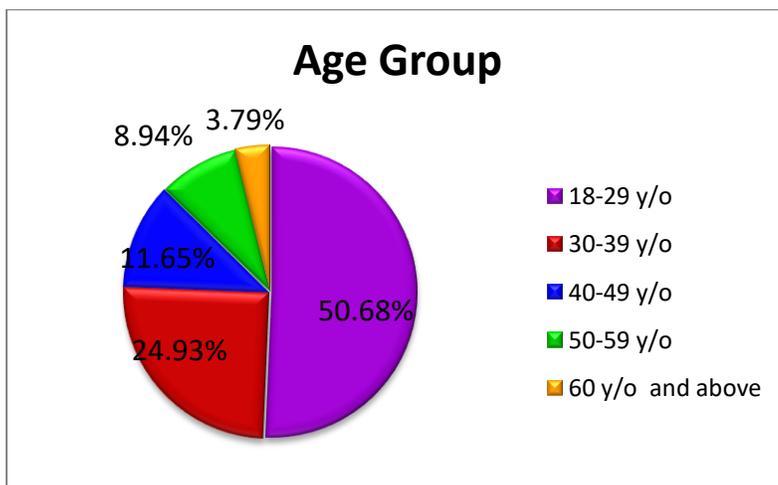
Gender

	Frequency	Percentage (%)	Cumulative Percentage (%)
Male	204	55.28	55.28
Female	165	44.72	100
Total	369	100.00	



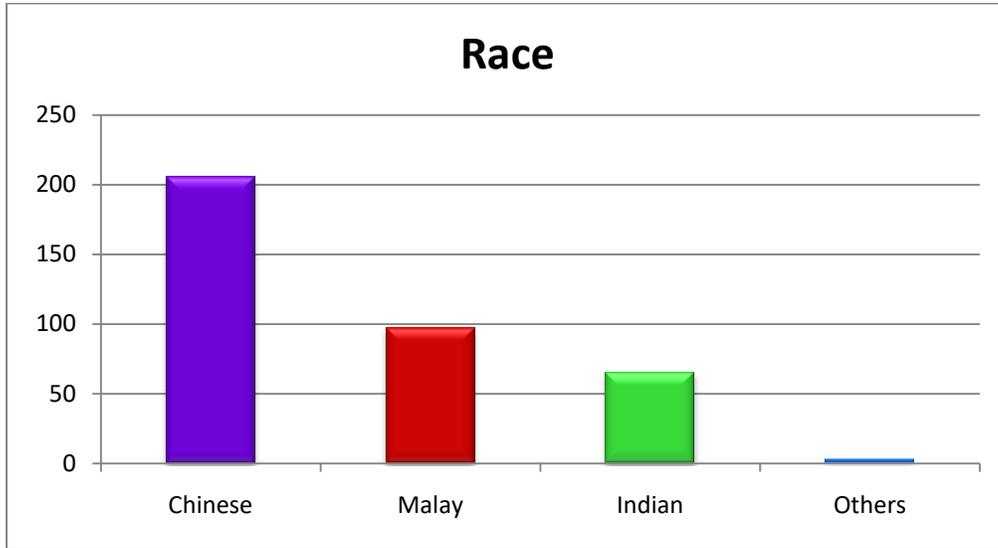
Age Group

Age	Frequency	Percentage (%)	Cumulative Percentage (%)
18-29	187	50.68	50.68
30-39	92	24.93	75.61
40-49	43	11.65	87.26
50-59	33	8.94	96.20
60 and above	14	3.79	100.00



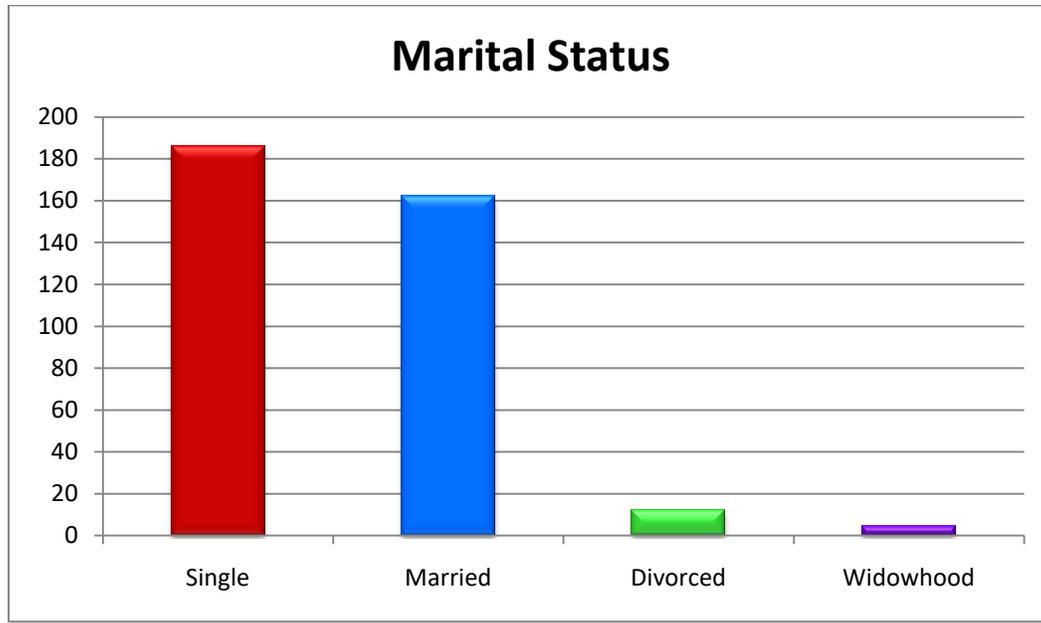
Race

Race	Frequency	Percentage(%)	Cumulative Percentage (%)
Chinese	205	55.56	46.34
Malay	97	26.29	81.85
Indian	65	17.61	99.46
Others	2	0.54	100.00
Total	369	100.00	



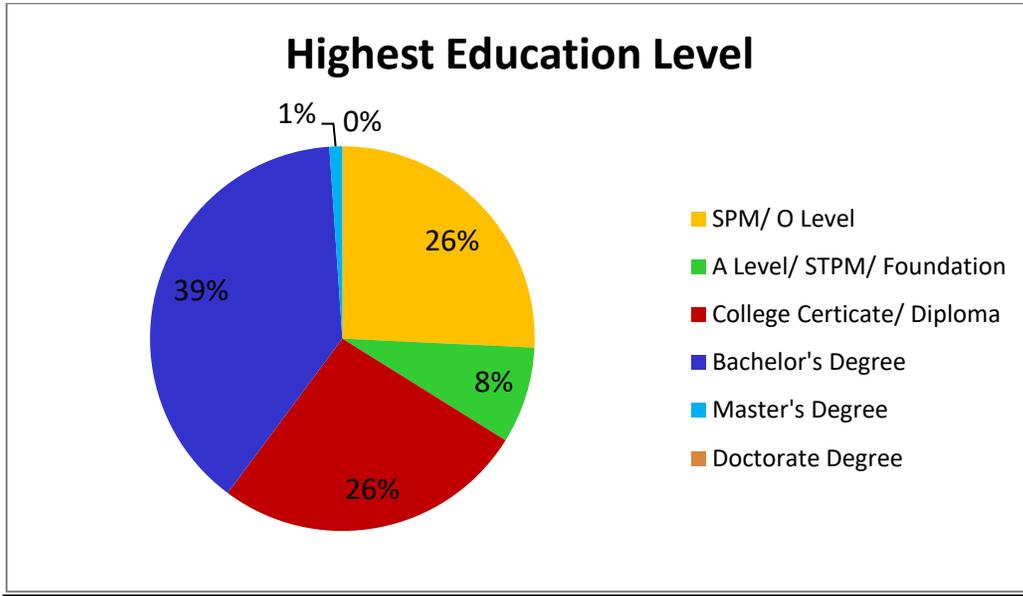
Marital Status

Marital Status	Frequency	Percentage (%)	Cumulative Percentage (%)
Single	186	50.41	50.41
Married	162	43.90	94.31
Divorced	12	3.25	97.56
Widowhood	9	2.44	100.00
Total	369	100.00	



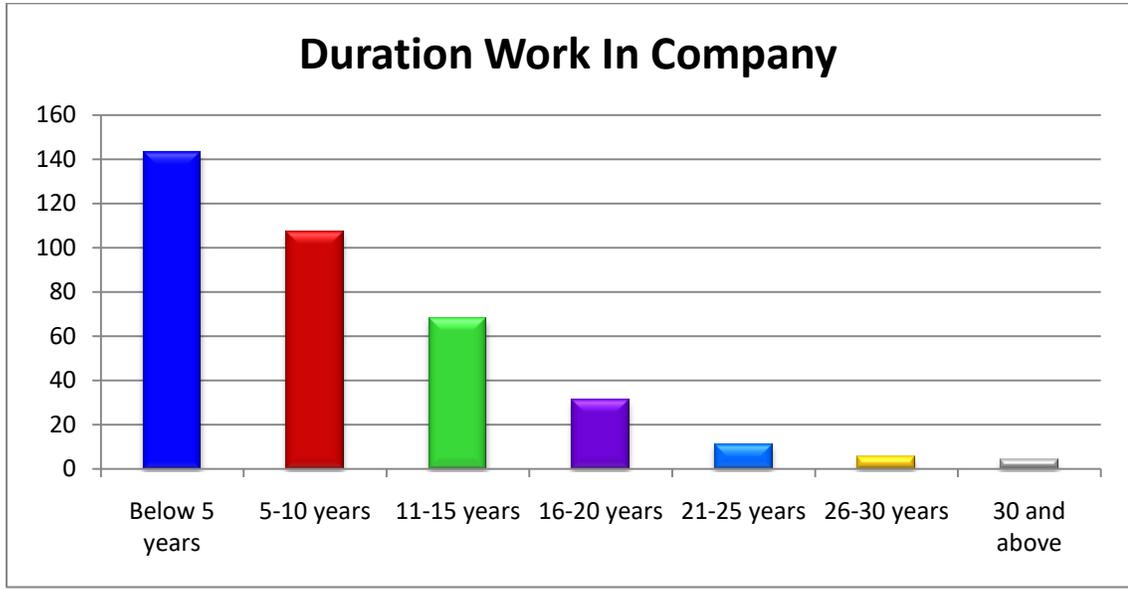
Highest Educational Level

Highest Education Level	Frequency	Percentage (%)	Cumulative Percentage (%)
SPM/ O Level	95	25.75	25.75
A Level/ STPM/ Foundation	30	8.13	33.88
College Certificate/ Diploma	97	26.29	60.17
Bachelor’s Degree	143	38.75	98.92
Master’s Degree	4	1.08	100.00
Doctorate Degree	-	-	100.00
Total	369	100.00	



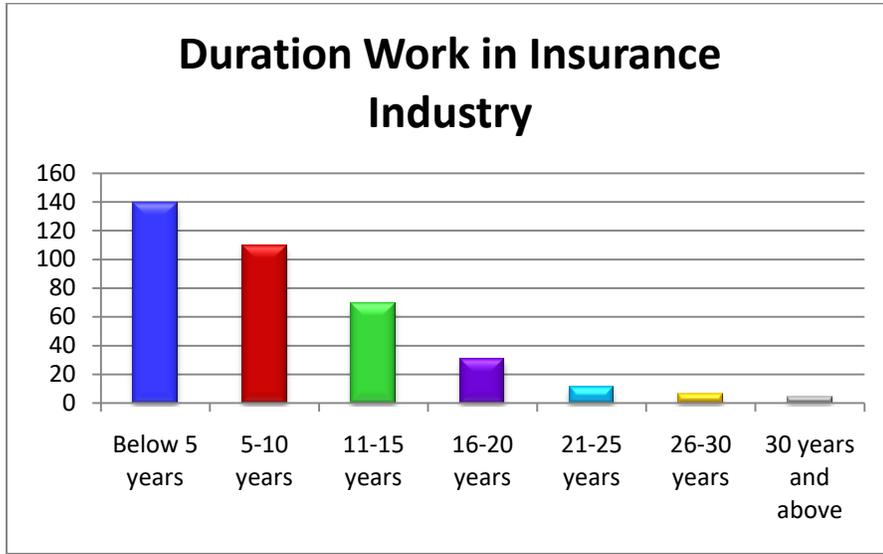
Duration Work in Company

Work In Company (Years)	Frequency	Percentage (%)	Cumulative Percentage (%)
Below 5	143	38.75	38.75
5 – 10	107	29.00	67.75
11 – 15	68	18.43	86.18
16 – 20	31	8.40	94.58
21 – 25	11	2.98	97.56
26 – 30	5	1.36	98.92
30 and above	4	1.08	100.00
Total	369	100.00	



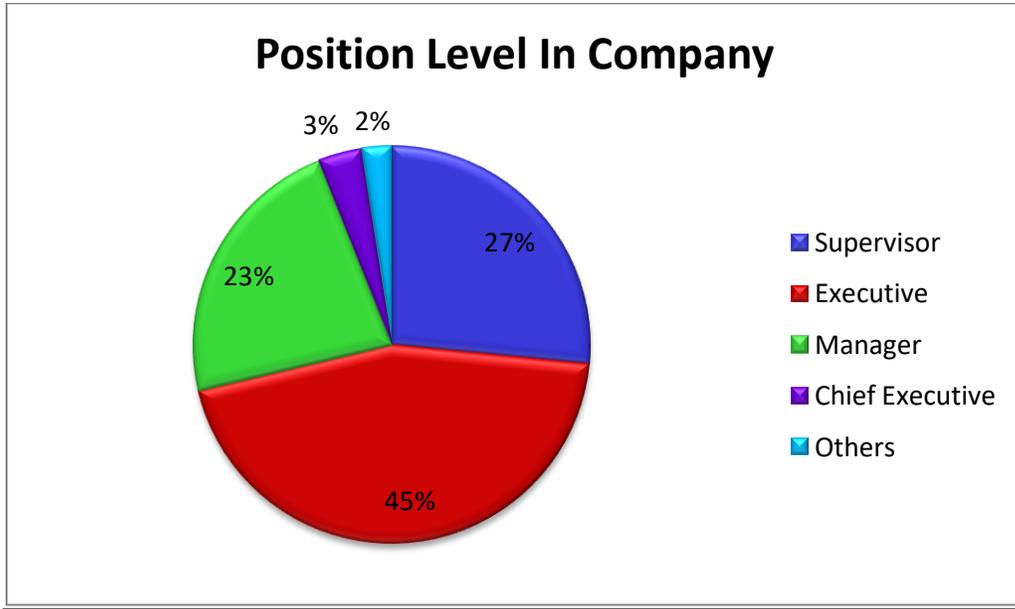
Duration Work in Insurance Industry

Work in Insurance Industry (Years)	Frequency	Percentage (%)	Cumulative Percentage (%)
Below 5	139	37.67	37.67
5 – 10	109	29.54	67.21
11 – 15	69	18.70	85.91
16 – 20	31	8.40	94.31
21 – 25	11	2.98	97.29
26 – 30	6	1.63	98.92
30 and above	4	1.08	100.00
Total	369	100.00	



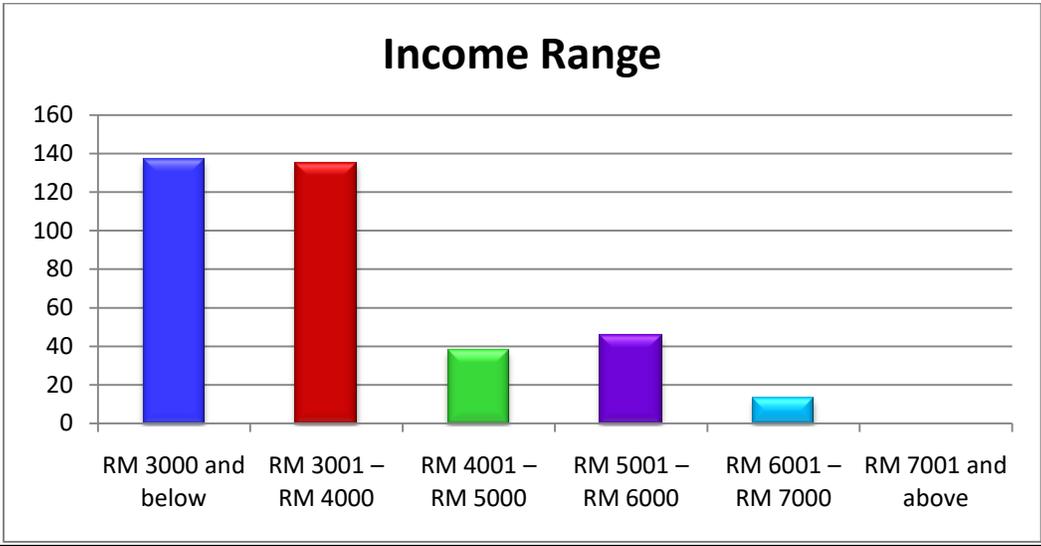
Position Level in Company

Position Level	Frequency	Percentage (%)	Cumulative Percentage (%)
Supervisor	98	26.56	26.56
Executive	165	44.72	71.28
Manager	84	22.76	94.04
Chief Executive	13	3.52	97.56
Others	9	2.44	100.00
Total	369	100.00	



Income Range

Income Range	Frequency	Percentage (%)	Cumulative Percentage (%)
RM 3000 and below	137	37.13	37.13
RM 3001 – RM 4000	135	36.59	73.72
RM 4001 – RM 5000	38	10.30	84.02
RM 5001 – RM 6000	46	12.47	96.49
RM 6001 – RM 7000	13	3.51	100.00
RM 7001 and above	0	0	100.00
Total	369	100.00	



Appendix 3.0: Central Tendencies Measurement Result of Construct**Technology**

No	Technology	Mean	Standard Deviation	Rank
T1	My company frequently improves internal processes such as speed, reliability and information management.	3.9837398	0.8564056	1
T2	My company allocates resources for investments in latest technologies and future forecasted technological changes.	3.7018970	0.9429496	3
T3	My company purchases and uses technologies to position itself ahead of competitors.	3.4769648	0.9891452	6
T4	My company has allocated an adequate budget for purchasing IT hardware and service.	3.6422764	0.9873940	4
T5	My firm's policy is to adopt up-to-date technologies.	3.5392954	0.9635761	5
T6	My firm is often to be first to try out new methods and technologies.	3.7344173	0.9696101	2

Research and Development (R&D)

No	Research and Development (R&D)	Mean	Standard Deviation	Rank
RD1	My company undertook in-house R&D activities.	4.1680217	0.7724584	1
RD2	My company bought machinery and computers related to R&D.	4.0216802	0.8434958	2
RD3	My company engaged in training activities related to R&D.	3.4661247	0.9552864	6
RD4	My company acquired R&D service and invested in the acquisition of external knowledge.	3.8834688	0.8242077	4
RD5	My company emphasize on developing new products and services.	3.5826558	0.9379224	5
RD6	My company often put effort in the development of new things.	3.9674797	0.9172409	3

Customer Co-creation/ Engagement

No	Customer Co-creation	Mean	Standard Deviation	Rank
CC1	My organization co-defines value with our customers.	4.2384824	0.7128738	1
CC2	In my organization, customers are viewed as potential sources of new ideas and offerings.	4.1734417	0.7534337	2
CC3	In my organization, customers actively give feedback and suggestions.	3.5067751	0.9357528	6
CC4	In my organization, customer is a source of knowledge and new ideas.	4.0081301	0.6934782	4
CC5	My organization cooperated with a customer for developing new services.	3.6124661	0.9022657	5
CC6	Relations with customers are very strong and stable.	4.1327913	0.8250382	3

Organizational Support

No	Organizational Support	Mean	Standard Deviation	Rank
OS1	My company constantly emphasizes development of particular and patent products.	3.8861789	0.8584926	1
OS2	My company constantly emphasizes and introduces advanced managerial practices (<i>e.g. computer-based system, new employee reward/training schemes, new departments or project teams, etc.</i>).	3.4471545	1.0016556	6
OS3	Proposals for new ideas are always welcome in my organization.	3.6639566	0.9183081	3
OS4	Management actively encourage new ideas generation by employees.	3.7262873	0.9517647	2
OS5	My company will offer incentives/promotion to members involved in the development of new business.	3.5311653	0.9861701	5
OS6	My company promotes and supports new ideas, experimentation and creative processes.	3.5880759	0.9687895	4

Organizational Capability

No	Organizational Capability	Mean	Standard Deviation	Rank
OCB1	My company involve in enhancement of technology acquisition.	3.9078591	0.8673849	1
OCB2	I am prepared to go an extra mile for the company.	3.8211382	0.8880167	2
OCB3	My company provides staff training programs to enhance our skills.	3.5176152	0.9698379	6
OCB4	My work organization often improves work conditions and environment.	3.5718157	1.0219691	4
OCB5	Productivity of my company is higher than industry average.	3.5636856	0.9566037	5
OCB6	My company has sufficient resources to develop new services.	3.7506775	0.9398519	3

Organizational Culture

No	Organizational Culture	Mean	Standard Deviation	Rank
OCL1	Members of this company have a strong sense of participation.	3.8238482	0.8777908	2
OCL2	The company posses a fine spirit in completing task.	3.5907859	0.8489262	6
OCL3	In my organization, there is always someone to address work problems.	3.6097561	0.8904763	5
OCL4	My team supports knowledge and technical information sharing.	3.7967480	0.8656427	3

OCL5	This company's members meet freely to discuss the coordination of new ideas.	3.7018970	0.9544072	4
OCL6	During our spare time, team members of this organization socialize and hold various social activities.	3.8265583	0.9709080	1

Service Innovation

No	Service Innovation	Mean	Standard Deviation	Rank
SI1	At work, I seek new service technique and methods in developing new services.	3.7452575	0.8939017	4
SI2	At work, I often propose my creative ideas to improve service and try to convince my company.	3.7262873	0.7285987	5
SI3	At work, I try to propose a suitable plan for developing new ideas and services.	3.7533875	0.7419097	3
SI4	Overall, I consider myself a creative member of my team in my company.	3.8401084	0.9142091	2
SI5	I make innovative suggestions to improve the overall quality of my organization.	3.6287263	0.7663711	6
SI6	We manage to cope with market demands and develop new products and services quickly.	4.0054201	0.6915428	1

Appendix 4.0 Reliability Analysis

Topic	Coefficient Alpha Value	No. of items
Technology	0.772240	6
Research and Development	0.815811	6
Customer Co-creation	0.828907	6
Organizational Support	0.780634	6
Organizational Capability	0.778820	6
Organizational Culture	0.865404	6
Service Innovation	0.838030	6

Appendix 5.0 Pearson’s Correlation Analysis

		Service Innovation
Technology	Pearson correlation	0.28390
	Sig. (2-tailed)	<.0001
R&D	Pearson correlation	0.52781
	Sig. (2-tailed)	<.0001
Customer co-creation	Pearson correlation	0.60852
	Sig. (2-tailed)	<.0001
Organizational support	Pearson correlation	0.43410
	Sig. (2-tailed)	<.0001
Organizational capability	Pearson correlation	0.38892
	Sig. (2-tailed)	<.0001
Organizational culture	Pearson correlation	0.54863

Sig. (2-tailed) <.0001

Appendix 5.1 Multiple Regression Analysis

Root MSE	R-Square	Dependent Mean	Adjusted R-Square	Coefficient Variance
0.42763	0.4835	3.78320	0.4749	11.30330

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	61.95904	10.32651	56.47	<.0001
Error	362	66.19679	0.18286		
Corrected Total	368	128.15583			

c. Independent Variables: Technology, Research and Development, Customer Co-creation, Organizational Capability, Organizational Support and Organizational Culture

d. Dependent Variable: Service Innovation

Variable	DF	Parameter Estimates	Standard Error	t-value	Pr > t
Intercept	1	0.78245	0.18001	4.35	<.001
Technology	1	-0.20981	0.07522	-2.79	0.0056
Research and Development	1	0.11037	0.05144	2.15	0.0325
Customer Co-creation	1	0.28447	0.05835	4.87	<.0001
Organizational Support	1	0.10287	0.04127	2.49	0.0131

Organizational Capability	1	0.27722	0.07809	3.55	0.0004
Organizational Culture	1	0.22246	0.03863	5.76	<.0001

Source: Developed from research

Appendix 6.0 Questionnaire**UNIVERSITI TUNKU ABDUL RAHMAN**

Wholly Owned by UTAR Education Foundation (Company No. 578227-M)

15th February 2018

To Whom It May Concern,

Dear Sir/Madam,

Permission to Conduct Survey

This is to confirm that the following students are currently pursuing their *Bachelor of Business Administration (Hons)* program at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR) Perak Campus.

I would be most grateful if you could assist them by allowing them to conduct their research at your institution. All information collected will be kept confidential and used only for academic purposes.

The students are as follows:

<u>Name of Student</u>	<u>Student ID</u>
Kee Yong Yan	14ABB03178
Kennethiswaran A/L Pathmanathan	14ABB02056
Lai Yit Ling	14ABB03504
Sam Man Onn	14ABB03191
Tai Jia Jun	14ABB04472

If you need further verification, please do not hesitate to contact me.

Thank you.

Yours sincerely,

Dr Choong Yuen Onn
Head of Department,
Faculty of Business and Finance
Email: choongyo@utar.edu.my

Mr Fong Chee Yang
Supervisor,
Faculty of Business and Finance
Email: fongcy@utar.edu.my



UNIVERSITY TUNKU ABDUL RAHMAN
FACULTY OF BUSINESS AND FINANCE
BACHELOR OF BUSINESS
ADMINISTRATION (HONS)

FINAL YEAR PROJECT

SURVEY QUESTIONNAIRE

The Drivers of Service Innovation in Insurance Industry

Dear Respondents:

We are students of Bachelor of Business Administration (Hons) from Universiti Tunku Abdul Rahman (UTAR), Perak Campus. We are conducting a survey on insurance industry. The purpose of this research is to study the influence of technology, research and development, customer co-creation, organizational support, organizational capability and organizational culture on service innovation in insurance industry in Malaysia. Your co-operation to answer questions is very important in helping our research.

Thank you very much for your time and participation.

If you have any question or inquiry, please contact our members.

NAME	PHONE NO	EMAIL
Kee Yong Yan	016-9807371	yongyankee@lutar.my
Kennethiswaran	012-5774561	kenneth960806@lutar.my
Lui Yit Ling	012-5532992	ling960@lutar.my
Sam Man Onn	016-5943977	sammanonn@lutar.my
Tai Jia Jun	016-5923063	jiajun9@lutar.my

Guidelines for Completing the Questionnaire

1. There are **THREE (3)** sections in this questionnaire. Kindly answer **ALL** questions in Section A, Section B and Section C.
2. Completion of this questionnaire will take your approximately 10-15 minutes.
3. This questionnaire will be kept strictly **CONFIDENTIAL**.

PERSONAL DATA PROTECTION STATEMENT

Please be informed in that accordance with Personal Data Protection Act 2010 (“PDPA”) which came into force on 15 November 2013, University Tunku Abdul Rahman (“UTAR”) is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Acknowledgement of Notice

I have been notified by you and I hereby understood, consented and agreed per UTAR notice.

I disagree, my personal data will not be processed.

.....

Date:

Section A: Respondent's Demographic Information

Please tick (✓) for the most appropriate answer in the following items.

1. Please indicate your gender:

- Male Female

2. Which of the following age group you belong to?

- 18 - 29 years old 30 - 39 years old 40 - 49 years old
 50 - 59 years old 60 years old and above

3. What is your race?

- Chinese Malay Indian
 Others (Please Specify): _____

4. What is your marital status?

- Single Married Divorced
 Widowhood

5. Highest Educational Level:

- SPM/ O Level A Level/ STPM/ Foundation
 College Certificate/ Diploma Bachelor's Degree
 Master's Degree Doctorate Degree
 Others (Please Specify): _____

6. How long you have been working in this company?
- Below 5 years 5 – 10 years 11 – 15 years 16 – 20 years
- 21 – 25 years 26 – 30 years 30 years and above
7. How long you have been service in the insurance industry?
- Below 5 years 5 – 10 years 11 – 15 years 16 – 20 years
- 21 – 25 years 26 – 30 years 30 years and above
8. What is your current position level in this company?
- Executive Supervisor Manager Chief Executive
- Others (Please Specify): _____
9. Income range per month:
- RM3000 and below RM3001 – RM4000 RM4001 – RM5000
- RM5001 – RM6000 RM6001 – RM7000 RM7001 and above

Section B:

Please describe your personal views of the following statements related to your current working environment as objectively as you can, by encircling number against each statement from the rating scale given below. [Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5]

Part 1: Technology

No	Technology	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My company frequently improves internal processes such as speed, reliability and information management.	1	2	3	4	5
2	My company allocates resources for investments in latest technologies and future forecasted technological changes.	1	2	3	4	5
3	My company purchases and uses technologies to position itself ahead of competitors.	1	2	3	4	5
4	My company has allocated an adequate budget for purchasing IT hardware and service.	1	2	3	4	5
5	My firm’s policy is to adopt up-to-date technologies.	1	2	3	4	5
6	My firm is often to be first to try out new methods and technologies.	1	2	3	4	5

Part 2: Research and Development (R&D)

Def: referred to the activities undertaken by the organization for the purpose of creating new and innovating products & services.

No	Research and Development (R&D)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My company undertook in-house R&D activities.	1	2	3	4	5
2	My company bought machinery and	1	2	3	4	5

	computers related to R&D.					
3	My company engaged in training activities related to R&D.	1	2	3	4	5
4	My company acquired R&D service and invested in the acquisition of external knowledge.	1	2	3	4	5
5	My company emphasize on developing new products and services.	1	2	3	4	5
6	My company often put effort in the development of new things.	1	2	3	4	5

Part 3: Customer Co-creation / Engagement

Def: involves the intensity of an individual's participation and connection with organization's offering and activities initiated by either the customer or the organization

No	Customer Co-creation	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My organization co-defines value with our customers.	1	2	3	4	5
2	In my organization, customers are viewed as potential sources of new ideas and offerings.	1	2	3	4	5
3	In my organization, customers actively give feedback and suggestions.	1	2	3	4	5
4	In my organization, customer is a source of knowledge and new ideas.	1	2	3	4	5
5	My organization cooperated with a customer for developing new services.	1	2	3	4	5
6	Relations with customers are very strong and stable.	1	2	3	4	5

Part 4: Organizational Support

Def: Employees' perceived assessment of working environment as supportive for innovation

No	Organizational Support	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My company constantly emphasizes development of particular and patent products.	1	2	3	4	5
2	My company constantly emphasizes and introduces advanced managerial practices (e.g. computer-based system, new employee reward/training schemes, new departments or project teams, etc.).	1	2	3	4	5
3	Proposals for new ideas are always welcome in my organization.	1	2	3	4	5
4	Management actively encourage new ideas generation by employees.	1	2	3	4	5
5	My company will offer incentives/promotion to members involved in the development of new business.	1	2	3	4	5
6	My company promotes and supports new ideas, experimentation and creative processes.	1	2	3	4	5

Part 5: Organizational Capability

Def: The ability for an organization to develop new products in order to fulfil customers' demand

No	Organizational Capability	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My company involve in enhancement of technology acquisition.	1	2	3	4	5
2	I am prepared to go an extra mile for the company.	1	2	3	4	5
3	My company provides staff training programs to enhance our skills.	1	2	3	4	5
4	My work organization often improves work conditions and environment.	1	2	3	4	5

5	Productivity of my company is higher than industry average.	1	2	3	4	5
6	My company has sufficient resources to develop new services.	1	2	3	4	5

Part 6: Organizational Culture

Def: it is conceptualized as shared belief and values within the organization that helps to shape the behavior patterns of employees

No	Organizational Culture	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Members of this company have a strong sense of participation.	1	2	3	4	5
2	The company posses a fine spirit in completing task.	1	2	3	4	5
3	In my organization, there is always someone to address work problems.	1	2	3	4	5
4	My team supports knowledge and technical information sharing.	1	2	3	4	5
5	This company’s members meet freely to discuss the coordination of new ideas.	1	2	3	4	5
6	During our spare time, team members of this organization socialize and hold various social activities.	1	2	3	4	5

Section C:

Please describe your personal views of the following statements as objectively as you can, by encircling number against each statement from the rating scale given below. .[Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5]

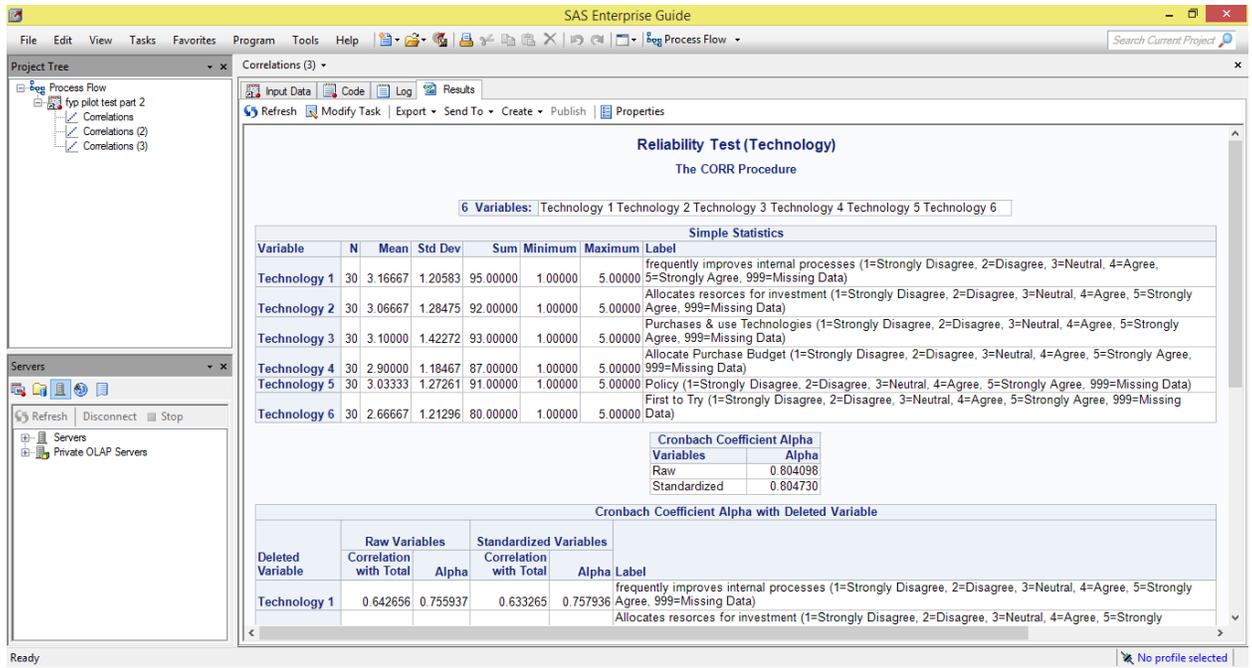
No	Service Innovation	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	At work, I seek new service technique and	1	2	3	4	5

	methods in developing new services.					
2	At work, I often propose my creative ideas to improve service and try to convince my company.	1	2	3	4	5
3	At work, I try to propose a suitable plan for developing new ideas and services.	1	2	3	4	5
4	Overall, I consider myself a creative member of my team in my company.	1	2	3	4	5
5	I make innovative suggestions to improve the overall quality of my organization.	1	2	3	4	5
6	We manage to cope with market demands and develop new products and services quickly.	1	2	3	4	5

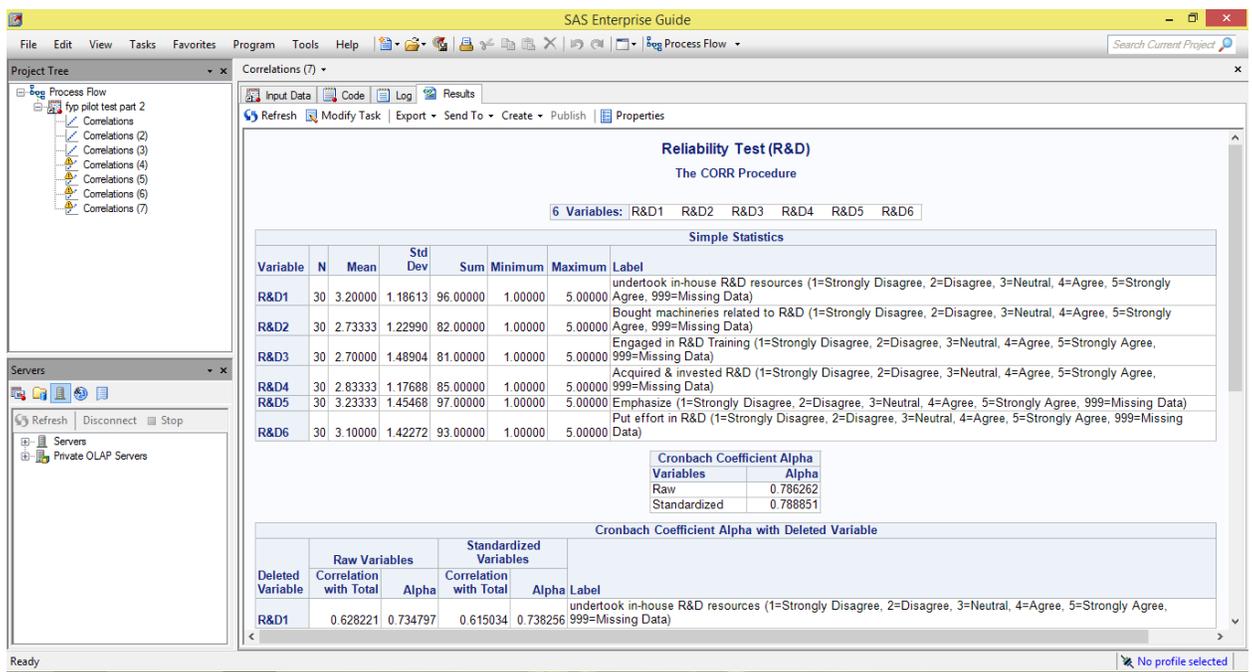
**Thank you very much for your participation.
Your time and opinion are greatly appreciated.**

Appendix 7.0: Reliability Analysis Results for Pilot Test

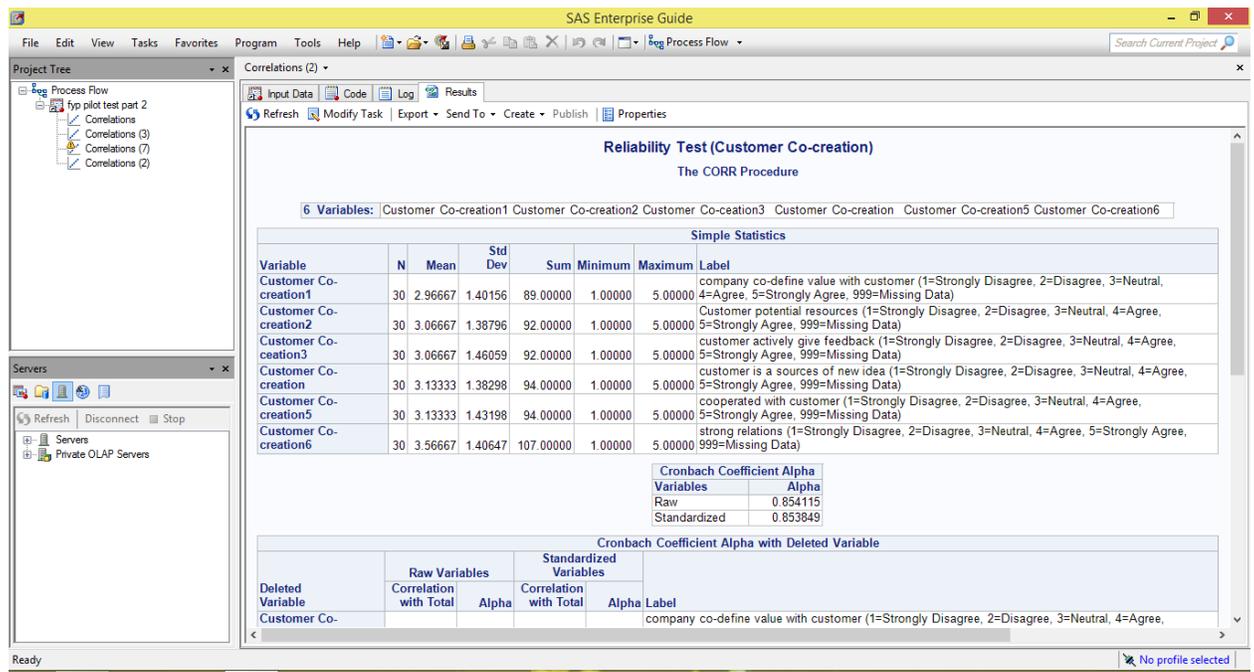
Independent variable: Technology



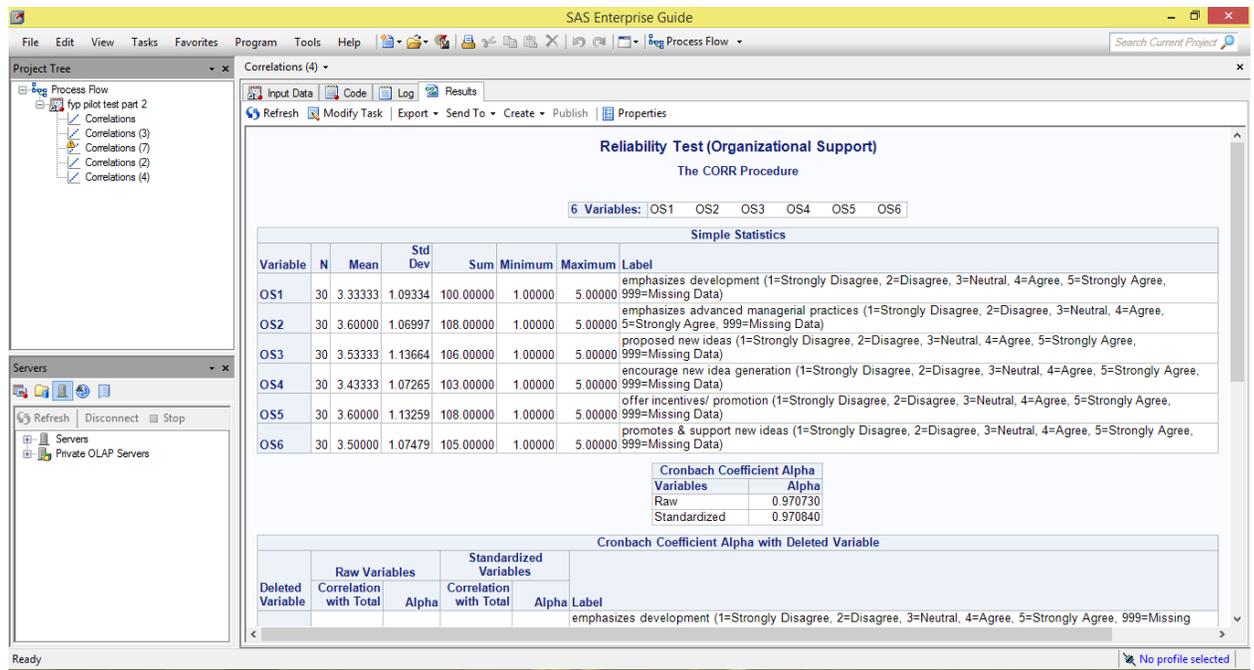
Independent variable: Research and Development



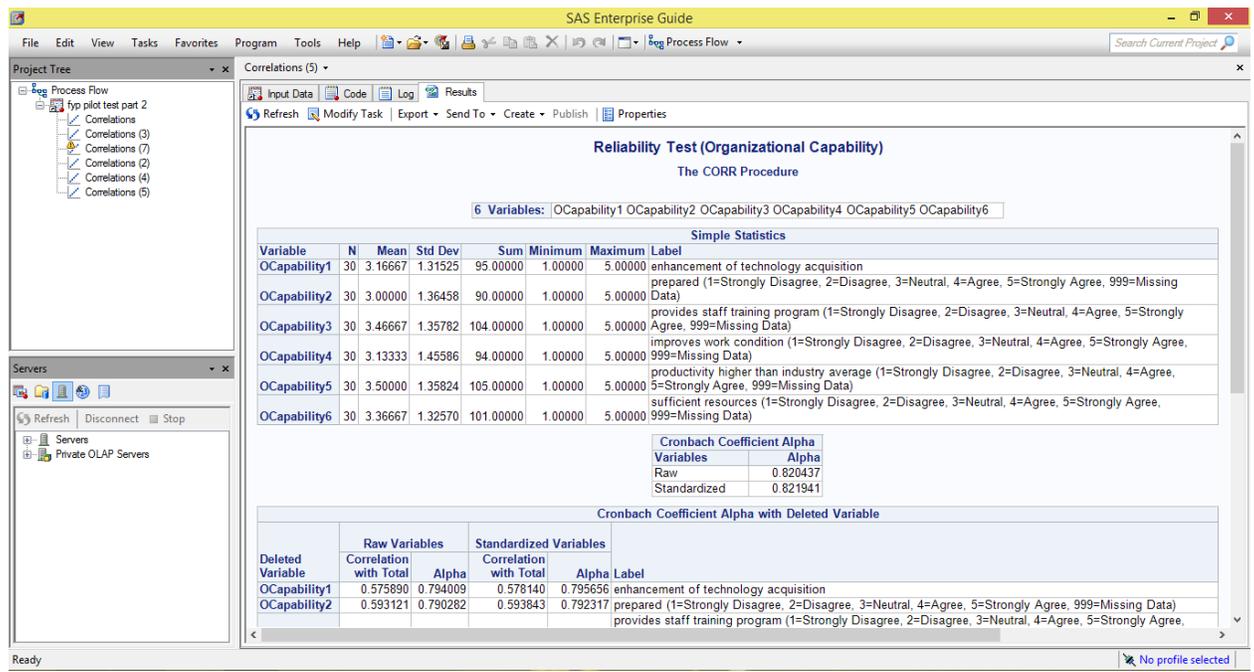
Independent variable: Customer Co-creation



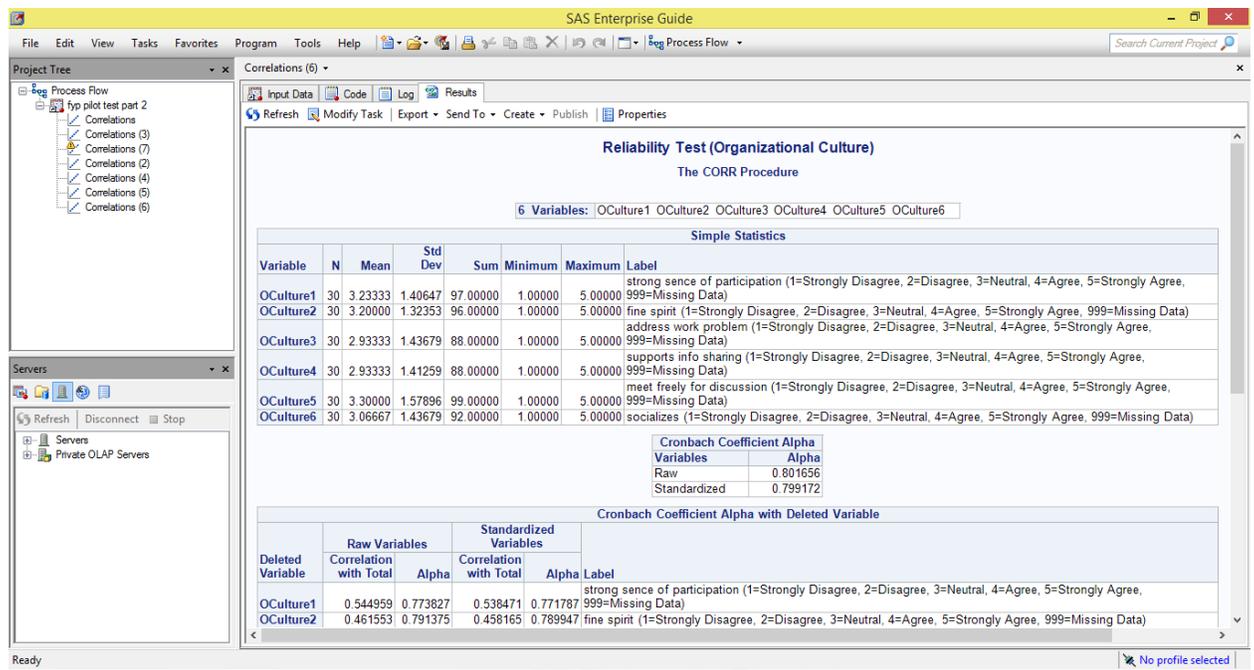
Independent variable: Organizational Support



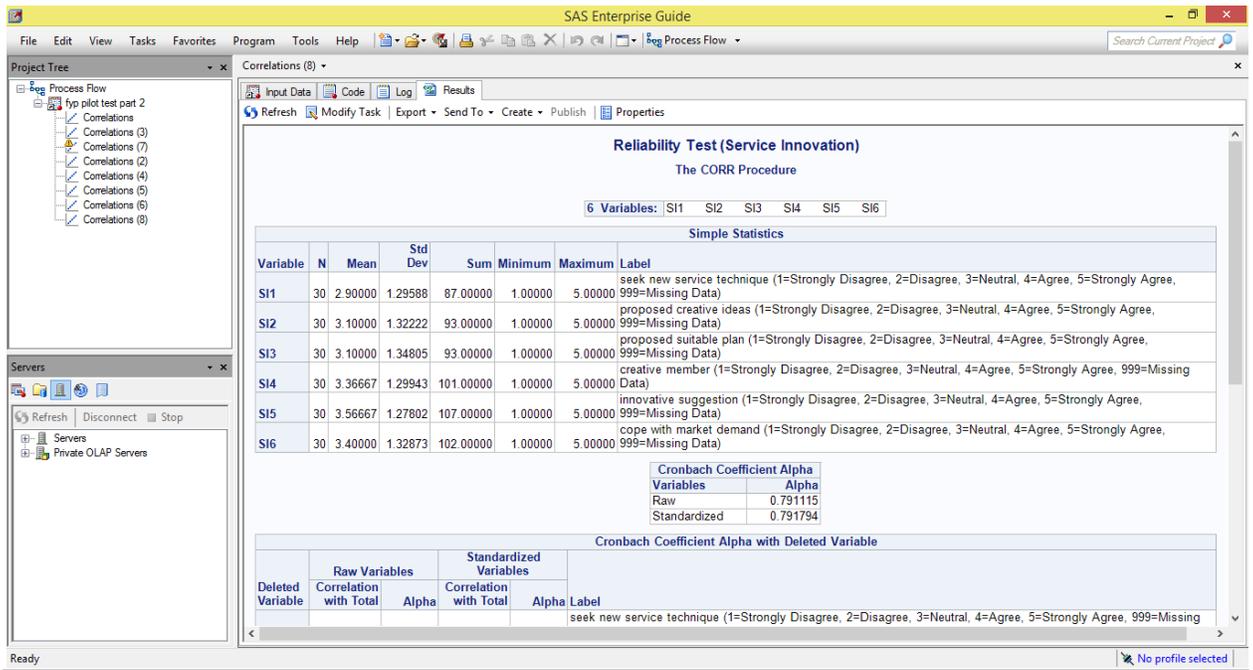
Independent variable: Organizational Capability



Independent variable: Organizational Culture



Dependent Variable: Service Innovation



Appendix 8.0: Reliability Analysis Results for Full Test

Reliability Test

Independent variable: Technology

Cronbach Coefficient Alpha				
Variables	Alpha			
Raw	0.772240			
Standardized	0.772050			

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
Technology1	0.474375	0.749010	0.475296	0.748712	Improve internal processes, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Technology2	0.544803	0.731397	0.547364	0.730369	Allocates resources for investment, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Technology3	0.598853	0.716442	0.599425	0.716731	Purchase & Use Technologies, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Technology4	0.552616	0.729060	0.549503	0.729815	Allocate purchasing budget, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Technology5	0.593406	0.718381	0.593006	0.718430	Policy, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Technology6	0.347691	0.780714	0.344720	0.780400	First to try, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Independent variable: Research and Development

Cronbach Coefficient Alpha				
Variables	Alpha			
Raw	0.815811			
Standardized	0.818757			

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
R&D1	0.601397	0.783581	0.603518	0.785579	Undertook in-house R&D resources, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
R&D2	0.649310	0.771775	0.653328	0.774631	Bought machineries related to R&D, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
R&D3	0.659216	0.767910	0.655215	0.774211	Engaged in R&D training, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
R&D4	0.610771	0.780476	0.609269	0.784327	Acquired & invested R&D, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
R&D5	0.579545	0.786907	0.580475	0.790564	Emphasize, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
R&D6	0.400120	0.826013	0.404495	0.827013	Put effort in R&D, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Independent variable: Customer Co-creation

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.828907
Standardized	0.832887

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
Customer Co-creation1	0.619005	0.798924	0.623823	0.802042	Co-define value with customers, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Customer Co-creation2	0.682703	0.785401	0.681913	0.789954	customer potential resources, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Customer Co-creation3	0.720480	0.773670	0.712370	0.783497	customer actively give feedback, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Customer Co-creation4	0.629839	0.797623	0.631909	0.800377	customer is source of new idea, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Customer Co-creation5	0.598973	0.802590	0.592919	0.808352	cooperated with customer, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Customer Co-creation6	0.390472	0.843492	0.400534	0.845796	strong relations, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Independent variable: Organizational Support

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.780634
Standardized	0.780870

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
Org Support1	0.510640	0.752418	0.508481	0.752884	Emphasize advanced managerial practices, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Support2	0.526749	0.748360	0.533262	0.746772	emphasized advanced managerial practices, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Support3	0.527203	0.748026	0.527086	0.748301	proposed new ideas, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Support4	0.486483	0.757957	0.483424	0.758993	Encourage new idea generation, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Support5	0.575387	0.735525	0.578419	0.735453	Offer incentives/promotion, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Support6	0.544001	0.743712	0.538440	0.745486	Promotes & support new ideas, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Independent variable: Organizational Capability

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.778820
Standardized	0.778786

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
Org Capability1	0.510375	0.749774	0.511270	0.749239	Enhancement of technology acquisition, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Capability2	0.516744	0.748105	0.521823	0.746619	Prepared, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Capability3	0.600800	0.726138	0.601847	0.726332	Provide staff training program, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Capability4	0.544079	0.741390	0.540727	0.741894	Improves work condition, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Capability5	0.608500	0.724338	0.604718	0.725591	productivity higher than industry average, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Capability6	0.381961	0.780279	0.379501	0.780888	sufficient resources, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Independent variable: Organizational Culture

Cronbach Coefficient Alpha					
Variables	Alpha				
Raw	0.865404				
Standardized	0.866389				

Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
Org Culture1	0.688823	0.837811	0.693642	0.838203	Strong Sence of participation, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Culture2	0.642447	0.845971	0.644887	0.846867	fine spirit, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Culture3	0.700341	0.835639	0.700232	0.837019	address work problem, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Culture4	0.639720	0.846341	0.634817	0.848635	supports info sharing, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Culture5	0.742585	0.827222	0.743292	0.829204	meet freely for discussion, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Org Culture6	0.561097	0.861812	0.560143	0.861523	Socializes, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

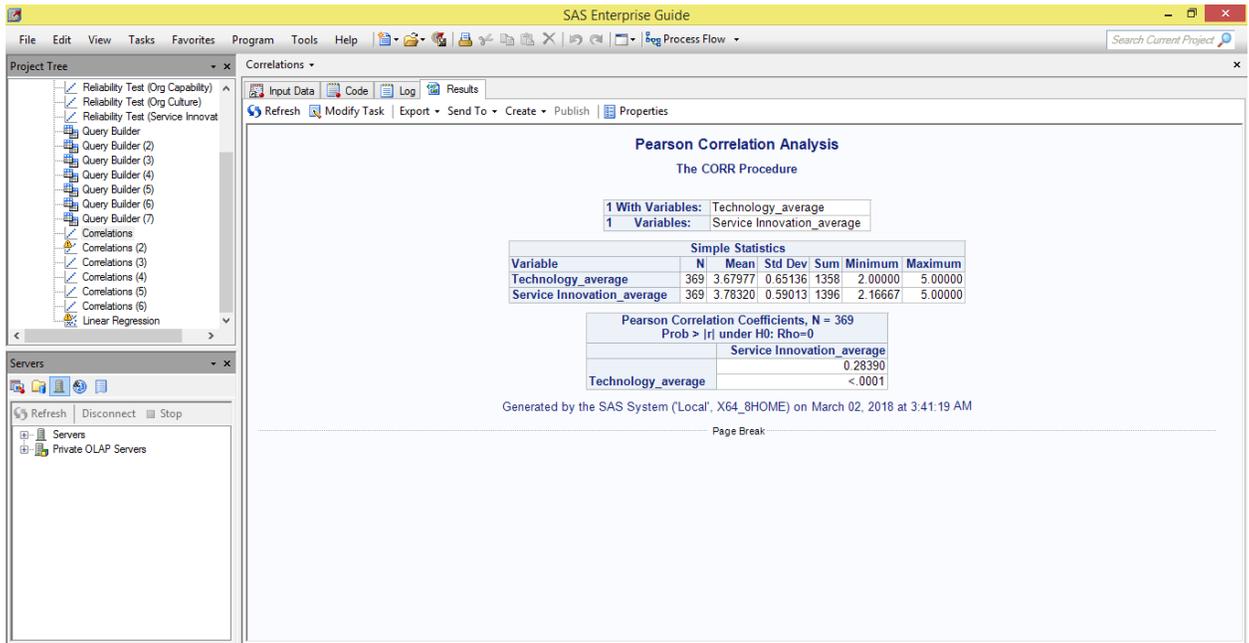
Dependent variable: Service Innovation

Cronbach Coefficient Alpha					
Variables	Alpha				
Raw	0.838030				
Standardized	0.837584				

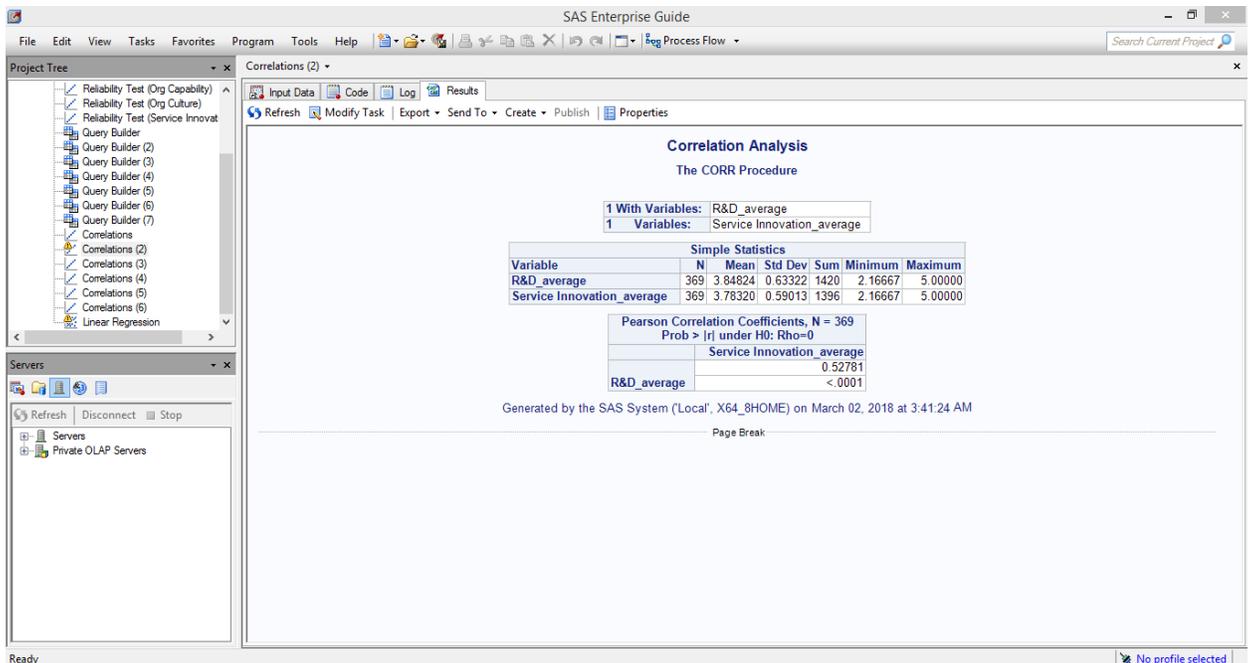
Cronbach Coefficient Alpha with Deleted Variable					
Deleted Variable	Raw Variables		Standardized Variables		Label
	Correlation with Total	Alpha	Correlation with Total	Alpha	
Service Innovation1	0.632279	0.808871	0.620691	0.809560	seek new service technique, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Service Innovation2	0.674826	0.800901	0.672172	0.799111	proposed creative ideas, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Service Innovation3	0.670264	0.801339	0.665665	0.800445	Proposed suitable plan, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Service Innovation4	0.719137	0.788868	0.713930	0.790468	Creative member, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Service Innovation5	0.559063	0.822122	0.566814	0.820254	Innovative suggestion, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data
Service Innovation6	0.443188	0.841552	0.446256	0.843307	Cope with market demand, 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree, 99=Missing Data

Appendix 9.0 Pearson Correlation Coefficient

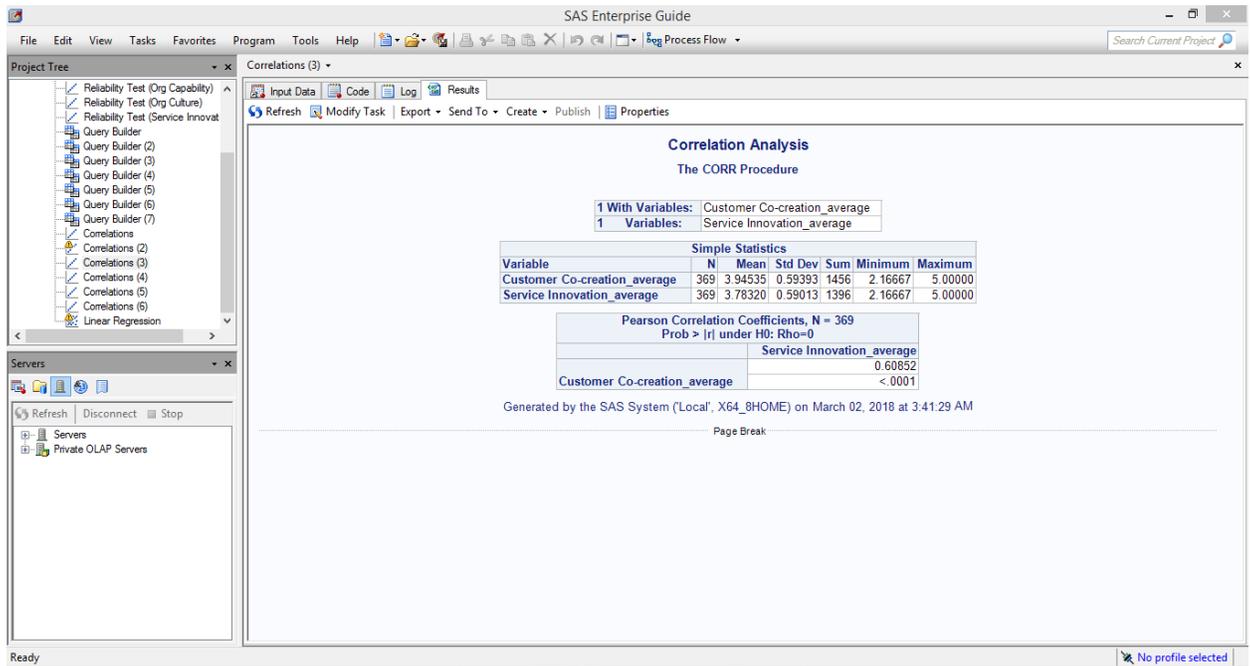
Technology and Service Innovation



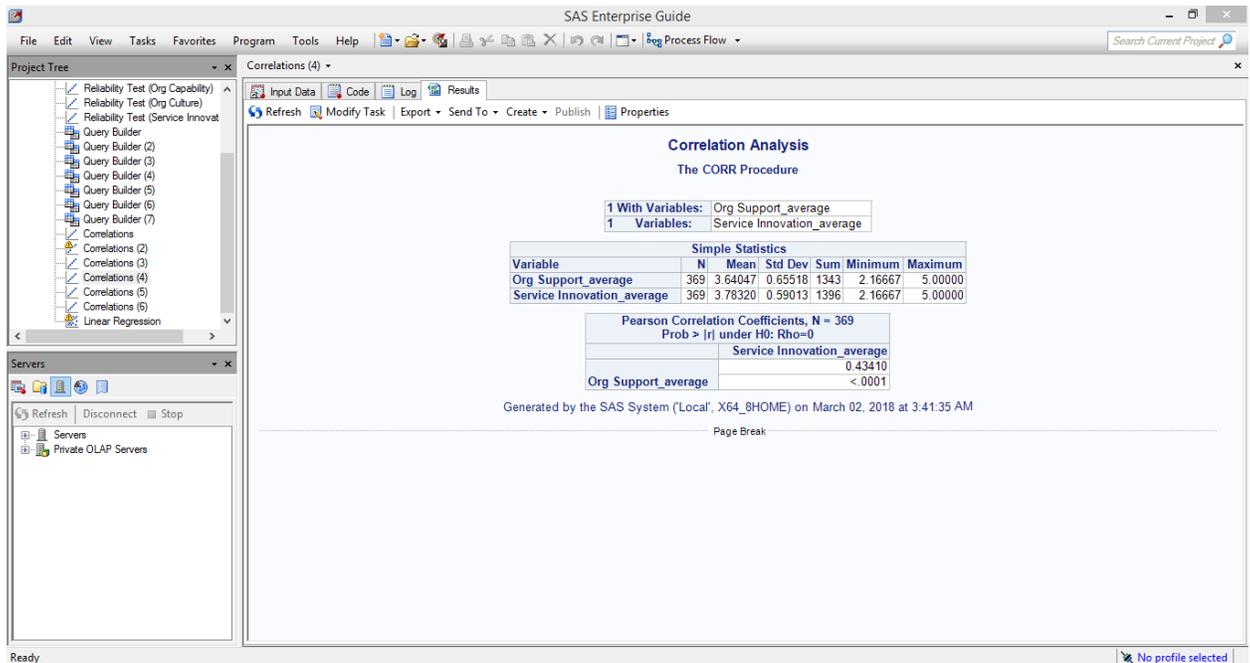
Research and Development and Service Innovation



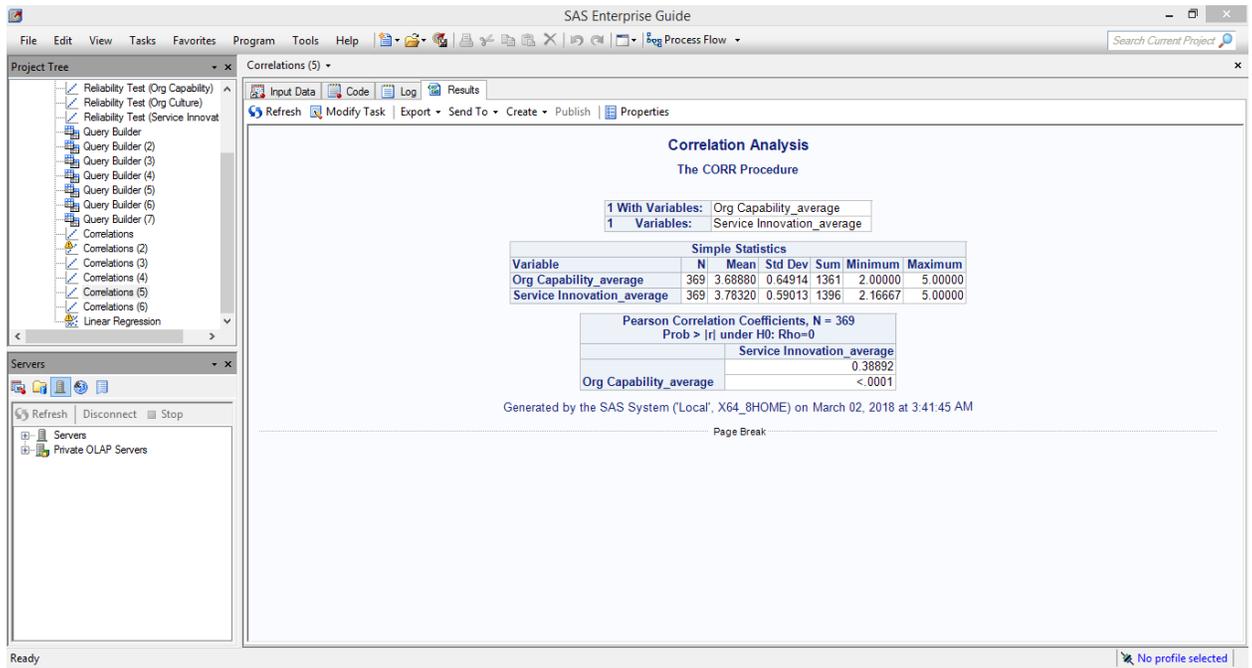
Customer Co-creation and Service Innovation



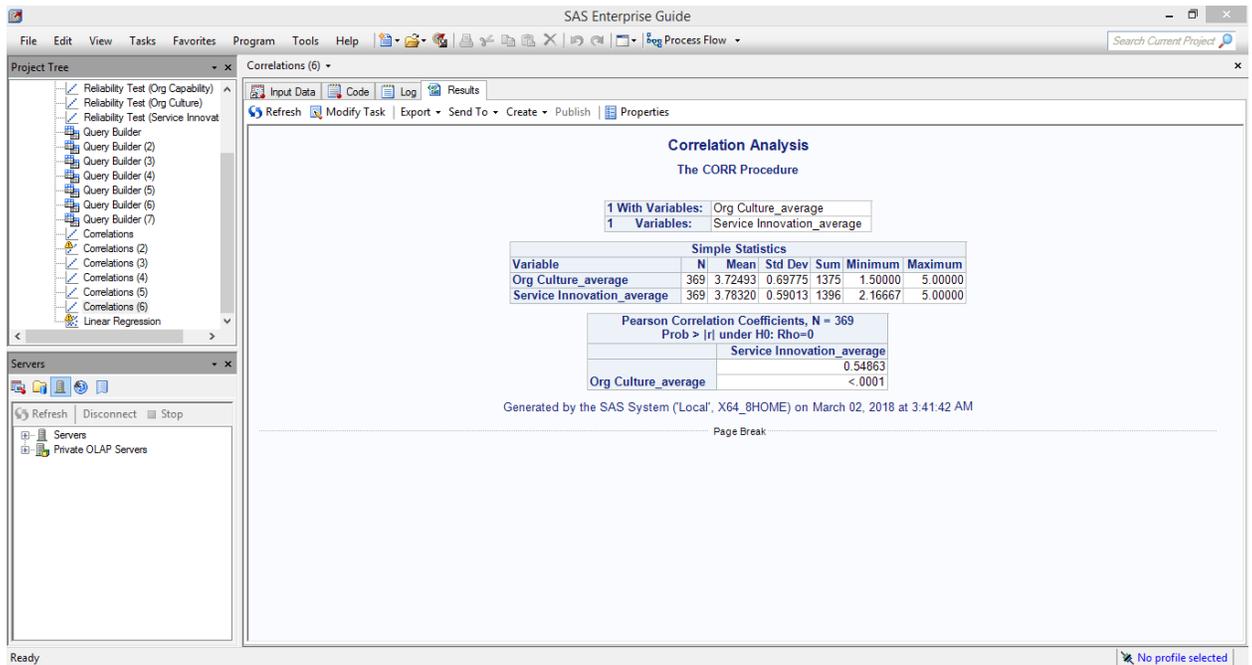
Organizational Support and Service Innovation



Organizational Capability and Service Innovation



Organizational Culture and Service Innovation



Appendix 10.0 Multiple Regression Analysis

Linear Regression Results

The REG Procedure
 Model: Linear_Regression_Model
 Dependent Variable: Service Innovation_average

Number of Observations Read	369
Number of Observations Used	369

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	61.95904	10.32651	56.47	<.0001
Error	362	66.19679	0.18286		
Corrected Total	368	128.15583			

Root MSE	0.42763	R-Square	0.4835
Dependent Mean	3.78320	Adj R-Sq	0.4749
Coeff Var	11.30330		

Parameter Estimates								
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t	Standardized Estimate	Tolerance	Variance Inflation
Intercept	1	0.78245	0.18001	4.35	<.0001	0	.	0
Technology_average	1	-0.20981	0.07522	-2.79	0.0056	-0.23158	0.20698	4.83135
R&D_average	1	0.11037	0.05144	2.15	0.0325	0.11843	0.46842	2.13482
Customer Co-creation_average	1	0.28447	0.05835	4.87	<.0001	0.28630	0.41370	2.41723
Org Support_average	1	0.10287	0.04127	2.49	0.0131	0.11421	0.67976	1.47111
Org Capability_average	1	0.27722	0.07809	3.55	0.0004	0.30495	0.19340	5.17069
Org Culture_average	1	0.22246	0.03863	5.76	<.0001	0.26303	0.68411	1.46176

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