DETERMINANTS OF INTENTION TO ADOPT CLOUD COMPUTING AMONG MALAYSIANS

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Determinants of Intention to Adopt Cloud Computing Among Malaysians

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Determinants of Intention to Adopt Cloud Computing Among Malaysians

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DECLARATION

I hereby declare that:

(1) This Research Project is the end result of my own work and that due acknowledgement has been given in the references to all sources of information be 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) The word count of this research report is 9,989 words.

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DEDICATION

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ABSTRACT

The enhancement of information technology (IT) leading a convenience life for people in Malaysia. The cloud computing also serves as one of it, however, it seems like not much Malaysians are aware and adopt it, hence, this study is conducted with a purpose to understand the determinants that influencing the intention of cloud computing adoption. The determinants are Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Perceived Risk (PR). The theory base is the Technology Acceptance Model (TAM), this study only slightly alters it; quantitative research method is adopted, and Multiple Linear Regression model is the main analysis model for this study. As resulted, the intention to adopt indeed are impacted significantly by the PU and PR, only the PEOU is not. Therefore, it is to be said that the level of difficulty to adopt a particular system is not significance in today, the usefulness and risk serve as the important criteria that influencing the intention.

CHAPTER 1: INTRODUCTION

1.1 Introduction

Introducing a study on the relationship of perceived usefulness (PU), perceived ease of use (PEOU), and perceived of risks and the intention of Malaysia adopt cloud computing. The main subjects will be explored in this chapter are background of research, problem that leading for this study, the objective and question carried, developing hypothesis, the significance, chapter layout, and a conclusion as an ending for this chapter.

1.2 Research Background

Cloud computing is defined as a new development of information technology (IT) field. It can be seen as a way, in the form of a software platform and a fundament that uses internet technologies to offer IT services. (Gangwar, Date, & Ramaswamy, 2015) . Past researchers have determined the concept of cloud computing improves the development, implementation, used, maintenance and payment of IT services (Marston, Li, Bandyopadhyay, Zhang, & Ghalsasi, 2011) . According to NIST, cloud computing provides on-demand easy acquire to configurable computer resource pools, enabling rapid configuration and release of these resource pool models with minimal effort of administrative or interaction with service providers. The cloud model improves usability and consists of five basic functions: three models of services and four models of implementation. The most important factor in cloud computing is the economic benefit of reducing the costs of existing applications (Mell & Grance, The NIST definition of Cloud Computing, 2011).

Three types of service models determined. One of it is Infrastructure-as-a-System (IaaS), which is cloud services' basic level that providing infrastructure services to consumers through networks, for instance,

hardware, which include storage and network, along with system software, which included operating system; This gives the user control over the operating system, storage and deployed implementation (Mell & Grance, The NIST definition of Cloud Computing, 2011) . In short, IaaS provides basic storage and computing capacities as a network-wide service. Servers, storage systems, network devices have been integrated to handle workloads. For example, Amazon, GoGrid and etc. Another model is Platform as a Service (PaaS), the following level of cloud computing, providing necessary resources for construct application online. It is an that providing the tools that allows to access to programming languages and libraries, such as design of application, development & testing of application, deploying the application, and tool of hosting (Velte, Velte, & Elsenpeter, 2009) . When programming languages are comparable between service providers, users no longer required to purchase, install, and manage the underlying infrastructure platform. This services model providing a pre-determined combination of operating system and application server for the LAMP platform, the abbreviation of Linux, Apache, MySql, and PHP, to meet application management and scalability requirements. Some examples are Azure service platform, Google App Engine and others. Finally, the third model is Software-as-a-Service (SaaS), which supplies software to consumers through the network. Software is considered an on-demand service because users can install software anytime, anywhere by the only condition, enable access to the network, they can receive services through the software. Examples of SaaS are Google Doc, Salesforce.com, and others.

According to the types of proprietary and non-proprietary methods that cloud services offer, there are four cloud implementation models, such as hybrid, private, public, and community (Mell & Grance, 2011). A third party is the owner and operator of public cloud; due to "Pay-as-you-go" model, economies of scales are delivered by the party to their customers, since with this model, the infrastructure costs

ae widely divided by the mix of users. Consumers have the identical infrastructure pool, but there are limited differences in configuration, security, protection and availability. Private cloud is constructed for an organization and two private clouds are existed, namely on-premise and externally hosted. On-premise private cloud, or determined as internal cloud, are operated by own data centre. It offers a process and protection that is more standardized and protection, but the scalability and size are limited, and considerable costs will be incurred for operation and physical resources. Meanwhile, the hosted private cloud, or known as external, literally, this model is operated externally by a cloud provider, and the provider eases a special cloud environment with assurance of privacy. The hybrid cloud, literally is syndicate of public cloud and private cloud. Cloud computing become more flexible under this model because service providers able to maximize the use of third party's cloud providers. This model has great potential since it consists the augment a private cloud's ability along with the public cloud's resources.

Cloud computing can bring some benefits, such as cost reduction, which able to increase or decrease the usage of hardware or software resources immediately and in some cases automatically. Hardware storage will be no required, and with the cloud storage, users can access to it anytime, anywhere as long as the user can connect to a network. Moreover, scalability, expenditures can be controlled in more efficient way with the "Pay as you go model", pay for what you needed, no extra a little cost (Harris) . The cloud computing also advantages in lower investment, and reduced risk. It's because the upgrade of the system is done by the providers, users would only need to extra low cost or does not need to pay at all. Furthermore, the support is included for the whole life. Users can enjoy the latest updated security procedures; availability and performance of providers come with valuable experience and also knowledge. Moreover, as mentioned, users can access to the cloud computing

regardless on the location, plus users can examine and evaluate the resources with no cost charging, this brings another benefit which known as greater security and accessibility. Cloud computing are like all the things in the world, consist some flaws or drawbacks; the most concerned drawback regard to the cloud computing is the privacy risk. The information of users will be store at the hand of third party, although the third party sure have the firewall security to avoid being hacked, but there still have the risk of data leaked due to human error or more advance hacking skills. As instance, the most sensitive data, banking records and personal data, are stored in a server which the owners of the data have no control on the server, there is a risk of data leaked.

1.3 Problem Statement

The cloud computing is widely known as a changer for technology because it is potentially can change the way of information technology operated. It provides anytime, anywhere services; as a matter of fact, it has the ability to fundamentally shift a competitive landscape with a new platform provided, which enable to create and deliver business value. However, unlike developed countries, the usage of cloud computing in developing countries which including Malaysia, it is still in its early stages and cloud computing has not been as widely used. Moreover, now is already a digital era, most of things apply technology for operations, such as automatic machine adopted in manufacturing industry, Fintech in financial sector, e-wallet and e-commerce, even our money, currency could be replaced by cryptocurrency, plus, most of the own a smartphone nowadays, the technology innovation is moving with an unexpected speed; therefore, as one of the new trends, why cloud computing is not adopted widely. In addition, the cloud computing is like all the things in the world, it has pro and cons, and as stated previously, cloud computing brings certain benefits to users, such as cost advantages, no geographical restrictions, economic benefits, and et cetera and the cons mainly

concerned is about the risk. And in fact, moving a traditional system to the cloud depends on many reasons that might impact on a person's decision to employ cloud services. It takes times for people to get used to with something new. Therefore, this study is aiming to understood in detail on the determinants that influence Malaysian's intentions to adopt cloud technology.

1.4 Research Objective

With the problem statement, objectives of this study are as following:

a. To investigate the intention of Malaysians to adopt cloud computing.
b. To investigate will the perceived usefulness affect the intention.
c. To investigate will the perceived ease of use affect the intention.
d. To investigate will the perceived risk affect the intention.

1.5 Research Question

After research objective, questions are found to be answered in this study and the questions are as following:

a. What influence the intention of Malaysians to adopt cloud computing?
b. Will the perceived usefulness affect the intention?
c. Will the perceived ease of use affect the intention?
d. Will the perceived risk affect the intention?

1.6 Hypothesis Development

a. H_0: There is no relationship between the intentions to adopt cloud computing and perceived usefulness.

   H_1: There is relationship between the intention to adopt cloud computing and perceived usefulness.

b. H_0: There is no relationship between the intention to adopt cloud computing and perceived ease of use.

   H_1: There is relationship between the intention to adopt cloud computing and perceived ease of use.

c. H_0: There is no relationship between the intention to adopt cloud computing and perceived risk

   H_1: There is relationship between the intention to adopt cloud computing and perceived risk

1.7 Significance of the Study

As mentioned in problem statement, technology is widely adopted in many sectors and industry, and also adopted in daily usage, as instance, smartphone. The technology is become advanced, the next trends hitting this world are the artificial intelligence, big data and so on, in the future, labour maybe replaced by robotic, artificial intelligence. However, Malaysia, as one of the developing countries, doesn't seem like widely adopted all the latest technology as developed country. It is true the Malaysia is in developing, but the new technology, doesn't seem like welcomed by Malaysian. This a challenge for Malaysia to achieve its goal to be a developed country if Malaysians don't have the intention to adopt the technology. Malaysia government also have to take actions on educating and motivating Malaysian to adopt the technology. Cloud computing is one of the hottest topic and technology widely been used, also not welcomed by most of the Malaysian, and the cloud computing can be adopted for most of the people for their daily operation, such as work, study, and as well as business. This study can contribute a deep investigation on the reasons that affecting the cloud computing usage intention.

1.8 Chapter Layout

a. Chapter 1: Introduction

   This chapter is an introductory article outlining cloud computing. There are also some research questions that must be answered and the research objectives to be achieved. It also includes the hypothesis and significance to be tested, and total layout of the study.

b. Chapter 2: Literature Review

Chapter 2 provides a proposed conceptual framework for identifying literature reviews, investigating relevant theoretical models, and using relational networks for hypothesis development. In this chapter, the independent and dependent variables of this study are determined by studies supported by other researchers.

c. Chapter 3: Methodology

This chapter clarified the how the research is designed, how to progress the data collection, how the sampling is design, type of research tools, progress to construct measurement, the way to process and analysis data.

d. Chapter 4: Interpretation

This chapter is presenting outputs of analysis conducted and the interpretation of the result.

e. Chapter 5: Discussion and Conclusion

This chapter is presenting discussion on the major finding of this study and providing the implication and limitation of this study, and concluding this study.

1.9 Conclusion

Chapter one presented the foundation for this study and also presented the research background, problem statement that needed to be solved, the objectives of the research have to be reached and as well as the research questions have to be answered, and constructs the hypothesis of this study. Lastly, the significance of study, and also the contents of each chapter are briefly presented in this chapter as well.

2 CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Current chapter is to present a review of relevant past studies, and also review of some theoretical framework of relevant past studies.

2.2 Review of Literature

2.2.1 Perceived Usefulness (PU)

Perceived usefulness, Davis (1989) defined that when the level of faith for an individual believing that adopting a system may advance oneself performance., The definition provided by Divett and Henderson (2003) is that the useful is recognized only when consumers recognize the system adopted able to give an output effectively. Gefen, Karahanna, and Straub (2003) provided that the PU was adopted as the measurement of the subjective valuation of shoppers' utility which latest information technology recommended in an explicit task-related context. Past researchers such as Pikkarainen, Pikkarainen, Karjaluoto, and Phanila (2004), their study on acceptance of online banking with Technology Acceptance Model as framework, resulted that there is positive relationship between the PU and the actual behaviour of Internet banking adoption. Indicating that if user believe that the technology is useful and effectively assist them, they will not only tend, but actually adopt it. This is supported by the study of Sanchez-Franco and Roldan (2005) whereby they indicated that PU and behavioural intention are strongly correlated, especially to goal-directed users, because this type of users already set up their goal, they are acknowledged the tools that they have missed to achieve their goals. There are two types of PU, according to the study of Chau (1996), which is a near-term PU and long-term PU. The example provided from the study for near-term is such as improving job performance or enhance job satisfaction, as for long-term is to improve something regarding to oneself future, such as social status or career prospects. In term of long-term PU, it is said

that a person with motivation to gain social status is one of the keys to affect a person to adopt innovation, indicating that if the innovation could lead the person to gain a social status, the person will have high motivation to adopt (Rogers, 1983). Perceived usefulness is basically constructed with the perception of people toward the relative advantage that the adoption could bring and compatibility of the adoption to their life or works. According to the study of Rogers (1983), relative advantage is understood as the level of a technological impact is perceived could deliver benefit to firms. As mentioned, cloud computing had advantages other technologies cannot compare, for example lower cost, expandability, pliability, adaptability, and resources-sharing. Peng et al., 2012; Chen and Tan, (2004); Calisir et al. (2009) discovered the greater the availability of cloud computing platforms matches the internet, the capacity of the organization becomes higher. To take advantage of the proven cloud computing's benefits, it can reduce the uncertainty of technology users. A deep acknowledgement on how technology is compatible with the technology that is exist of an organization's architecture is critical for cloud computing. Moreover, the integration which is the ease of importing and exporting applications, and customization which is adjustment of services must be considered.

2.2.2 Perceived Ease of Use (PEOU)

Davis (1989) determined PEOU as the level of faith for an individual believing that adopting a system is effortless. Koufaris and Hampton-Sosa (2004) use subjective perception of users to describe PEOU, which related to how much effort are required to learn and use a website. Selamat, Jaaf and Ong (2009) said consumers are more prefer to adopt more friendly online shopping system which supported by Teo (2001) studied that consumers can use certain technologies when is easy to use, meaning requires fewer learning effort. Furthermore, the study of Lim and Ting (2014) determined that PU and PEOU are standard measurements for consumers to accept

certain new websites. Several components need to consider a simple process flow, a few simple components to learn flexibility. (Rahman, Khan, & Islam, 2013) . Nevertheless, PEOU will improve with an effective product searching and easy checkout process which will also increase consumers' willingness to buy (Yang & Mao, 2014).

2.2.3 Perceived Risk (PR)

Most people face many uncertainties and dangerous incidents every day. They try to control the risk and if they know about the risk they are not dealing with the risk. (Adams, 1995) . Risk is defined in different ways. Several researchers have formalized risk as the chance that a person can be affected by a risk or experience side effects. A study by Rosa (quoted in Aven 2016) supported this sentence and described the risk as "a situation or incident where human value is compromised and the outcome is uncertain". Both known and unknown risk (Aven, 2016). Uncertain uncertainties may be known if a person does not have full knowledge of something. According to Windschitl & Wells (1996), uncertainty is a psychological structure and exists only in the mind. The most well-known definition of risk is given by Frank Knight, who distinguishes between risk and uncertainty. Risk is defined as the result of being insured, but the uncertainty is not insured. (Brooke, 2010) . The perceived risk is a personal assessment toward the probability of accident and how people are interested in negative results. (Sjoberg, Moen, & Rundmo, 2004). In short, the reasons that influence a person's perception and risk's judgment included the suitability and information classification, scientific risk assessment and factors of identification (Aven & Renn, Risk management and governance, 2010) . People who are at risk realize, for example, that they are at higher risk than risk takers. Based on Dowling (cited by Dholakia in 1997), unlike other disciplines such as psychology, when assessing risks in the consumer behaviour literature, both positive and negative outcomes are considered. In general, the risks that contain potential negative

outcomes can focus on are often conceptualized from a loss perspective. In short, perceived risks include the evaluation of likelihood and the consequences of negative outcomes.

Past studies have also identified six measurements of perceived risk which is performance risk, financial risk, time risk, psychological risk, social risk, and privacy risk (Jacoby & Kaplan, 1972; Zheng, Favier, Huang, & Coat, 2012; Wunderlich, 2013).

2.3 Review of Relevant Theoretical Framework

2.3.1 Factors affecting the adoption of cloud services in enterprises

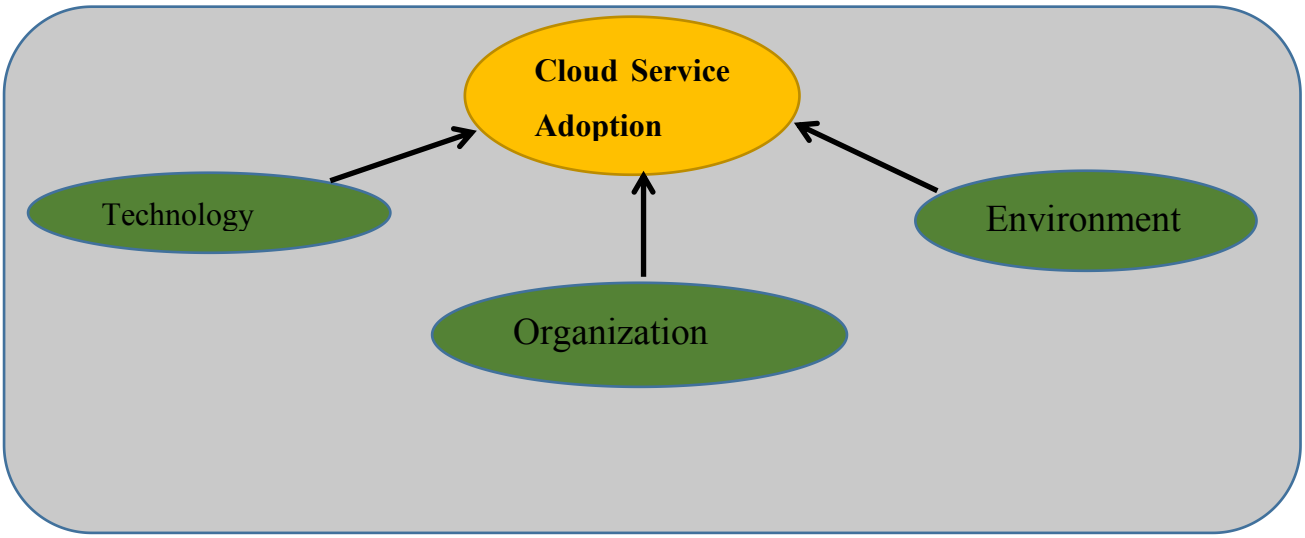


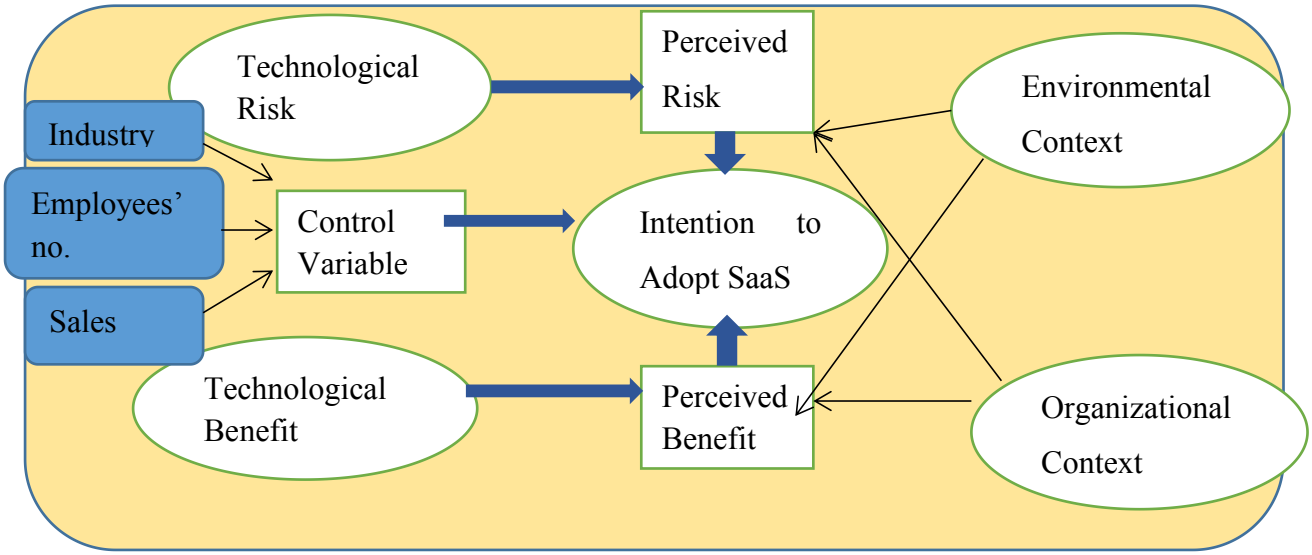
Figure 1: Model 1

Hsu and Lin (2016) studied the element that influence the acceptance of cloud services in companies and the models used in their study are TOE model. The adoption of cloud computing services by the company is defined by technology, organization and environment. First, in terms of technology, it consisted of relative advantage, variable perceptibility and security. These have a major impact on adoption in a technological context. In particular, it was determined that possible perceptibility had the most important impact on recruitment. This discovery emphasizes the ability to quickly implement cloud services and deliver specific results quickly. This increases the chance that a user will adopt cloud services if the users

are easily enough to see the results of the cloud service. Two other important elements of the perceived nature of innovation are relative advantages and security. It is clear that higher perceived innovation relative advantage conduct swift rate of adoption by the users. That is why cloud services are considered even better than alternatives. This result is worth noting that the comparative advantage is consistent with previous studies on cloud acceptance that have been shown to have serious negative effects on the acceptance of cloud computing (Low, Chen, & Wu, 2011). A possible definition for the contradiction is that companies nowadays are well known with cloud computing and show the tendency to recognize the service's benefits. Organizational factors are not match with findings from Hung et al. (2010) and Zhu et al. (2003) has a study shows that large companies tend to use the latest technology, but Grover and Martin (1993) point out that there is no significance relationship within it. The study by Hsu and Lin (2016) presumed a negative relationship, but the findings are not consistent with the hypothesis. Hsu and Lin (2016) have studied the intensity of competition and the assumptions in terms of the environment, but there is a positive relationship between the two and the findings are consistent with their assumptions and previous studies.

2.3.2 Analysis of the determinants of software-as-a-service adoption in small business: risks, benefits, and organizational and environmental factors

Figure 2: Model 2

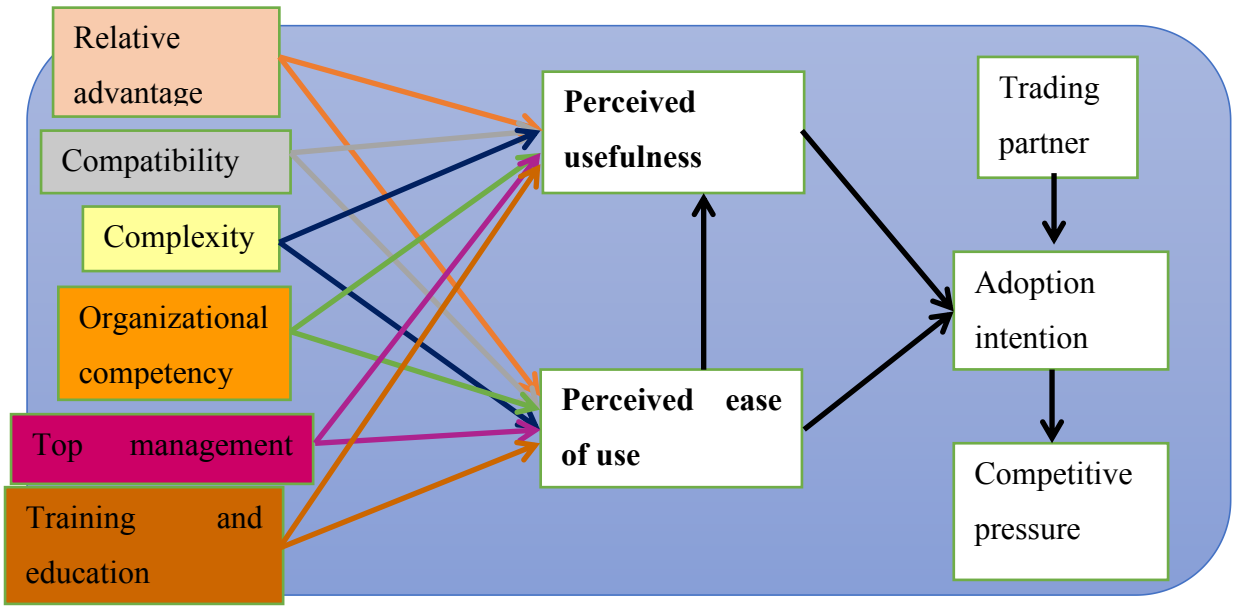


Sung, Si, Kyung (2017) compared the risks and benefits, so we applied the risk benefit framework as an effective framework. This study contributed to the fact that the performance and security risks of SaaS are significant, but the economic risks are not significant, which may be related to performance and security risks because the customers' companies does not manage SaaS, but offers government support. In the meantime, the companies agreed that improving quality is an advantage of adopting SaaS. This shows that customers are aware of the positive effects of SaaS recruitment. Considering how process improvement relates to the overall perceived benefit, it suggests that when using SaaS, customers are clearly aware of the benefits of integrated business processes. The reason that IT's capabilities has no relationship to the intention to take over SaaS shows that the acceptance of SaaS does not require a high level of IT capabilities. This means that SaaS can make up for the lack of IT capabilities. The lack of resources shows that SaaS has nothing to do with recruitment. SaaS knows that recruitment does not necessarily require good financial support. That is why the introduction of SaaS

does not mean a heavy burden for IT investments. Finally, the fact that there is a negative relationship with perceived benefits, means that the supplier must review its current marketing and support policy.

2.3.3 Understanding determinants of cloud computing adoption using an integrated TAM-TOE model

Figure 3: Model 3



Gangwar, Date and Ramaswamy (2015) showed that an integrated framework has been developed for studying the cloud computing's adoption by using TAM-TOE. This framework is based on the question whether TAM is generally adopted as a framework for studying technology acceptance and the increasing adoption of the TOE framework. The TAM-TOE framework extends the TAM framework by applying TOE variables with regard to the application of cloud computing. The TOE variables are relative benefit, complexity, compatibility, training and education, organizational readiness, and top management commitment. It showed direct impact on one or both components of the TAM indirectly influence on adoption. Competitive pressure and support from trading partners have also been suggested that may have a direct impact on intention of adopt. As a result of this research, incuding the TOE variables, PU, PEOU, competitive pressure, cloud computing's adoption in the

supporting organization of trading partners are an important determining factor. This model has contributed to IT professionals by enabling an effective set of operations during the cloud computing's adoption in organizations that contribute to key relevant areas that affect the intention to introduce cloud computing. That is the reason that this study makes a special attempt to contribute to the literature on the introduction of cloud computing.

2.4 Conclusion

After review certain amount of past studies, a proposed conceptual framework based on Technology Acceptance Model (TAM) have been developed and will be discussed in Chapter 3. Moreover, a research gap is found; the perceived risk is added into the proposed conceptual framework since original TAM does not included perceived risk as one of the variables. In addition, most of the past studies applied benefit-risk framework, TOE model, TAM-TOE model, no much study apply TAM with perceived risk with it.

3 CHAPTER 3: METHODOLOGY

3.1 Introduction

This is to present the methodology applied in data collection process, plus, the conceptual framework proposed for this study along with its theoretical background and also the original TAM model. As a start, theoretical background and proposed framework will be discussed, then the research design will be discussed as it is the important step when conduct a research study. The next discussion will be the data collection methods and followed by sampling strategy, survey instrument, and also the construct measurement. After that, data processing will talk about the construction of questionnaire, inspecting, modifying, coding, interpreting, and cleaning process, for ensuring the data is practicable before conduct analysis. For data analysis method, multiple linear regression analysis and other related analysis will be discussed.

3.2 Theoretical Background

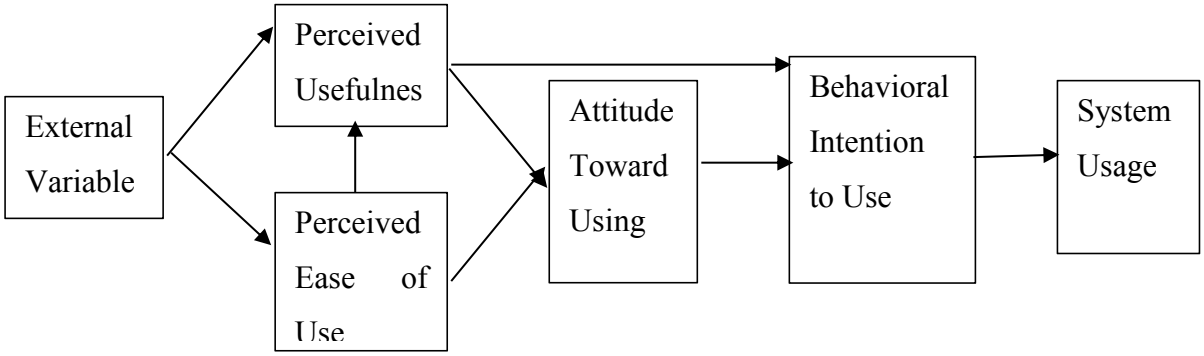
After review relevant literature, there are several applied by relevant past studies, namely Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA). And the TAM will be applied as this study's theoretical foundation.

3.2.1 Technology Acceptance Model (TAM)

The TAM often been applied for study in acceptance of IT, because this model has explained the intention of people to adopt IT. This was founded by Fred D. Davis, who study in the perceived usefulness, perceived ease of use, and user acceptance of information technology in year 1989. According to (Davis, 1989) , the study explains the determinants of user to accept IT and was created by referring several studies as theoretical foundation, for instance, the study of Schultz and Slevin (1975), Robey (1979), DeSanctis (1983). This model also applied in the study of Gangwar, Date, & Ramaswamy (2015), which

combine the TAM and TOE model in their study. This model also describes on the variance in users' behavioural intention towards IT adoption and usage across a wide variety of contexts (Thong, Hong, & Tam, 2006). According to Kajiyama, Jennex, & Addo (2017), the model points out that system usage is decided by perceived ease of use, perceived usefulness, attitude and intention to use. The original TAM model is as figure 4:

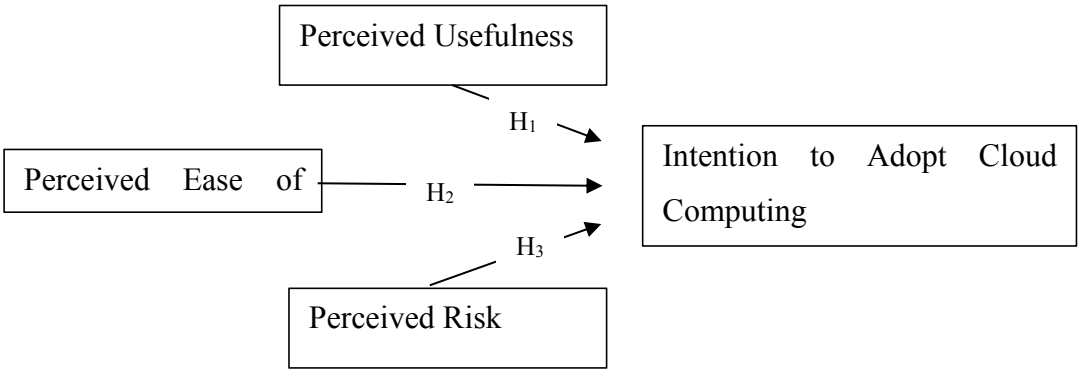
Figure 4: Technology Acceptance Model (TAM)



3.2.2 Proposed Framework

Figure 5 has shown the proposed framework for this study. The framework is constructed based on the research objectives and also as well as the research questions in chapter one. In this framework, the dependent variables, which is the intention to use or not to use cloud computing will be on the right side and the independent variables, namely perceived of usefulness, perceived ease of use, and perceived risk will be fall on the left side. This framework is presenting the hypnotised relationship of each independent variables with the dependent variable. This framework is designed based on the Technological Acceptance Model (TAM).

Figure 5: Proposed Theoretical Framework



The framework is slightly difference with the original by adding perceived risk, because nowadays, risk has become a major issue for people to adopt IT, especially security risk. Therefore, it is considered also an important variable to affect the attitude and intention of people toward cloud computing. Moreover, this model does not include the attitude toward using, because previous study on the intention to adopt technology, which indicated the relationship between the attitude and the intention is positive, but this study is programmed with the objective of understand the intention to adopt, meaning that even though the result of perceived usefulness, perceived ease of use and also the perceived risk are rational, there is still a chances that people choose not to adopt.

3.3 Hypothesis

3.3.1 Perceived Usefulness (PU)

PU is defined as the level of people believing that the adopt a particular system would enhance their performance (Davis, 1989). Therefore, the hypothesis proposed are as follow:

H_1: PU has positive effect on the intention to use cloud computing.

3.3.2 Perceived Ease of Use (PEOU)

PEOU is defined as the level of people believing that a particular system is easy to use (Davis, 1989) . Therefore, the hypothesis is as below:

H_2: PEOU positively affect the intention.

3.3.3 Perceived Risk (PR)

PR is the perspective of users toward the degree of risks associating with a specific application system they are willing to accept. The hypothesis is as follow:

H_3: PR is negatively affect the intention

3.4 Research Design

Research design included a research framework design; it is an action plan for the study. According to Zikmund, Babin, Carr, & Griffin

(2009), the research design included an overview of research plan, the methods applied, data collection process, analysis methods, and recognize the information required for the study. The research design also guarantees the data collected are applicable to solve issues. Quantitative research presented statistical outcome of a population by investigating the sample took from the population (Creswell, 2003).

For this study, quantitative method is applied for investigate those independent variables of intention to adopt cloud computing, namely perceived usefulness, perceived ease of use, and perceived risk. The objective is to study on the relationship between the independent variables and the dependent variable.

3.5 Data Collection Methods

Methods of collecting data are a risky step when conduct researches study because if the data obtained are inaccurate, it would cause an invalid and unreliable result, and also could bring the whole down. In general, there two type of data, primary data, which is the type adopted for this study, while another is secondary data.

3.5.1 Primary Data

By implementing survey, monitoring or experimentation it is considered as Primary data, etc. which is collected to deal with some marketing problem. Primary data are pooled by survey method in this study. The statistical analysis techniques will uses the data that has been collected for conduct analysis and will be discussed as the findings in Chapter 4.

3.6 Sampling Design

3.6.1 Target Population

Referring as the collection of objects that having relation to a particular research study. This study is to investigate what influences the intention of people to adopt cloud computing in Malaysia; hence the target group should be Malaysian. The restrictions on consumers'

age is Malaysian above 21 years old, not other barriers were set as long the surveyor is above 21 years old, enable access to cloud computing (owned an electronic device that can access to internet), non-sampling method also will be applied.

3.6.2 Sampling Frame and Sampling Location

Sampling locations in represent the total number of samples, while the sampling frame represents the total number of samples. (Zikmund, Babin, Carr, & Griffin, 2009) . Survey instruments are distributed among respondents in different state of Malaysia, as long as the respondents are Malaysian. Therefore, the sampling frame is the Malaysian with the area within different area of Malaysia as the sampling area.

3.6.3 Sampling Elements

Online survey is adopted for being the instrument to collect data for this study and will be give out to Malaysians. The target respondents are people reside in Malaysia, at least 21 years old, have the ability access to cloud computing. The criteria of the target respondents are driven by they may posed the knowledge, experiences with cloud computing or today's technology, which may don't know regard to the cloud computing but know how to adopt an electronic device. Plus, this group of people are considered have enough knowledge, ability to understand new things and make a rational decision. Thus, they would have a better ability to understand on the unknown and also have some foundation to respond the questions.

3.6.4 Sampling Size

Having the right sample size is a problematic and complex operation. The sample is determined with the Roscoe's rule of thumb as reference. In most studies, 30 or more and less than 500 are suitable (Hill, 2008) . Meanwhile, according to Comrey and Lee (1992) provided the sample size scale, from 50 (very poor) to >500 (very

good), it also mentioned that 300 is considered good enough already. Hence, this study's sample size will be fix on 300 respondents.

3.7 Research Instrument

Literature review is one of the elements that constructed questionnaire and meeting research aim to investigate the relationship of PU, PEOU, and perceived risk on factors influencing intention to cloud computing adoption. The questionnaire is going to be distributed through online and emails. Online surveys provided several benefits compare to old fashion paper survey, such as inexpensive to conduct, produce quick respond and there are no geographically limit. This instrument is broadly applied for data collection process through the Internet. (Wright, 2005) . One of the survey instruments for this study is self-administered; respondents can fully respond the survey by themselves without any assistance (Aaker, Kumar, Day, Lawley, & Stewart, 2007) . Questionnaire is chosen due to it can aids to keep what people thoughts and also their feeling about certain issues. In addition, the questionnaire helps to answer the research questions by gathered all the information required. Moreover, it providing information that related to the study, since respondents are responding as per questions set.

3.7.1 Questionnaire Design

In this research, structured questionnaire has been used as the questionnaire and the link of survey website will be set and distributed via internet platform, such as email and social media. Receivers are requested to answer the survey with the selections provided. In this study, there are three main sections.

In Section A, questions are set to obtain respondent's perception towards the factors influencing intention to adopt cloud computing in Malaysia which contains questions associated with the proxy of each independent variable, namely perceived usefulness (PU), perceived ease of use (PEOU) and perceived risk.

Table 1: Perceived Usefulness

Construct	Sample Measurement Items	Sources
Perceived Usefulness	Cloud computing make my job easier.	Davis (1989)
	Using cloud computing improves my daily activities at work.	
	Cloud computing helps me to be more productive only daily basis.	
	Using cloud computing reduces the time I spend on unproductive activities.	
	I find the cloud computing useful in my life.	

Table 2: Perceived Ease of Use

Variable	Measurement Items	Sources
Perceived Ease of Use	I get confused easily when use the cloud computing	Davis (1989)
	I make errors frequently when using cloud computing.	
	I need to refer the user manual often when using cloud computing.	
	I do not have any issues while interact with cloud computing.	
	I find the cloud computing easy to use.	

Table 3: Perceived Risk

Variable	Measurement Items	Sources
Perceived Risk	Cloud computing is easily exposed to information leakage.	(Lu, Hsu, & Hsu, 2005)
	There is no solid guarantee provided by services providers.	
	My data could be manipulated by services providers.	
	Cloud computing services providers and their personnel have the intention to leak my data for money.	
	I find the cloud computing risky to use.	

In Section B, there are several responds is required which is related to the dependent variable such as intention to use or not to use cloud computing. Respondents may require answering the multiple-choice, scales structured question.

The questions following are using past studies as references.

Table 4: Intention to adopt cloud computing

Variable	Measurement Items	Sources
Intention to adopt	I think that using cloud computing services is advantageous.	Davis (1989)
	I think cloud computing is useful.	
	I think cloud computing is easy to use.	
	I think cloud computing is not risky.	
	I think I have the intention to use cloud computing.	

Section C is to obtain respondents' demographic data, which is personal information will be requested, mainly is focus the age and

nationality, to see whether the respondents fulfil the requirements of this study, plus gender, race, employment status, and monthly income level.

3.8 Pilot Study

According to Baker (1994), in order to validate a survey, pilot study will be used. Moreover, there are some benefits when progressing pilot study before the main research, such as it can help to recognize errors that exist in survey tools to investigate whether the proposed method is appropriate and effective, including validate the survey process, and check the survey tools. Pilot studies are generally prepared in smaller scale, (Pilot, Beck, & Hungler, 2001) , between ten per cents to twenty per cents of this study's sample size is also said as respondents' reasonable number to engage in pilot study. (Baker, 1994) . The studies' pre-test is to examine the possibility of the survey tools to certify it provides a clear and understandable instructions and questions. Researchers will acquire feedbacks from respondents to recognize and reduce the survey tools' error and also to improve the current survey tools in the pilot study. The questionnaire will be given if there are no errors being recognized during the pilot test.

3.9 Reliability Test

Reliability is referring to the survey's ability to obtain the similar results with the similar environment (Field & Hole, 2002) and when it is random error free, it is considered as reliable which will lead to a consistent result. Cronbach‟s Coefficient Alpha test is the method widely for examine the internal consistency (McCrae, Kurtz, Yamagata, & A.Terracciano, 2011). The scale is extra reliable when it gains a higher alpha score. (Clow & James, 2013) . If obtain Cronbach‟s alpha score above or equal to 0.7 is considered reliable (Santos, 1999).

Table 5: Reliability analysis

Coefficient Alpha (α) Scope	Strength of Relationship
0.0 to 0.5999	Poor Reliability
0.6 to 0.6999	Moderate Reliability
0.7 to 0.7999	Good Reliability
0.8 to 0.8999	Very Good Reliability
Above 0.90	Excellent Reliability

3.10 Data Analysis Techniques

According to a report of American University (2011), the Statistical Package for Social Sciences (SPSS) has been developed for several decades. According to Landau & Everitt (2004), it could manipulate data, provide statistical data analysis. The IBM SPSS Statistics 20 software will be adopted to analyse the collected data for this study.

3.11 Descriptive Analysis

Descriptive analysis is clarified as a sample of data are transformed into clear and understandable information source, also an analysis that should be conducted before the linear regression (Pallant, 2011) The data is collected through online questionnaire for this study. The analysis is providing useful information also such as median, mean, mode, and standard deviation.

3.12 Pearson Correlation

Pearson correlation or Spearman correlation is applied when there is an intention to understand the strength level of the relationship between continuous variables. This provide an understanding on the direction (positive or negative) and level of strength of the relationship. A positive coefficient meaning the variables are positively related, an increased in the value of a variable will lead another variable increased as well, oppositely, a negative coefficient goes another way. The coefficient is ranged within -1 to +1. 1 indicating a perfect relationship (highest strength), and the direction is decided by the symbol + (positive) and – (negative); if it is 0,

meaning there is no linear relationship. In short, a stronger relationship is discovered if the coefficient is closer to 1 (Zikmund, Babin, Carr, & Griffin, 2009) . The multicollinearity problem will exist when Pearson correlation coefficient among two variables are high which is larger than 0.80 (Pallant, 2011). Size of Correlation

Table 6: Pearson Correlation

Range	Indicating
0.90 to 1.00 (-0.90 to -1.00)	Very high positive / negative correlation
0.70 to 0.90 (-0.70 to -0.90)	High positive / negative correlation
0.50 to 0.70 (-0.50 to -0.70)	Moderate positive / negative correlation

3.13 Multiple Regression Analysis

It is an advance version of simple linear regression, driven by the limitation of simple linear regression that can only analysis an independent variable and a dependent variable, this limitation does not impose on the MLR, which can analyse more than one independent variables with a dependent variable (Stockburger, 2001). It is applied for investigate the significance relationship between dependent and independent variables. The common model used for a research study is stated as follows:

$(y = \beta 0 + \beta 1\chi 1 + \beta 2\chi 2 + \beta 3\chi 3 + \ldots + \beta k\chi k + \varepsilon$

Where, y= Dependent variable

$\beta 0\ \beta 1\ \beta 2\ \beta 3\ \beta k$ = Regression coefficients

$\chi 1\ \chi 2\ \chi 3\ \chi k$ = Independent variables

ε = Error term

4 CHAPTER 4: INTERPRETATION OF RESEARCH OUTPUT

4.1 Introduction

Presenting interpretation on the findings from analysis conducted. As mentioned, the sample size for this study is 300 respondents, and data are collected through online questionnaire. The data is analyzed by the IBM SPSS (version 20). The analysis to be covered in the interpretation are the reliability test, descriptive analysis, multicollinearity analysis, pearson correlation, and multiple linear regression analysis.

4.2 Reliability Test

As mentioned previously, Cronbach‟s Alpha Coefficient is applied as the coefficient or the result to determine the reliability test. As defined, reliability is capability of questionnaire for produce an identical result under a same condition (Field & Hole, 2002); reliable is present when it is free from random error. Following are the result if reliability test for this study.

Table 7: Reliability Analysis Output

Variables	Number of Construct	Cronbach‟s Alpha Coefficient
Perceived Usefulness (Independent)	5	0.829
Perceived Ease of Use (Independent)	5	0.629
Perceived Risk (Independent)	5	0.709
Intention to Adopt (Dependent)	5	0.767

As can be seen, the coefficient for each variable is above 0.6, and as can be discovered from previous chapter, the all the variables are considered reliable.

4.3 Descriptive Analysis

As mentioned, it is defined as a sample of data are transformed into clear and understandable information source, also an analysis that should be conducted before the linear regression (Pallant, 2011). For this study, a sum of 300 sample data are collected through online questionnaire. This analysis is presented to obtain an insight on the demographic background of the sample.

Table 8: Descriptive Analysis Output

		Frequency	Percent	Cumulative Percent
Nationality	Malaysian	300	100	100
Gender	Male	154	51.3	51.3
	Female	146	48.7	100
Age	21-30	175	58.3	58.3
	31-40	120	40	98.3
	≥ 50	5	1.7	100
Race	Malay	46	15.3	15.3
	Chinese	220	73.3	88.7
	Indian	34	11.3	100
Religion	Islam	46	15.3	15.3
	Buddha	160	53.3	68.7
	Hindu	23	7.7	76.3
	Christian / Catholic	71	23.7	100
Job status	Employed	251	83.7	83.7
	Unemployed	6	2.0	85.7
	Self Employed	20	6.7	92.3
	Studying	23	7.7	100
Income range	≤ 2000	51	17	17

(RM)	2001-3000	125	41.7	58.7
	3001-4000	90	30.0	88.7
	> 4000	34	11.3	100

Table 9: Descriptive Analysis (Central Tendency)

	Nationality	Gender	Age	Race	Religion	Job status	Income range
Mean	1	1.49	1.43	1.96	2.40	1.38	2.36
Mode	1	1	1	2	2	1	2
Median	1	1	1	2	2	1	2

From the Table 8, it is evidently that the sample of 300 are all Malaysian, which fulfil the requirement of this study. The sample are built up by 154 males (51.3%) and 146 females (48.7%). These respondents are mostly aged between 21 to 30. In Malaysia, Malays are the largest ethnicity, however, 73.3%, which is 220 respondents of the sample are constructed by Chinese, Malays only occupied 15.3%, which is 46 respondents while Indian occupied 11.3%, 34 respondents of the sample. The data also shown that 251 respondents are employed, which take a portion of 83.7% of the sample, and 20 respondents are self-employed, occupied 6.7%, 6 respondents are unemployed currently and 23 respondents are still student, occupied 2% and 7.7% respectively. From the sample of 300, 125 respondents are taking up 41.7% as earning a monthly income from RM 2001 to RM 3000, while 90 respondents, take up 30% as earning between RM 3001 to RM 4000. 51 respondents take a portion of 17%, earning RM 2000 and below, while there are 34 respondents take up 11.3% as earning RM 4001 and above.

The table 9 presenting the mean, mode, median, standard deviation for the sample demographic background. To know the average for this sample, this study is observing the mean value for each demographic variable. For the result, this study know that the respondents are mostly aged between 21-30, mostly are Chinese,

employed, and having an income between RM 2001 to RM 2500. In short, the data is mostly constructed by a young generation, perhaps a fresh graduate.

4.4 Pearson Correlation

As defined, Pearson correlation or Spearman correlation is applied when there is an intention to understand the strength level of the relationship between continuous variables. This provide an understanding on the direction (positive or negative) and level of strength of the relationship. A positive coefficient meaning the variables are positively related, an increased in the value of a variable will lead another variable increased as well, oppositely, a negative coefficient go another way. The coefficient is ranged within -1 to +1. 1 indicating a perfect relationship (highest strength) , and the direction is decided by the symbol + (positive) and – (negative); if it is 0, meaning there is no linear relationship. In short, a stronger relationship is discovered if the coefficient is closer to 1 (Zikmund, Babin, Carr, & Griffin, 2009) . The following table will present the result generated by SPSS.

Table 10: Pearson Correlation Output

		INTN (Intention to adopt cloud computing)	PU (Perceived Usefulness)	PEOU (Perceived Ease of Use)	PR (Perceived Risk)
INTN (Intention to adopt cloud computing)	Pearson Correlation	1	.747**	.169**	-.513**
	Sig. (2-tailed)		.000	.003	.000
	N	300	300	300	300
PU (Perceived Usefulness)	Pearson Correlation	.747**	1	.158**	-.215**
	Sig. (2-tailed)	.000		.006	.000
	N	300	300	300	300
PEOU (Perceived Ease of Use)	Pearson Correlation	.169**	.158**	1	.110
	Sig. (2-tailed)	.003	.006		.058
	N	300	300	300	300
PR (Perceived Risk)	Pearson Correlation	-.513**	-.215**	.110	1
	Sig. (2-tailed)	.000	.000	.058	
	N	300	300	300	300

**. Correlation is significant at the 0.01 level (2-tailed).

As can be discovered, the PU, as one of the independent variables, imposed the strongest relationship with the dependent variable, INTN, which valued with a positive 0.747. Followed by the PR with a value of -0.513 (negative relationship). The PEOU is imposed with the least value of 0.169.

4.5 Multicollinearity Analysis

Higher the collinearity imposed a higher probability to alter the significance of a variable, even though the result should be satisfying, but could negatively affected by this issue, multicollinearity; therefore, collinearity analysis is good analysis tools to detect the issue (Hair, Babin, Money, & Samuel, 2003). In order to detect the

issue, Tolerance and Variance Inflation Factor (VIF) are applied. Hair et al. (2003) said that the VIF is capped with 5.0 as the highest value, and a greater value indicate a multicollinearity issue. Meanwhile, a tolerance with a value of 0.10 and lower, multicollinearity issue is presented. The table 10 is presenting value of Tolerance and VIF for each variable of this study for detecting multicollinearity issue.

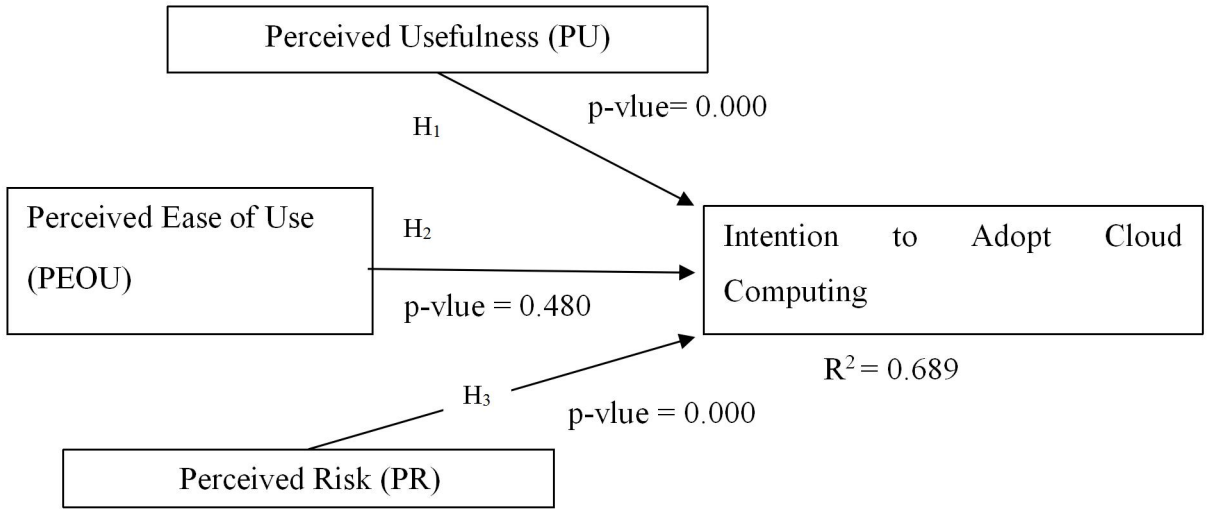
Table 11: Multicollinearity Output

Independent Variables	Tolerance	VIF
Perceived usefulness (PU)	0.936	1.069
Perceived ease of use (PEOU)	0.969	1.032
Perceived risk (PR)	0.948	1.055

As can be seen, the Variance Inflation Factor (VIF) for each independent variable were not more than 5, while the Tolerance for each independent variable are valued greater than 0.1, therefore, evidently, the multicollinearity issue is not presented in this study.

4.6 Multiple Regression Analysis

Figure 5: Proposed Theoretical Framework



Note: Significance level is

The framwork has shown part of the result obtained from analysis conducted, it shows the p-value of each independent variable and the R^2 for this model. First, the R^2 is valued at 0.689, indicating that 68.90% of this model could be explained by the independent variables, which is not considered high. Moreover, as known, if the p-value of an independent variable is less than the significance level determined (0.05 for this study), the independent variable is said to be significance. Evidently, the PU and PR are significant, only the PEOU are not significant as expected.

Table 12: Multiple Regression Analysis Output

Variables	Hypothesis	Relationship	Beta (β)	Std Error	Sig (p-value)	Result
PU	H_1	Positive relationship with intention to adopt.	0.664	0.030	0.000	Consistent and significant
PEOU	H_2	Positive relationship with intention to adopt.	0.23	0.049	0.480	Consistent and insignificant
PR	H_3	Negative relationship with intention to adopt.	-0,368	0.026	0.000	Consistent and significant

With the output generated; a multiple regression equation is formed,

INTN = 12.112 + 0.664 PU + 0.23 PEOU - 0.368 PR + ε

INTN = Intention to adopt cloud computing

PU = Perceived Usefulness

PEOU = Perceived Ease of Use

PR = Perceived Risk

The equation above are interpreted as follow.

In term of perceived usefulness (PU), the coefficient generated by SPSS is 0.664, this indicating when the PU increased by one unit, the INTN will be increased by 0.644 with other variables remain constant.

This is matching with the expectation, which is H_1, the PU indeed imposed a positive relationship with the INTN. In term of perceived ease of use (PEOU), although it is not significant, it is still meeting the hypothesis, H_2, posed with a positive value of 0.23; indicating when the PEOU is raised by a unit, the INTN will raised by 0.23 with other remain constant. At last, the PR is valued with a negative value of 0.368, this meaning that the PR is carrying a negative relationship with the INTN, which is matching the expectation, H_3. Also, the PR and PU are significantly affecting the INTN while PEOU on another way round.

4.7 Conclusion

In short, this chapter has presented the output generated by the SPSS, and given a interpretation on each analysis. As mentioned, this study is not disturbed with a multicollinearity issue, and through the multiple regression analysis, this study found that all the independent variables are significant but the PEOU, however, all the independent variables are meeting the hypothesis determined.

5 CHAPTER 5: DISCUSSION AND CONSLUSION

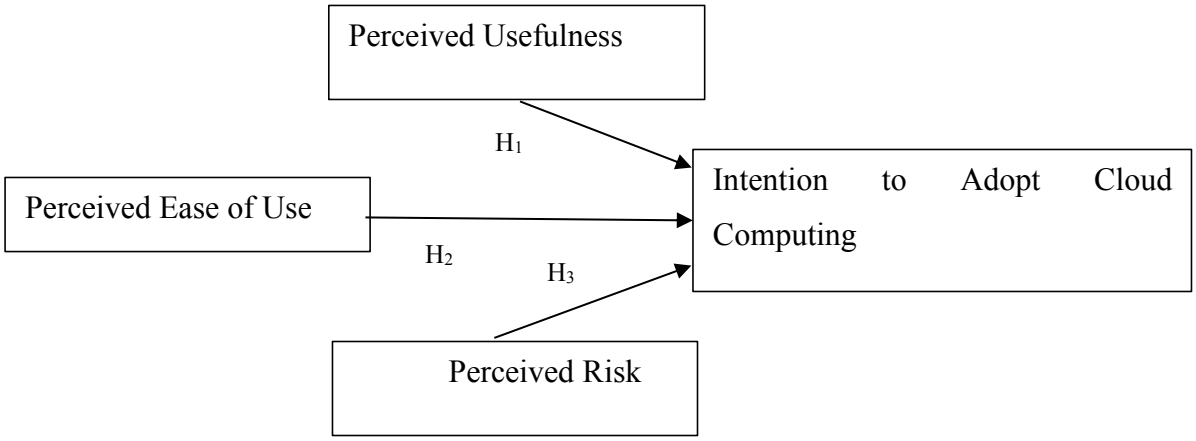
5.1 Introduction

This chapter will be having a presentation on the discussion for the findings discovered in previous chapter. Moreover, this chapter also serve to present the implication, recommendation, and limitation coped during this study. Lastly, this chapter will provide a conclusion as the ending for this study.

5.2 Discussion

Recall from chapter 1, this study is to understand the relationship between the determinants (perceived usefulness, perceived ease of use, and perceived risk) and the intention to adopt cloud computing. As acknowledged, technology is becoming advance, it bringing convenience to life. Cloud computing also serve as one of the technologies, however, turns out, there are not many people adopting cloud computing, even they are aware of it. Hence, this study is driven.

Figure 5: Proposed Theoretical Framework



The R^2 for this study is 0.689, indicating that 68.9% of the intention of Malaysian to adopt cloud computing is explained by the independent variables. This value is not considered high, because the R^2 is carrying a function to explain the relationship between the dependent variable and independent variables, the higher the value, the stronger the relationship. However, doesn't mean that the model is

not a good model, it is just that the independent not fit the dependent variable much. This may be improved through expand the sample size, or increase the independent variables, or both. The following is discussing the finding founded.

Variables	Hypothesis	Relationship	Beta (β)	Std Error	Sig (p-value)	Result
PU	H_1	Positive relationship with intention to adopt.	0.664	0.030	0.000	Consistent and significant
PEOU	H_2	Positive relationship with intention to adopt.	0.23	0.049	0.480	Consistent and insignificant
PR	H_3	Negative relationship with intention to adopt.	-0,368	0.026	0.000	Consistent and significant

5.2.1 Perceived Usefulness (PU)

H_1: PU positively affect the intention

Referring to previous chapter, the perceived usefulness is defined as the level of faith for an individual believing that adopting a system may advance oneself performance. Therefore, PU should impose a strong positive relationship with the intention to adopt, because logically people tend to use a particular item only when the item is considered useful to them. In this study, the PU is valued at 0.664, a significant positive value. Indicating that when the PU increased by a unit, the intention to adopt also will be raised by 0.664. This is meeting the hypothesis determined. Indeed, as mentioned, by logically, when people tend to adopt a particular item if believe that the particular item is useful to them. The result of this study is supporting the statement.

5.2.2 Perceived Ease of Use

$H_{2:}$ PEOU positively affect the intention.

Referring to previous chapter, the perceived ease of use is defined as the level of faith for an individual believing that adopting a system is effortless. Therefore, PEOU should impose a positive relationship with the intention to adopt, because logically people tend to use a particular item when the item is easy to be used. In this study, the PEOU is valued at 0.23, a positive value but insignificant. Indicating that when the PU increased by a unit, the intention to adopt also will be raised by 0.23, holding other variables constant, but not significant. This is meeting the hypothesis determined, however its insignificance inform this study that the PEOU is not significantly affect the intention to adopt, easy to use doesn't mean that the particular item is tend to be used.

5.2.3 Perceived Risk

$H_{3:}$ PR negatively affect the intention

Perceived risk is not included in the initial TAM, however, this study apply it because the technology today is taking a lot of cyber-attack, leading a lot of privacy information are leaked. Perceived risk is the perception of users toward the level of risk coming with a particular system they are willing to accept. Logically, higher the risk, lower the intention to adopt, however, it is not necessary, due to some people are risk takers, they like risk. In this study, PR is valued at -0.368, a significant negative value. This is meeting the hypothesis that a PR is negatively affecting the intention; when the PR is increased by single unit, the intention to adopt will drop by 0.368, with other variables constant. This is logical, because under a normal circumstance, the intention to adopt a system is dropped when an individual perceived the risk associated are not acceptable.

5.3 Implications

This study has provided the determinants that affecting Malaysians to adopt cloud computing. The determinants are named perceived usefulness, perceived ease of use, and perceived risk. Throughout the study, their relationship with dependent variable, intention to adopt cloud computing has been discovered, and found that not all the determinants are significantly related to the dependent variable. This study provided only the perceived ease is not significant, indicating that even though it still posed a positive relationship, it does not really affect the decision of Malaysian to adopt cloud computing, what really matter is the perceived usefulness. Malaysian are tending to adopt cloud computing only when they believe that cloud computing is useful to their life, enhancing their performance. But also, could not ignore the fact that the risk associated also play a significant role to affect the decision of adoption. As founded, perceived risk is imposed with a significant negative relationship with intention to adopt, when Malaysian believe that the risk associated is high, the intention to adopt will be dropped. This information is provided for academic researcher, interested party, and cloud computing server to have a better understanding what driven the intention of Malaysian to adopt cloud computing.

Moreover, the initial TAM framework does not include the perceived risk, and this study shows that the perceived risk does significantly affect the intention, however, the perceived ease of use is said to be insignificant. This might due to from time to time, Malaysians are getting familiar with technology, they are having adequate knowledge to adopt technology, especially for the millennials, who are born in the digital era. From the descriptive statistics, the sample for this study are proportioned mostly by Malaysians aged at 21 to 30, hence, there is considered not issue for them to adopt cloud computing. For the group of people that are not familiar with the technology, it is advised that government should organize some campaigns that provide education to them for get them familiar with.

Lastly, this study is conducted to understand what influence people's intention to adopt cloud computing. The reason driven this study is, as mentioned, technology is getting advance now, cloud computing serving as one of the hottest topics, there are still some people don't adopt it, despite the benefits provided. This study shows that the risk and the usefulness are affecting the most among the three, hence, server provider should consider to advance respective defend system to against the cyber-attack, controlling and storing the data of users strictly, to increase the confidence of existing users and potential users.

5.4 Limitations and Future Research Recommendations

In the time of constructing this study, several limitations were discovered, this limitation, indeed a drawback for this study, however, some of it may serve as future opportunities for related future study. First thing first, the sample covered for this study is only 300 Malaysian, according to Department of Statistics Malaysia, in year 2019, Malaysia is populated approximate 30million of citizen, hence, this study only scoped 0.001% of Malaysia population. Hence, it is recommended to the future researcher to enhance their sample size, perhaps they could study at a specific area or state. Further, this study is conducting quantitative research method, and collecting the data through online questionnaire, and this may lead to an issue of accuracy of data. In addition, quantitative and qualitive research method both carrying respective benefit, however, it is to be said that the qualitative is more suitable for conducting this kind of study, because the perspective of each person should be different, by conducting a qualitative research method, an interview will be organized, and the perspective of interviewee could be capture more precisely. Moreover, other limitation is as the variables; the TAM model is useful, however, it is advised to enhance the model. This is because to understand the behaviour of adoption, study should as well as covered the perceived benefit into the framework. Just as this study, which covered perceived risk in the framework, and the result showed the perceived risk indeed, impacting the intention to adopt. Hence, it is advised that the perceived benefit should be covered in the

future research. Moreover, this study is studying the intention only, but not proceeded to the actual behaviour. Having the intention does not mean that an individual would actual adopting the particular system, therefore; future research should proceeded to study the actual behaviour of respondents. Lastly, this study is studying the intention toward the adoption of cloud computing, however, cloud computing consists three services models, IaaS, PaaS, and SaaS, studying on the big tittle only providing a brief information, having the intention to adopt cloud computing does not mean that all types of services models are being adopted, since each of the models serve different function. Hence, future researchers could study on a one of the models.

5.5 Conclusion

After several of stages, this study is finally being concluded. The main objective of this study is to understand the determinants that affect the intention to adopt cloud computing. The determinants included are perceived usefulness (PU), perceived ease of use (PEOU), and perceived risk (PR) toward the cloud computing. As resulted, the PU and PR are significantly affecting the intention, only the PEOU is not. All the variables are meeting the expectation of this study. The PU is significantly affect the intention in a positive way, same as the PEOU, only that it is not significant, meanwhile, the PR is significantly affecting the intention in a negative way. From the result, it is known that the PU and PR are the two variables that impacting the intention the most. The PEOU does not performed significantly may because, nowadays, people are easily to catch up how to use a particular technology system, hence, the PEOU is not really affecting the intention to adopt. And as discussed, the framework of this study is constructed with the TAM as the foundation; past research most are directly adopt the framework, hence this study slightly alter it by eliminate some processes and adding an PR as additional variable, and resulted the alternate version does performing. This could be served as one of the contribution of this study. In short, the study is meeting its main objective,

understood the relationship of the determinants with the intention, and is met, only the PU and PR are significant.

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7 Appendix

7.1 Research Questionnaire

Determinants of Intention to Adopt Cloud Computing Among Malaysian

Dear Respondents,
I am currently pursuing Master of Business Administration (MBA) at Universiti Tunku Abdul Rahman (UTAR). This online survey is conducted as part of the fulfillment of my MBA final year project. The purpose of this study is to study the determinants that influence the intention of Malaysian to adopt cloud computing. A brief introduction, cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. The term is generally used to describe data centers available to many users over the Internet. The determinants are basically categorized into three types of determinants, namely Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Perceived Risk (PR).
It would around 10 minutes to answer this survey. Your contribution is appreciated. All the information collected will be only for the study purpose and are kept completely confidential.

Thank you.

Your sincerely,
Wong Hao Juen
H/P: +6017-390 9685
Email: 96haojuen@gmail.com

*Required

Perceived Usefulness (PU)

Defined as the degree to which a person believes that using a particular system would enhance his/her job performance.

1. **Cloud computing make my job easier.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

2. **Using cloud computing improves my daily activities at work.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

3. **Cloud computing helps me to be more productive only daily basis.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

4. **Using cloud computing reduces the time I spend on unproductive activities.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

5. **I find that cloud computing useful in my life.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

Perceived Ease of Use (PEOU)

Defined as the degree to which a person believes that using a particular system would be free of effort.

6. **I get confused easily when use the cloud computing** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

7. **I make errors frequently when using cloud computing.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

8. **I need to refer the user manual often when using cloud computing.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

9. **I do not have any issues while interact with cloud computing.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

10. **Cloud computing is easy to use.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

Perceived Risk (PR)

Defined as the customer's perception of the risks associated with any purchase or consumes.

11. **Cloud computing is easily exposed to information leakage.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

12. **There is no solid guarantee provided by services providers.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

13. **My data could be manipulated by services providers.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

14. **Cloud computing services providers and their personnel have the intention to leak my data for money.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

15. **I find the cloud computing risky to use.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

Intention to adopt

16. **I think that using cloud computing services is advantageous.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

17. **I think cloud computing is useful.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

18. **I think cloud computing is easy to use.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

19. **I think cloud computing is not risky.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

20. **I think I have the intention to use cloud computing.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

About yourself

21. **I am Malaysian** *
Mark only one oval.

- ◯ Yes
- ◯ No

22. **I am** *
Mark only one oval.

- ◯ Male
- ◯ Female
- ◯ Other: _____

23. **I am aged** *
Mark only one oval.

- ◯ 21-30
- ◯ 31-40
- ◯ 51 and above

24. **I am** *
Mark only one oval.

- ◯ Malay
- ◯ Chinese
- ◯ Indian
- ◯ Other: _____

25. **Religion** *
Mark only one oval.

- Islam
- Buddha
- Hindu
- Christian / Catholic
- Other: _____

26. **I am** *
Mark only one oval.

- Employed
- Unemployed
- Self-employed
- Studying

27. **My income range is** *
Mark only one oval.

- RM 2000 and below
- RM 2001 - RM 3000
- RM 3001 - RM 4000
- RM 4001 and above

7.2 Research Output

7.2.1 Reliability

Reliability Statistics (PU)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.829	.849	5

Reliability Statistics (PEOU)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.629	.625	5

Reliability Statistics (PR)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.709	.713	5

Reliability Statistics (INTN)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.767	.782	5

7.2.2 Descriptive Analysis

Statistics

		Nationality	Gender	Age	Race	Religion	Job Status	Income Range
N	Valid	300	300	300	300	300	300	300
	Missing	0	0	0	0	0	0	0
Mean		1.00	1.49	1.43	1.96	2.40	1.38	2.36
Median		1.00	1.00	1.00	2.00	2.00	1.00	2.00
Mode		1	1	1	2	2	1	2
Std. Error of Skewness		.141	.141	.141	.141	.141	.141	.141
Std. Error of Kurtosis		.281	.281	.281	.281	.281	.281	.281
Minimum		1	1	1	1	1	1	1
Maximum		1	2	3	3	4	4	4
Skewness			.054	.610	-.060	.529	2.145	.197
Kurtosis			-2.011	-.910	.773	-.906	2.982	-.687

Nationality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malaysian	300	100.0	100.0	100.0

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	154	51.3	51.3	51.3
	Female	146	48.7	48.7	100.0
	Total	300	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-30	175	58.3	58.3	58.3
	31-40	120	40.0	40.0	98.3
	50 and above	5	1.7	1.7	100.0
	Total	300	100.0	100.0	

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	46	15.3	15.3	15.3
	Chinese	220	73.3	73.3	88.7
	Indian	34	11.3	11.3	100.0
	Total	300	100.0	100.0	

Religion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Islam	46	15.3	15.3	15.3
	Buddha	160	53.3	53.3	68.7
	Hindu	23	7.7	7.7	76.3
	Christian or Catholic	71	23.7	23.7	100.0
	Total	300	100.0	100.0	

Job Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employed	251	83.7	83.7	83.7
	Unemployed	6	2.0	2.0	85.7
	Self employed	20	6.7	6.7	92.3
	Studying	23	7.7	7.7	100.0
	Total	300	100.0	100.0	

Income Range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RM2000 & below	51	17.0	17.0	17.0
	RM2001-3000	125	41.7	41.7	58.7
	RM3001-4000	90	30.0	30.0	88.7
	RM4001 * above	34	11.3	11.3	100.0
	Total	300	100.0	100.0	

7.2.3 Pearson Correlation

Correlations

		Intention to adopt cloud computing	Perceived usefulness	Perceived ease of use	Perceived risk
Intention to adopt cloud computing	Pearson Correlation	1	.747**	.169**	-.513**
	Sig. (2-tailed)		.000	.003	.000
	N	300	300	300	300
Perceived usefulness	Pearson Correlation	.747**	1	-.158**	-.215**
	Sig. (2-tailed)	.000		.006	.000
	N	300	300	300	300
Perceived ease of use	Pearson Correlation	-.169**	-.158**	1	.110
	Sig. (2-tailed)	.003	.006		.058
	N	300	300	300	300
Perceived risk	Pearson Correlation	-.513**	-.215**	.110	1
	Sig. (2-tailed)	.000	.000	.058	
	N	300	300	300	300

**. Correlation is significant at the 0.01 level (2-tailed).

7.2.4 Multiple Regression Analysis

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.830[a]	.689	.686	1.70820

a. Predictors: (Constant), Perceived risk, Perceived ease of use, Perceived usefulness

b. Dependent Variable: Intention to adopt cloud computing

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1915.275	3	638.425	218.793	.000[b]
	Residual	863.712	296	2.918		
	Total	2778.987	299			

a. Dependent Variable: Intention to adopt cloud computing

b. Predictors: (Constant), Perceived risk, Perceived ease of use, Perceived usefulness

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	12.112	1.102		10.994	.000	9.944	14.280					
Perceived usefulness	.588	.030	.664	19.828	.000	.530	.647	.747	.755	.642	.936	1.069
Perceived ease of use	.035	.049	.023	.707	.480	-.132	.062	.169	-041	-.023	.969	1.032
Perceived risk	-.284	.026	-.368	-11.071	.000	-.334	-.233	-.513	-.541	-.359	.948	1.055

a. Dependent Variable: Intention to adopt cloud computing

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	Perceived usefulness	Perceived ease of use	Perceived risk
1	1	3.923	1.000	.00	.00	.00	.00
	2	.047	9.130	.00	.22	.00	.58
	3	.024	12.686	.00	.27	.50	.25
	4	.006	25.928	.99	.51	.49	.17

a. Dependent Variable: Intention to adopt cloud computing

Casewise Diagnostics[a]

Case Number	Std. Residual	Intention to adopt cloud computing	Predicted Value	Residual
23	4.066	25.00	18.0541	6.94593
171	4.216	19.00	11.7974	7.20258
295	-4.620	11.00	18.8911	-7.89114

a. Dependent Variable: Intention to adopt cloud computing

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	10.6001	24.9462	18.5067	2.53093	300
Std. Predicted Value	-3.124	2.544	.000	1.000	300
Standard Error of Predicted Value	.099	.597	.183	.074	300
Adjusted Predicted Value	10.5200	24.9441	18.5056	2.53098	300
Residual	-7.89114	7.20258	.00000	1.69961	300
Std. Residual	-4.620	4.216	.000	.995	300
Stud. Residual	-4.634	4.287	.000	1.003	300
Deleted Residual	-7.93987	7.44504	.00103	1.72752	300
Stud. Deleted Residual	-4.803	4.419	.000	1.011	300
Mahal. Distance	.013	35.538	2.990	3.993	300
Cook's Distance	.000	.155	.004	.013	300
Centered Leverage Value	.000	.119	.010	.013	300

a. Dependent Variable: Intention to adopt cloud computing