UNIVERSITI TEKNIKAL MALAYSIA MELAKA

CLOUD COMPUTING AND BUSINESS VALUE CREATION IN

ALIBABA CLOUD (MALAYSIA) SDN BHD

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

APPROVAL

I hereby declare that I had read through this thesis and in my opinion that this thesis is adequate in terms of scope and quality which fulfill the requirements for the degree of Bachelor Technology Management (High Technology Marketing).

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CLOUD COMPUTING AND BUSINESS VALUE CREATION IN

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This thesis is submitted in partial fulfilment of the requirements for the award of
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DECLARATION

I declare that this thesis entitled "Cloud Computing and Business Value Creation in Alibaba Cloud (Malaysia) Sdn. Bhd is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

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DEDICATION

I would like to convey my most profound appreciation towards my family members, who have educated me and given me emotional support throughout this research. I would like to express my appreciation towards my supervisor, Assoc Prof. Dr. Chew Boon Cheong, who guided me along this research. His unwavering support and encouragement kept me motivated throughout this research journey. I would also like to thank my panel, En. Mohd Shamsuri Bin Md Saad, for his valuable insight and feedback, helped me improve the quality of my research.

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ABSTRACT

As a leading cloud service provider in Asia, Alibaba Cloud plays a crucial role in supporting various businesses in their digital transformation journey. Therefore, this research aimed to identify the positive impacts of cloud computing and propose new strategies for Alibaba Cloud (Malaysia) Sdn Bhd to create internal business value. This study employed the qualitative technique and the descriptive research design. By conducting interviews with 11 experts in Alibaba Cloud Malaysia, this study allowed the researcher to gain valuable insights into how Alibaba Cloud has contributed to the growth and efficiency of Malaysian businesses with its advanced cloud technology. The first objective was accomplished by examining the positive impacts of Alibaba's cloud computing services success with the focus on scalability, cost-effectiveness, AI capabilities, enhanced security, and adherence to local compliance. So, the AliCloud system increased the number of adoptions in Malaysia because the users were satisfied with its commitment. The second research purpose has also been achieved as the new strategy initiatives for Alibaba Cloud to improve its service offerings and internal business value. These strategies included localizing cloud services, increasing investment in AI and machine learning, expanding partnerships and ecosystems, developing specific-industry solutions and focusing on sustainability. These proposed strategies are designed to help Alibaba Cloud solidify its market position in Malaysia and adapt to the changing needs of its customers, thereby driving innovation and business expansion in the region. The final sections of this study included the conclusion of the discussions and the future recommendations aimed at contributing to the strategic growth of Alibaba Cloud and providing valuable perspectives for other CSPs operating in similar markets.

Keywords: cloud computing, business value, cloud service provider

ABSTRAK

Alibaba Cloud memainkan peranan penting dalam menyokong pelbagai perniagaan dalam perjalanan transformasi digital di Malaysia. Oleh itu, kajian ini bertujuan untuk mengenal pasti kesan positif komputasi awan dan mencadangkan pelan baharu bagi Alibaba Cloud (Malaysia) Sdn Bhd mencapai nilai perniagaan dalaman. Teknik kualitatif dan reka bentuk penyelidikan deskriptif digunakan dalam kajian ini. Melalui temu bual dengan sebelas orang pakar di Alibaba Cloud Malaysia, kajian ini membolehkan penyelidik memahami bagaimana teknologi awan yang canggih dapat membantu perniagaan tempatan menyumbang pertumbuhan dan kecekapan. Matlamat pertama dicapai dengan mengkaji kesan positif kejayaan perkhidmatan pengkomputeran awan Alibaba dengan fokus pada sumber berskala, kecekapan kos, keupayaan AI, peningkatan keselamatan, dan pematuhan kepada peraturan tempatan. Tujuan penyelidikan kedua juga telah dicapai kerana strategi baru yang diimplementasikan oleh Alibaba Cloud dapat meningkatkan tawaran perkhidmatan dan nilai perniagaan dalaman. Strategi ini termasuk meningkatkan pelaburan dalam AI, memperluas perkongsian dan ekosistem, pengembangkan penyelesaian industri khusus dan penekanan pada kelestarian. Strategi yang dicadangkan dapat membantu Alibaba Cloud memperkukuhkan kedudukan pasaran di Malaysia dan menyesuaikan diri dengan keperluan pelanggan yang berubah, seterusnya mendorong inovasi dan pengembangan perniagaan di rantau ini. Bahagian terakhir dalam kajian ini termasuk rumusan dan cadangan masa depan yang bertujuan untuk menyumbang kepada pertumbuhan strategik Alibaba Cloud dan memberikan perspektif yang bernilai untuk CSP lain yang beroperasi di pasaran yang serupa.

Kata kunci: pengkomputeran awan, nilai perniagaan, pembekal perkhidmatan awan

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AI	-	Artificial Intelligence
CSP	-	Cloud Service Provider
CRM	-	Customer Relationship Management
ECS	-	Elastic Compute Service
IaaS	-	Infrastructure as a Service
SaaS	-	Software as a Service
PaaS	-	Platform as a Service
RBV	-	Resource-Based View
PDPA	-	Personal Data Protection Act
ECM	-	Expectation-Confirmation Model
ECT	-	Expectation-Confirmation Theory
MITI	-	Minister of International Trade and Industry
DFTZ	-	Designated Free Trade Zone
VQ	-	Virtual Queue Solution
BYOK	-	Bring Your Own Key
IT	-	Information Technology
IS	-	Information System
IoT	-	Internet of Things
VMs	-	Virtual Machines
e-WTP	-	E-World Trade Platform
ESG	-	Environmental, Social, and Governance
SDG	-	Sustainable Development Goal

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CHAPTER 1

INTRODUCTION

1.1   Background of Study

Cloud computing is a profound revolution in delivering information technology (IT)-based services using the ideas of distributed and parallel computing (Ebadi and Jafari Navimipour, 2019). It provides a reliable, dynamic, and scalable platform for remotely sharing and accessing various computing resources such as servers, storage, and network services applications.

In general, cloud computing offers four service types, namely Software as a Service (SaaS), platform as a Service (PaaS), and Infrastructure as a Service (IaaS) on a rental basis (Asghari and Navimipour, 2018). Cloud computing offers organizations and users convenient access to powerful computing through the network at a minimal cost (Sheikholeslami and Navimipour, 2017). The proper deployment of cloud computing is able to create value for both strategies, which can increase annual revenue and minimize the operational cost levels of an organization.

Cloud computing changed the form of business management, especially during the Covid-19 pandemic when many businesses relied on it for digital transformation. This cloud technology allows the organization's owner to manage his operations,

accounts, and customer relationships from anywhere or at any time, whether in travel or at home, dramatically affecting the business's continuity (Singh et al., 2021).

In addition, cloud computing helps to converge firms' information technology (IT) efficiency and business agility. It became attractive for the companies to eliminate the extra cost for the users and allow them to utilize the resources efficiently. Therefore, cloud computing has been widely adopted among firms that desire to deploy IT resources that can be purchased as a service (Khayer et al., 2020). Despite the advancement in science and technology, cloud computing still has vast opportunities in the IT industry, with cloud computing technology currently in the early stage of development (Zhang et al., 2010). Cloud computing plays a significant role between talent management and the competitive advantage of the company. It helps manage human resources and improves the company's performance. It also reduces costs and improves quality and innovation (Abu-Darwish et al., 2022).

Seoane (2019) states that the establishment of cloud computing infrastructure in Malaysia by a primary cloud provider is appreciated by the Minister of International Trade and Industry (MITI) because it can boost the economy through data and cloud technologies, enhance Malaysia's global competitiveness, and attract foreign investment. For example, Alibaba Cloud (Malaysia) Sdn. Bhd supports Malaysia's Powering Designated Free Trade Zone (DFTZ) platform, the first e-World Trade Platform (e-WTP) developed with the local government. The objective is to encourage innovation across all industries and regional SMEs.

In this research, the researcher focuses on cloud computing topics from Alibaba Cloud (Malaysia) Sdn. Bhd. Alibaba Cloud's highly scalable cloud computing and data management services are China's most prominent public cloud service provider and have the third largest global cloud computing market share. Alibaba Cloud supports digitization in every industry, helping major retail, finance, and manufacturing businesses evolve. It offers cost-effective solutions that enable companies to meet their networking and information needs and provides an easy way to integrate with other

Alibaba products and services. Alibaba Cloud aims to provide vital technology infrastructure and marketing capabilities to help companies grow their online products and services. From that case, the researcher studies the positive impact of cloud computing and the new strategies that Alibaba Cloud implements in creating its business value.

1.2   Problem Statement

Cloud service providers (CSPs) have been experiencing rapid growth and expansion. Cloud computing is essential for business continuity, and it has had the most influence of all disruptive technologies because of its adaptability, accessibility, scalability, resilience, and cost.

More and more businesses and individuals are adopting cloud computing services as a driving force that experiences a shift in business operations more effectively and reduces carbon footprint (Khayer et al., 2020). Businesses that shift to cloud computing can achieve cost-effective data processing, enabling valuable insights from large amounts of data (Khayer et al., 2020). So, companies that do not adopt cloud computing will lose their competitive advantage and find it difficult to differentiate themselves in the market because cloud computing provides companies with a flexible and scalable infrastructure that allows them to expand and improve the efficiency of business operations while adding capacity of more value-added services (Senyo et al., 2018).

Despite the efforts of some organizations to embrace the potential benefits of cloud computing technology, utilization is still limited. However, the problem is that not many companies in Malaysia have adequate resources to adopt cloud computing. Many organizations remain hesitant to embrace such new and emerging technology as

cloud computing due to various concerns about security, privacy, data integrity, and data confidentiality (Senyo et al., 2018). That is why this problem made the researcher interested in studying this topic.

Therefore, the researcher needs to identify the positive impacts of cloud computing in Alibaba Cloud that enhance the firm's performance. Moreover, the researcher has to propose new strategies that Alibaba Cloud as a Cloud Service Provider (CSP) implements to create its business value. The research questions are constructed as below:

    i.   What is the positive impact of cloud computing in Alibaba Cloud?

   ii.   What are the new strategies of Alibaba Cloud as a Cloud Service Provider (CSP) in creating internal business value?

1.3   Research Objectives

Alibaba Cloud is the digital technology and intelligence backbone services expanded worldwide that recognizes the importance of the cloud in helping businesses digitally transform. However, the performance of Alibaba Cloud will be improved by cloud computing with various positive impacts. Therefore, the researcher aims to comprehensively understand the positive impacts of cloud computing and the new strategies that can implement by Alibaba Cloud to create its business value. Furthermore, a researcher can gain helpful information through secondary data analysis by studying successful case studies, best practices, and innovative strategies used by Alibaba Cloud and other industry leaders, and the study can identify the positive impact of cloud computing adoption and the new strategies that Alibaba Cloud utilized to create business value internally within the cloud services sector. The research objectives of this study are stated below:

i.   To identify the positive impact of cloud computing in Alibaba Cloud.

ii.   To propose the new strategies of Alibaba Cloud as a Cloud Service Provider (CSP) in creating internal business value.

1.4   Scope, Limitation, and Key Assumption

This research studies the positive impact of the Cloud Service Provider's (CSP) strategy in creating organisational business value. Next, the researcher will determine which positive impact affected the success of cloud computing in creating its business value. The research case study is conducted in a software company, Alibaba Cloud. Based on the website of Alibaba Cloud, it is a company leading the world in cloud computing and artificial intelligence (AI). Additionally, Alibaba Cloud is a cloud service provider that offers trustworthy and secure online solutions for data processing in cloud computing which is committed to drive its business value. Thus, this study enables a researcher to discover and examine the positive impacts and how cloud computing success allows Alibaba Cloud to create business value internally. The respondents of this research include cloud security analysts, cloud administrators, and cloud solution architects working in Alibaba Cloud.

A limitation existed in performing and identifying this study. First and foremost, the limitation of this study is that the researcher only focuses on the Alibaba Cloud company in Malaysia. Therefore, all the findings and conclusions will be based on Malaysian business context, business culture, and organizational behavior, which cannot be generalized to Alibaba cloud company located elsewhere.

The critical assumption of this study is that the researcher believes that the respondents have adequate knowledge about the topic which the researcher wants to

investigate. Besides, the researcher thrust these respondents are well versed in their knowledge and skills that can respond to all questions during the interview sessions. The researcher hopes these respondents could provide truthful and honest answers and responses within their best comprehension of cloud computing.

1.5   Importance of the Study

This study discusses the capabilities of cloud computing that will positively impact businesses. The impact is important to identify because it entails predicting, assessing, and minimizing any unintended consequences of a change to a deployed product and identifying areas that may be affected. These findings can assist in filling knowledge gaps and give a researcher a better understanding of how cloud computing brings positive impacts and investigate the new strategies that Cloud Service Provider (CSP) use to create business value. The researcher focuses on Alibaba Cloud company to determine the details and accurate knowledge regarding the positive impacts of cloud computing and the creation of business value with new strategies as a CSP. The researcher aims to propose the benefits of adopting cloud computing and strategies that help businesses make informed decisions about adopting this cloud technology to create business value and improve efficiency.

1.6   Summary

In summary, this research aims to determine the positive impacts of cloud computing in a company that provides innovative and affordable cloud solutions to help many companies in different sectors by delivering high performance for operational efficiency. Moreover, it is designed to propose new strategies to ensure the Cloud Service Provider (CSP) is able to create business value internally in the company. Adopting cloud technology is essential for a company to expand its business on a larger scale. It enhances adaptability to market change and delivers more customers across the globe with more benefits.

The scope of this research is focused on the capabilities that affect cloud computing success. The researcher will determine what positive impacts are included in cloud computing to create business value for Cloud Service Provider (CSP) in an organization. This research is being conducted with limitations. The researcher selected a company known as Alibaba Cloud in Malaysia as the research subject. Secondly, all the findings and conclusions will be based on the Malaysian business context, business culture, and organizational behaviour. As a result, the results and information may not be generated from Alibaba Cloud companies elsewhere. The critical assumption of this research is that the researcher believes that every respondent from Alibaba Cloud must be well-versed in their knowledge and expertise to provide accurate data and honest answers within their best comprehension of cloud computing during the interview session, which is involved in the primary data collection. So, the researcher can obtain accurate data and results through this process.

CHAPTER 2

LITERATURE REVIEW

2.0   Introduction

This chapter is intended to explore more value in the literature for the research study. Researchers have become increasingly interested in describing the fundamentals of cloud computing. Moreover, this study would like to examine the positive impact of cloud computing and discuss the strategy for cloud service provider (CSP) in creating internal business value within an organization. The literature review also will include the theoretical framework.

2.1   Overview of Cloud Computing Services

Cloud computing technology is the most significant advancement technology after the internet's development and emergence. It has successfully innovated many new business models. Moreover, cloud computing refers to a network of resources enabling users to access services on demand without building up their physical infrastructure. Cloud computing resources, including software, servers, storage, networking, and electricity, are required to manage and owned by third-party providers. These resources are necessary for the provision of the services. The organizations or users who choose to use third-party services must "plug into" the cloud (Ahmed et al., 2020).

Moreover, users can access cloud services from any time and anywhere. Hence, users can take advantage of cloud computing without making large investments to acquire and maintain cloud computing resources and convenience. This enables users to only pay for their services to shift the workload from desktops to the cloud, lowering the expenses of purchasing the hardware and software required for operating data centers. Cloud computing comprises three components which include client computers, distributed servers, and data centers (Al-Mutawa and Saeed Al Mubarak, 2023). Therefore, users can avoid paying for the cost of hiring administrative staff to manage the database, network, and system and maintain the space needed for the cloud computing setup. Cloud computing services offer users the flexibility to adjust by increasing or decreasing the usage of cloud computing resources. The users can purchase and alter their subscriptions anytime (Al-Mutawa and Saeed Al Mubarak, 2023).

In addition, there are various ways to define cloud computing services, but most descriptions emphasize technological and service features. Cloud computing evolved through significant developments in hardware, distributed computing, and network service delivery (Oliveira et al., 2014). According to Armbrust et al. (2010), cloud computing is a network-based technology that delivers on-demand access to users for remotely available IT-enabled resources and capabilities. In other words, it refers to various computing application services such as email, office software, and enterprise resource planning (ERP) and ubiquitous resources that can be shared by the business employee or trading partners (Low et al., 2011). Either way, adopting cloud computing is anticipated to transform how organizations approach IT-related services and generate business value for themselves and their customers.

2.2 Positive Impact of Cloud Computing

2.2.1 Information Technology (IT) Capabilities and Resource-Based View (RBV)

The resource-based view (RBV) is a theory that conceptualizes firms as an assortment of resources and capabilities essential for product or market competition that can be used to devise growth strategies and diversification (Alkhater, 2018). IT capabilities are usually studied with the RBV. Studies have suggested that IT capabilities positively impact firm performance and competitive advantage (Garrison et al., 2015). Hence, this literature discusses the capability of IT has various types such as managerial IT capability, technical IT capability, relational IT capability, IT infrastructure, IT business process integration, and IT business experience have been recognized.

The RBV emphasizes firm-level efficiency in combining available resources in achieving competitive advantages, which could be earned when IT capabilities are adequately leveraged (Garrison et al., 2015). In terms of strategic business, leverage refers to enhancing a company's capabilities and resources to strengthen its competitive advantage. The leveraging of IT capabilities was established by lowered implementation and deployment costs for developing technologies, which results in higher efficiency for the firm's performance. For instance, cloud computing helps to enhance organizational capacity with innovative methods by reducing the investment of IT in the internal development of IT infrastructure, human resources, and new software. Cloud computing facilitates firms to adjust their IT usage levels depending on current requirements as it is characterized by its "pay-as-you-use" basis (Khayer et al., 2020). Therefore, proper implementation of cloud computing will certainly enhance the competitive advantage of the firm.

a) Managerial IT capability (MC)

Managerial IT capability refers to the ability of IT manager's managerial skills and technical expertise to understand the potential of emerging technologies and efficiently utilize IT resources to align business operations with organizational goals (Garrison et al., 2015). Cloud computing success is defined as the strategic, economic, and technological benefits that a firm gain from successful implementation (Garrison et al., 2015). These advantages include a greater focus on core competencies, access to processing power and qualified employees that may not be readily available internally, and a lower risk of IT obsolescence. Therefore, the degree to which IT managers demonstrate the necessary business and technological knowledge determines the success of cloud computing.

b) Technical IT capabilities (TC)

Technical IT capability represents various facets of a firm's IT abilities. It includes a collection of various IT resources such as tangible assets such as computers, network equipment, and databases (Ilmudeen et al., 2019) and intangible assets such as technical knowledge, firm-specific know-how, problem-solving processes, and business unit collaboration strategies (Ravichandran et al., 2005). These capabilities give essential business applications a flexible and scalable foundation, allowing the company to acquire a competitive advantage (Garrison et al., 2015). In the domain of cloud computing, technical IT capability refers to the ability of the firm to provide technical solutions quickly and effectively that will help the organization to integrate the new technologies with existing infrastructure (Garrison et al., 2015). If the organization can integrate the cloud with its current business procedures quickly, the faster it will experience the efficiency benefits that lead to cloud computing success, including lower IT costs, greater IT capacity, and more resources available for strategic goals. A unique technical capability can distinguish a firm from others in terms of performance measures despite their similarities concerning other resources (Bharadwaj, 2000). As a result, this study suggests that the relationship between technical IT capacity and firm performance is mediated by cloud computing success in decreasing the cycle time and simplifying the process.

2.2.2 Expectation-Confirmation Theory (ECT) and Expectation-Confirmation Model (ECM)

Expectation-confirmation theory (ECT), or expectation-disconfirmation theory (EDT) has been widely applied in the marketing literature. It is used to assess the satisfaction level of customers and their repurchase behaviors (Houston et al., 2018). According to ECT, the customer will develop the expectation before they use the specific products or services based on the researcher's present knowledge and past experiences. So, customers will then match their initial expectations with real experience after they adopt the cloud technology, which is referred to as confirmation. Then, users perceive their satisfaction level based on their degree of expectation and what they gain from confirmation (Veeramootoo et al., 2018). Consequently, the satisfied customer will repeat purchasing, whereas dissatisfied customers will stop using the product or service (Bhattacherjee, 2001). However, users may want to utilize an information system without forming firm expectations, particularly its novelty component.

Houston et al. (2018) state that the ECM is a frequently used framework in the sector of IS research for examining post-adoption behavior. The expansion of the Information System theory depends on the higher chance for the satisfied customer to continue using an information system, which is reflected in the development of ECM (Bhattacherjee, 2001). The ECM theory is superior to prevailing alternatives such as IDT, TAM, TOE, and UTAUT as it contains confirmation and satisfaction in constructing more applicable to post-adoption behavior analysis (Bhattacherjee, 2001). Furthermore, confirmation and satisfaction variables capture the impact of initial adoption-related constructs, such as effort expectancy and performance expectancy (Oghuma et al., 2016). Therefore, ECM is the most appropriate theoretical framework for precisely describing IS post-adoption behavior (Nascimento et al., 2018).

a) Confirmation

Confirmation theorizes the realization of anticipated benefits from using a system. According to Nascimento et al. (2018), cognitive dissonance occurs when pre-adoption expectations are not confirmed in the post-usage period, and subsequently, users might be dissatisfied. Prior studies on post-usage behavior have revealed that confirmation positively impacts determining users' satisfaction levels towards an information system (Nascimento et al., 2018; Veeramootoo et al., 2018). For example, Cloud Service Providers (CSPs) offer a broad set of global cloud-based products that help organizations move faster, lower IT costs, and expand their business models. This may make the users satisfied with cloud computing when they receive its expected benefits.

b) Satisfaction

In marketing research, sustaining and expanding client loyalty depends on satisfaction. This relationship is also established in the context of IS, in which user satisfaction tends to the system's success (Daghan and Akkoyunlu, 2016). Customer satisfaction is the most crucial element in post-adoption behavior, including evaluating the value of information system deployment and implementation based on ECM. This research reveals that user satisfaction is an important determinant of achieving operational efficiency, which leads to the success of cloud computing in an organization because the cloud service enables users to conduct various operational activities successfully and efficiently.

2.2.3   Information Systems (IS) success

IS scholars have extensively studied the success of IS in the literature. First, DeLone and McLean (1992) proposed a multidimensional model, namely the IS success model, which posits that information quality and system quality determine the

success of an information system. Therein, the achievement of an information system is further described in terms of individual and organizational impact. A revised framework was proposed almost a decade later that clarified information system success by integrating service quality, system quality, and information quality (Delone and Mclean, 2003). Besides, the firm realized that the success of cloud computing could gain benefits after adopting this technology. These benefits can be categorized as strategies focusing on core business and economics using providers' expertise and IT resources and technological benefits in accessing state-of-art technologies while avoiding technological obsolesce risk (Teece, 2018). The level of end-user satisfaction can also examine technology success with using that technology.

a) Information quality (INFQ)

Petter and Mclean (2009) define information quality as "characteristics of the output offered by the technology," such as accuracy, completeness, relevance, consistency, update, and fitness for use. Various services which consist of IaaS, PaaS, and SaaS are offered by cloud computing through the internet. These services can use to generate valuable information for firms with high accuracy, completeness, relevance, consistency, update, and fitness to use for further decision-making. Prior literature has identified information quality as an essential determinant of information system success (Daghan and Akkoyunlu, 2016). Moreover, the influence of information quality on user satisfaction has been validated in many previous studies in various technology contexts (Veeramootoo et al., 2018). If the quality of information is lower, it will increase the cost of processing information and reduce the system's effectiveness. Conversely, high-quality information enhances user satisfaction, improving the system's overall success (Zheng et al., 2013).

b) System quality (SYSQ)

System quality symbolizes the technical characteristics of a system that are preferred in terms of ease of use, user-friendliness, ease of learning, ease of connecting, and enjoyment of using the system (Teece, 2018). The crucial element to determine the system's quality is the computing capacity, service speed, cloud provider infrastructure, application usability, and integration of existing applications with cloud services. Utilizing cloud services is mainly dependent on the cloud's quality. Many studies have found a strong and positive relationship between system quality and IS success (Yang et al., 2017). In addition, cloud services that are convenient and easy to learn can generate a high level of satisfaction for the firm. A direct and positive impact of system quality on user satisfaction has been established in the IS literature (Daghan and Akkoyunlu, 2016; Veeramootoo et al., 2018).

c) Service quality (SERQ)

Service quality can be defined as the various attributes such as tangibility, reliability, responsiveness, assurance, functionality, interactivity, and empathy involved with the service (Khayer et al., 2020). Research carried out across various consumer situations suggests that higher service quality could affect customer satisfaction and consumption feelings and retain customer loyalty to the service provider (Nunkoo et al., 2017). In this study, the researcher found that the ability of cloud services provided must reach the customer firm's expectations and demand by offering cloud computing with high performance, efficiency, and valuable services. For instance, Lal and Bharadwaj (2015) state that in a cloud-oriented CRM system, the service quality offered by the cloud supplier has a higher effect on user satisfaction. There is a positive relationship between service quality and the level of user satisfaction which in turn can enhance the operational efficiency that can be addressed as the success of that cloud technology (Veeramootoo et al., 2018; Yang et al., 2017).

2.2.4   Cloud computing success (CS) and firm performance (PER)

A firm that can gain benefits from the adoption of cloud computing shows that cloud computing is successful. A firm that employs cloud computing successfully is when they focus more on its core business operations, has broader access to scalable technological resources, and reduces the risks of IT obsolescence (Garrison et al., 2015). On the other hand, performance is the fundamental result of every strategic undertaking carried out by an organization. The firm must use the IT resources effectively to enhance its core capabilities and performance (Bouwman et al, 2017). Firms with advanced IT capability enjoy superior and sustainable financial performance compared to firms with poor IT capability. A significant relationship between the information system that is implemented successfully and firm performance has been established in previous research. For example, Ilmudeen and Bao, (2018) state that the successful implementation of inter-organizational systems improves firms' operational performance, which enables improved flexibility, production lead time, cost saving, forecasting, resource planning, and inventory level as well as the performance of supply chain management.

The performance indicates the potential of cloud services that can positively influence the cloud-supported operations and processes within a firm (Khayer et al., 2020). For instance, cloud computing lowers the cost of internal IT infrastructure creation, maintenance, and obsolescence by enabling access to remote IT resources owned by a third party. A current study on cloud computing also shows a positive relationship between adopting high-quality cloud and improving the flexibility of business performance. Currently, the latest information technology resources available for cloud computing enable companies to focus on their core competencies and increase efficiency, improving operational and financial performance. The successful implementation of cloud computing positively influences firm performance for cloud-supported operations since the effective use of IT resources positively affects firm performance (Garrison et al., 2015; Ilmudeen et al., 2019; Zhang et al., 2008).

2.2.5 Control variables

The researcher studied the five control variables in the literature, which are the size of the firms that show the number of employees, annual sales, how long the firm operates, the budget of IT, and industry, to minimize the variation in business performance. According to Zhang et al., (2010), the probability of having higher financial and labour resources in large organizations may lead to variations in firm performance. Zhang et al., (2016) state that firms with larger annual sales volumes are likely to exhibit superior performance. Firm age affects performance since older firms may have developed more mature and sustainable inter-firm relationships, bargaining power in the current market, and internal routines (Ravichandran et al., 2005). IT budget is taken as a control variable since the magnitude of this particular budget might conceivably affect firm performance (Ilmudeen and Bao, 2018). Similarly, this study includes industry as a control variable to address variations in performance that might occur due to industry-specific physiognomies such as industry environment and market competition intensity (Oliveira et al., 2014).

2.3 Strategies of Cloud Service Provider (CSP) Create Internal Business Value

In recent years, the business model (BM) has increasingly become a source of innovation and competitive advantage (Hossain, 2017). A value creation model can be used to identify and demonstrate the value realization process of cloud computing. A research study was developed to investigate the cloud service providers (CSP) in the deployment and integration of the business model. It studies how cloud service firms create value from their cloud business models with the attributes of strategic positioning, product or service portfolio, and value proposition.

2.3.1   Strategic Positioning

The strategic positioning shows that a company will generate various values in making decisions unique from other competitors. Cloud Service Provider (CSP) must target customers from large, midsize, and SME sectors to offer their cloud products with different solutions for different sizes of companies and establish their brand around value propositions and market offerings to attract potential buyers to choose which cloud services provider is more suitable to adopt (Teece, 2018). CSP can differentiate itself in the market by forming strategic alliances and partnerships to develop new software on its cloud infrastructure or platform. According to Currie (2004), prominent enterprise software vendors, such as SAP, for "Systems, Applications, and Products in data processing," developed the ERP software generally utilized by midsize companies to manage their finances, operations, and consumer relationships. Hence, businesses have a chance to explore approaches to differentiate itself distinct from the competition and establish a competitive advantage.

Besides, branding and signaling are well-established concepts in marketing. For instance, the company might choose to emphasize cost leadership, operational excellence, or close customer relationships from a strategy and operational perspective (Teece, 2018). Therefore, branding is a vital factor in helping cloud services to position themselves to create a competitive advantage and sustain themselves in a competitive market. A sustainable business model creates, delivers, communicates, and captures value to the benefit of owners and customers and in concert with the environment and society (Boons et al., 2013). Therefore, CSP can gain a sustainable competitive advantage by providing superior customer service, offering a wide range of cloud services, or leveraging advanced technology.

2.3.2   Product or Service Portfolio

The current product portfolio in distributing the network providers to end users was significantly aided by services offered through the cloud. The product or service portfolio of CSP in some companies' business models is difficult to differentiate. All CSPs faced significant challenges in developing an exceptional product or service portfolio, especially those offering commodity software applications. Hence, SAP provided a variety of software solutions, including Customer Relationship Management (CRM), business intelligence, and Enterprise Resource Planning (ERP). Furthermore, the utilization of cloud-based ERP solutions enables to help SME companies to embrace the power of cloud-based software technologies and manage cloud infrastructure services (Khayer et al., 2020). For example, the machines that are monitored by using ERP enable organizations to save much time and improve the life quality of the employees.

In addition, gaining traction in the cloud service provider (CSP) market was essential since scale economies dictated hosting collaboration tools (Khayer et al., 2020). The basis of "pay-as-you-use" in cloud computing requires most users to pay based on the resource they want to consume to return a profit. For instance, a cloud storage provider may charge based on the amount of storage used. Thus, CSPs needed to either increase the number of users or the scope of their cloud-based services in the market.

2.3.3   Value Proposition

Any CSP business model's ability to deliver value was essential to its success. For this study, a researcher was interested in examining the increasing availability and embeddedness of cloud technology in cloud computing that could lead to business

model changes (Bouwman et al., 2017). A business model might have some changes, including the value chain or the value proposition to the customer or other partners of the company (Wirtz, 2011; Matzleret al., 2013). This is why a company creates an innovative business model that can capture value by offering specific value propositions to existing and potential future customers (Teece, 2018). The value proposition of CSP typically includes the benefits such as increased flexibility, scalability, security, and cost savings that customers can expect to receive from using the provider's services.

The company must evaluate all its potential alternatives to satisfy the requirement of customers and have a comprehensive understanding of the value chain to deliver the supply that consumers demand on time at an affordable cost. An organization should also have a neutral perspective on outsourcing (Teece, 2018). For example, firms may adopt the cloud service provider (CSP) solution in operating their business due to the cloud computing value proposition enabling to reduce of the total cost of ownership (TCO) of their IT facility, the conversion of fixed costs to variable costs, increased business agility, and the capacity to create outstanding systems. The business is then able to free up funds for infrastructure, and the platform enables them to be used for rapidly establishing innovative services.

On the other hand, Currie (2004) developed a framework for knowledge-based benefits or risks assessment that identifies five key performance areas (KPAS), which consist of delivery and enablement, management and operations, integration, business transformation, and client or vendor partnerships for assessing the value-creating potential of CSP business models. Thus, the CSPs must have effective solutions or strategies to comprehend customer requirements, especially how a CSP business model added value to the customer.

2.3.4 Value Creation of Cloud Computing

The value becomes the basis for decision-making when an organization chooses a plan for taking action. Information technology (IT) undeniably added value to businesses by utilizing cloud computing in the workplace to save time, reduce cost, and the decision-making process can be accomplished by realizing IT value.

Based on Mohammed et al. (2009), the value of the cloud computing study proposed a value chain model based on Porter's value chain theory. This model incorporated three individual segments, which are primary services, business-oriented support services, and cloud-oriented support services (Mohammed et al., 2009). To deliver the value of cloud computing, the services mentioned previously must implement the process continuously.

Since cloud computing is a new technology in the IT sector, it is essential to understand how value is realized through it. This research proposed a cloud computing value generation model by applying the theoretical foundations of IT capacity, resource-based theory, competitive advantages, and value chain theory. Thus, these theories in the IT sector support the leading cloud computing service provider. However, cloud computing technology must bring positive impacts to create value in a firm's business model with innovative strategies.

2.4 Theoretical Framework
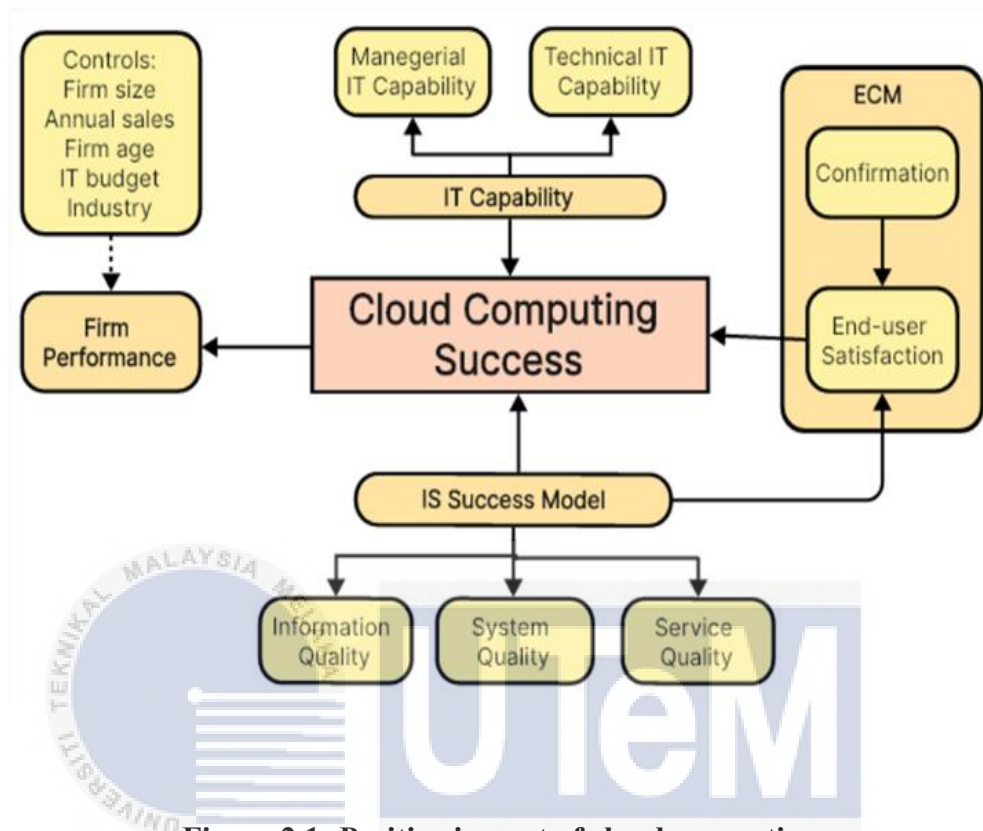
Figure 2.1: Positive impact of cloud computing

Source: Khayer et al. (2020)
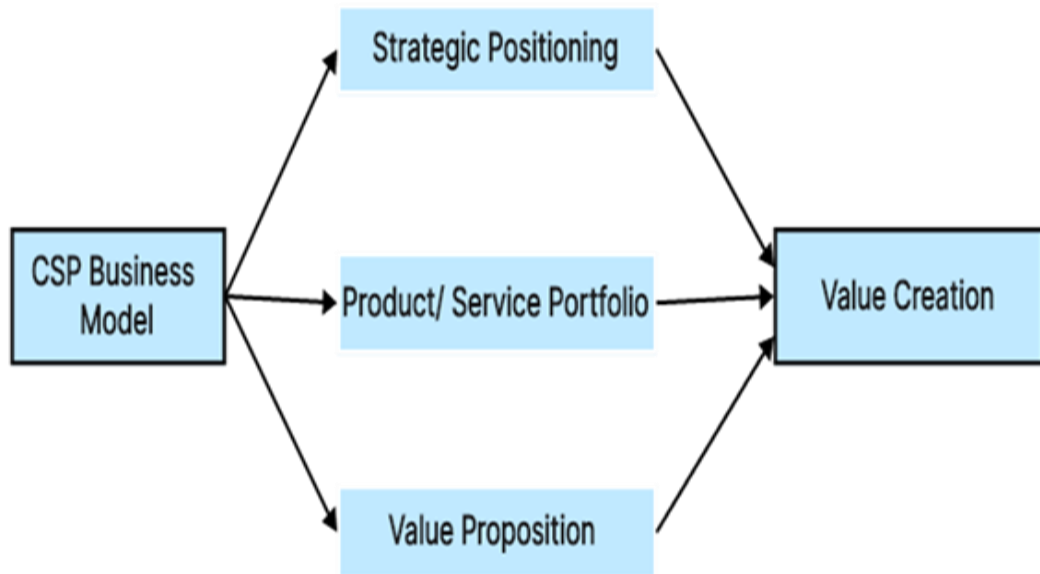
Figure 2.2: Strategies of Cloud Service Provider (CSP) create

internal business value

Source: Currie, W.L. (2004)

2.5   Summary

The review of the research shows that cloud computing is a reality that evolves globally, and it is an interesting and knowledgeable topic that needs to be further studied, such that cloud technologies can be used by consumers and providers moving forward for their shared benefit. Additionally, the researcher found limited literature on understanding the positive impact of cloud computing and the Cloud Service Provider (CSP) in generating internal business value with innovative strategies in Malaysia. Therefore, this study aims to fill this research gap by identifying the positive impacts of cloud computing success and the new strategies that Cloud Service Provider (CSP) use to generate internal business value in Malaysia. The methodology will be discussed in detail in the next section.

CHAPTER 3

RESEARCH METHODOLOGY

3.1   Introduction

Jansen (2023) explain that research methodology refers to the practical "how" a researcher needs to conduct this research. It shows how the researcher systematically designs a study to ensure valid and reliable results that address the research aims and questions. In this chapter, the researcher discussed and explained comprehensively the methodology used in the research study.

Initially, the researcher began by outlining the research design to address the research questions and achieve the research objectives. The descriptive research design was used in this study. Furthermore, the qualitative data collection technique is utilized in the methodological choices. Then, the researcher discussed the method to collect the primary and secondary data. A researcher will also explain the research location, where the location of a company would use to identify the data collection. Besides, the case study is conducted as a research strategy to help the researcher obtain the precise and latest information from the company. In addition, the time horizon carried out in the research is cross-sectional, and the scientific canons were clarified with the validity and reliability in this chapter. The research framework of the study will be outlined in the last section of Chapter 3.

3.2   Research Design

According to Saunders et al. (2019), a research design is a general plan for collecting and analyzing data to answer research questions and achieve clear research objectives. It justifies selecting the data resources, collection, and analysis methods and discusses ethical considerations and inherent constraints derived from research questions (Saunders et al., 2019).

Four research designs can be selected, which are exploratory, descriptive, explanatory, and evaluative (Saunders et al., 2019). The researcher chose the descriptive research design in this research because it will produce an accurate representation of persons, events, or situations. Descriptive research can either build upon exploratory study or act as a precede explanatory research. It is essential for a researcher to understand the theories and phenomena which desires to study before collecting data from a company (Saunders et al., 2019). Therefore, this research would benefit Alibaba Cloud in understanding its competitive advantage and business strategy for promoting cloud computing by providing customization solutions to customers and itself.

Descriptive research questions often begin with 'Who,' 'What', 'Where', 'When', or 'How' (Saunders et al., 2019). The two research questions that developed from this research are what are the positive impacts of cloud computing, and what are the new strategies for Alibaba Cloud as a Cloud Service Provider implements in creating business value internally?

Besides, the researcher should undertake descriptive research, which is important to comprehend and clarify the setting of the research study. According to Atmowardoyo (2018), descriptive research is a method for accurately describing the available phenomena already present with observable events. This demonstrated how this research on cloud computing could help the cloud service providers to gather more

information about the strategies for creating business value with the high capabilities of cloud computing by offering customized and robust solutions to the businesses.

3.3   Methodological Choices

According to Saunders et al. (2019), the methodological choices consist of three types which are the quantitative method, qualitative method, and mixed method research design. Researchers need to choose the most reliable and suitable investigation technique to interpret the data collection.

This research involved qualitative research techniques. According to Saunders et al. (2019), the meanings are expressed through words and images in qualitative research, not numbers. Words and images will have several meanings as well as unclear meanings. So, it is important to discuss and clarify them with participants. Besides, interpretive philosophy tends to be associated with qualitative research (Lincoln et al., 2018). Researchers need to understand and investigate how the event under research can be interpreted in terms of its subjective and socially generated meanings.

Qualitative research is often used as a synonym for data collection methods such as interviews (Saunders et al., 2019). Therefore, the method of qualitative research utilized for this study is conducting interviews so that the researcher has better comprehended the respondents' opinions and points of view. The researcher interviewed 15 respondents to collect textual descriptions and literacy data during the research. For the researcher to accomplish the purpose of this research, various questions are asked of the respondents when the interview session is conducted to gather relevant information depending on the research topics.

In this study, the researcher studied the positive impact of cloud computing and examined the strategies of business value creation with digital technology and intelligence in supporting cloud service provider in Alibaba Cloud.

3.4 Primary and Secondary Data Sources

According to Douglas (2015), primary data and secondary data are two distinct methods utilized to collect information in the research. According to Rast (2018), the primary data are directly collected from the subject of the analysis. Primary data can be obtained through surveys, observations, questionnaires, and interviews. In this research, the researcher selected 15 respondents at Alibaba Cloud to collect the primary data by conducting a semi-structured interview.

In contrast, secondary data is information initially gathered for various purposes and then further analyzed to provide additional information, knowledge, or explanations (Saunders et al., 2019). Secondary data can be found on websites, books, journal articles, and internal records. A researcher searched for information about the company's background and the latest products and services that Alibaba Cloud offered from the company websites and reports. The researcher also referred to journal articles and books to understand the theories regarding the impact of cloud computing success and the strategies for the cloud service provider in creating internal business value.

3.5 Method of Primary Data Collection

Boddy (2016) recommends a range between 15 to 30 interviewers for case studies. In this research, the researcher selected 15 respondents with different job

scopes from Alibaba Cloud, including cloud security analysts, administrators, and solution architects. A semi-structured interview was conducted to gather the data from these 15 respondents. The main reason for using a semi-structured interview is to gather information from respondents working in Alibaba Cloud with personal experiences, perceptions, and beliefs related to the topics on explaining how cloud computing success. The researcher also developed a questionnaire for the respondents to gather data more precisely.

3.6   Research Interview

Research interviews will be classified into three types which are structured interviews, semi-structured interviews, and in-depth interviews. In this research, the open-ended questionnaires will be set based on the respondent's job scope for qualitative data collection method through the semi-structured interview to identify the positive impacts of cloud computing and examine the new strategies that help Alibaba Cloud as a Cloud Service Provider (CSP) to create internal business value.
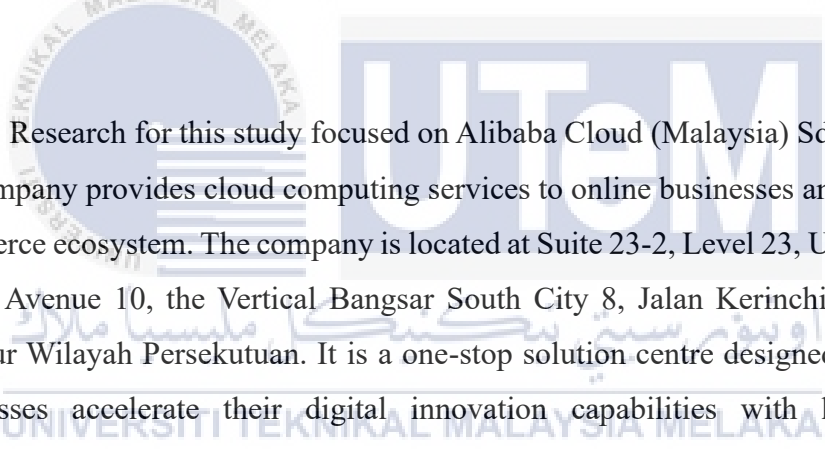
According to Saunders et al. (2019), the questioning in the semi-structured interviews was structured within the predetermined set of themes in open-ended questions and possibly more key questions related to these themes arising throughout the conversation between the interviewer and interviewee. The semi-structured interview guide was used to elicit responses from respondents (Peprah, 2023).

The semi-structured interview was conducted to collect data from the specialized employees in Alibaba Cloud with an equal quality level and to ensure all questions were addressed. The semi-structured interviews with 15 respondents were conducted within 30 minutes to 1 hour. The 15 respondents were selected based on

their job scopes related to cloud computing theory which are cloud security analyst, cloud administrator, and cloud solution architect in Alibaba Cloud.

The interview guide for the semi-structured interview may also include some comments to initiate the discussion, a potential list of prompts to encourage additional discussion, and some concluding remarks (Saunders et al., 2019). Data from a semi-structured may be audio-recorded and then transcribed interview record into text.

3.7 Location of the Research

Research for this study focused on Alibaba Cloud (Malaysia) Sdn. Bhd, where the company provides cloud computing services to online businesses and Alibaba's e-commerce ecosystem. The company is located at Suite 23-2, Level 23, UOA Corporate Tower Avenue 10, the Vertical Bangsar South City 8, Jalan Kerinchi 59200 Kuala Lumpur Wilayah Persekutuan. It is a one-stop solution centre designed to help local businesses accelerate their digital innovation capabilities with leading cloud computing technologies. In order to satisfy the requirements of different sectors, the company offers various scales of cloud-based solutions and services which allow businesses to expand and operate their platforms or applications with a robust, reliable, and secure cloud platform.

On the other hand, Alibaba Cloud is committed to provide local support through its professional services team and tech support experts that enable businesses in Malaysia to lead in speed and agility and keep pace with the demands of the local market. In addition, Alibaba Cloud adheres to International Security and Compliance Standards. This company also complied with all Personal Data Protection Act 2010 (PDPA) requirements that regulate personal data protection for commercial transactions in Malaysia.

The researcher has chosen Alibaba Cloud in Malaysia to collect data in this research because it is a world-leading global cloud services provider and expert in digital transformation. This company also involves top-class cloud infrastructure technology, artificial intelligence, machine learning, and big data analysis. Alibaba Cloud provides high-performance cloud technology and has successfully helped thousands of Malaysian businesses innovate their operations in different sectors such as retail, finance, and manufacturing. Furthermore, the researcher was interested in how Alibaba Cloud can develop the most effective cloud computing services for companies to obtain value from adopting this cloud technology to their business's products and services.

The interview was conducted using the theory of cloud computing success for the researcher to interact with respondents from Alibaba Cloud in Malaysia. The researcher gathered relevant data from the interview session to achieve the study's objectives. As a result, the interview enabled the researcher to obtain precise information from the respondents to understand the cloud computing services offered by Alibaba Cloud.

3.8   Research Strategy

A research strategy is a general plan that outlines how a researcher intends to answer the research question (Saunders et al., 2019). It is a framework that includes data collection, analysis, and interpretation. Various research strategies are typical research methodologies used in business and management, including experimental research, surveys, case studies, ethnography, action research, archival research, grounded theory, and narrative inquiry (Saunders et al., 2019). Among these research methodologies, a case study was employed as it enables the researcher to concentrate on collecting data and information regarding the impacts of cloud computing success and the innovative strategies that Alibaba Cloud uses to create internal business value.

Ultimately, case studies can assist the researcher in addressing the research questions and accomplishing the research objectives by describing the research strategies used.

According to Yin (2018), the case study is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, program, or system in a real-life. A case study articulates a phenomenon's whole picture using the source of direct observation, participant observation, interviews, audio-visual material, documents, reports, and physical artefacts to provide more descriptive and extensive information. Moreover, Yin (2018) states that recognizing case studies as a form of inquiry enhances the researcher's understanding that case studies exist outside the domain of case study research. The researcher employed the case study to gather relevant information about the positive impacts of cloud computing and the effective strategies that Alibaba Cloud implemented to create internal business value.

Moreover, Saunders et al. (2019) state that the term 'case' in case study research can refer to a person, a group, an organization, an association, a change process, an event, or a variety of other case subjects. In this study, the researcher chose Alibaba Cloud as a case study subject to research the positive impact of cloud computing and internal business value creation strategies. Yin (2018) contends that the purpose of a case study is to comprehend the uniqueness of a specific example concerning a particular research problem. The researcher must prepare tasks by determining what and how cloud computing succeeds and the practical strategies for creating internal business value for Alibaba Cloud.

Qualitative case study methodology enables researchers to explore complex phenomena in-depth within some specific context (Rashid et al., 2019). However, case studies are closely related to qualitative methods. The researcher will use a qualitative method to achieve the research objectives in this case study. The research findings reveal the impact of variables on the cloud computing success in Alibaba Cloud by conducting semi-structured interviews.

Besides, Saunders et al. (2019) mention that the amount of data can be reduced if the data is collected from a particular subgroup rather than all eligible participants. The researchers should apply their best judgment while selecting cases and respondents to address the research questions (Saunders et al., 2019). Hence, the researcher selected 15 respondents from the cloud security analysts, administrators, and solution architects with high experience and adequate knowledge of cloud technology at Alibaba Cloud to gather reliable and accurate data for the research findings during the interview session.

A pilot test is conducted on some target population members to evaluate their reliability. According to Saunders et al. (2019), conducting a pilot test of the questionnaire with respondents is comparable to those who will complete it before collecting data. The purpose of the pilot test is to improve the questionnaire so that respondents can respond to the questions quickly and record the data. The researcher selected two participants from Alibaba Cloud for the pilot study before distributing the questionnaire to the respondents.

3.9   Time Horizon

The time horizon refers to the duration a researcher is required to collect data and conduct the research. The time horizon may change based on the study type and questions being asked. Saunders et al. (2019) explain that the time the researcher takes to investigate a phenomenon is constant, regardless of the research method or technique employed. The two primary types of time horizons contain cross-sectional and longitudinal studies (Saunders et al., 2019). Cross-sectional studies examine a specific occurrence at a particular time using a one-shot or snapshot time frame, usually a few days or weeks. In contrast, longitudinal studies sometimes refer to diary perspective temporal horizon studies, which follow individuals or groups over a long period.

Saunders et al. (2019) say that a majority of academic research projects can be conducted using cross-sectional studies. This is because most academic research projects have a time limit and require the researchers to gather information from numerous demographic groups throughout time. Therefore, a researcher must also research a specific topic within a defined time frame. In this research, the researcher chose cross-sectional studies as their research design. The researcher conducted this academic research between March 2023 and January 2024 to accomplish the research objectives. The case studies were done based on interviews with 15 respondents, including cloud security analysts, administrators, and solution architects from Alibaba Cloud over a short period.

3.10   Scientific Canon

In research, scientific canons highlighted that internal validity, external validity, construct validity, and reliability are significant contributors to enhance the quality and credibility of research. These are crucial guidelines for contemporary research since they help to increase the precision of study assessment and evaluation (Coleman, 2022). Reliability and validity are crucial for determining the standard of research in the natural sciences and quantitative social sciences (Saunders et al., 2019). According to Saunders et al. (2019), validity refers to the suitability of the measure used and the precision of the research findings. In contrast, reliability refers to how consistently a method measures something. Therefore, validity and reliability can improve transparency and minimize the possibility of researcher bias in qualitative research (Singh, 2014).

3.10.1 Internal Validity

According to Saunders et al. (2019), internal validity refers to the degree to which the results obtained by the researcher in the study can be attributed to the intervention they are studying rather than a flaw in the study design. Internal validity is established if it can be statistically demonstrated that an intervention produces a result and that a confounding variable does not cause it (Saunders et al., 2019).

A researcher can improve a study's internal validity by reducing the impact of unrelated variables. This can be achieved by focusing more narrowly on the investigation's scope from the research topics, questions, and objectives. This research was conducted by identifying the impacts that bring Alibaba Cloud success in establishing cloud computing services and strategies for Alibaba Cloud implemented to generate internal business value. The researcher has avoided discussing irrelevant or extraneous topics by focusing on the research questions and objectives. As shown in Table 1 below, the internal validity of the research's findings could be impacted by several factors.

Table 3.1: Threats to Internal Validity

Source: Saunders et al. (2019). Research Method for Business Students.

Threat	Definition and explanation
Past or recent events	A situation that changes participants' perspectives. For instance, demonstrating cloud services' capabilities and benefits may change participants' perceptions of providing new information or insights that challenge their beliefs or assumptions about cloud computing. This could lead them to respond in distinct ways, which might affect the validity of the study's findings. To prevent this threat, the researcher should update with the latest information on cloud computing and ensure that the diverse participants with varied backgrounds,

	experiences, and beliefs can reflect their responses should be truthful and independent of any external influences.
Testing	The impact of testing on the views or actions of participants. For example, a presentation on the benefits of cloud computing could involve the impact of testing on participants' views or actions. They might alter their responses to comply with what they think is preferable and are worried their responses may have future consequences for their evaluations or performance reviews. The researcher guarantees participants that their responses will remain anonymous and confidential to encourage honest responses from participants in a study on the positive impact of cloud computing creating internal business value. This provides a safe environment where participants may express their ideas without worrying about negative evaluation consequences.
Maturation	The effect of a participant's change impacts their attitudes or behaviours that occur outside of the study. For instance, the management training implemented in Alibaba Cloud could influence participants' views and responses toward cloud computing during a subsequent research stage. To minimize this threat, the researcher should avoid external factors that may influence the participant's maturation process.

3.10.2 External Validity

External validity reflects how appropriately conclusions from a research study can be applied to other relevant situations. Validity refers to the accuracy of the research findings, which can be applied to different populations, circumstances, and situations (Saunders et al., 2019). It is important because if external validity is demonstrated, the findings may be utilized in populations with similar characteristics.

Thus, the researcher has selected participants with characteristics relevant to the research question. The researcher must make sure that the study participants accurately represent the population of interest to ensure external validity in examining whether the Alibaba Cloud (Malaysia) Sdn. Bhd case study reflects the hypothesis that interaction links inherent in the success of cloud computing create internal business value theory.

3.10.3 Construct validity

According to Saunders et al. (2019), a set of questions known as construct validity captures the construct's existence under investigation by a researcher. The research questions have to minimize misunderstandings in the wording and interpretation of each scale item. It is also important to be more in-depth while analyzing the job, task, and curriculum, which helps to establish construct validity by better comprehending the boundaries and organizational structure of the construct domain (Saunders et al., 2019). These methods constitute separating the construct into its constituent parts and examining how it presents itself in various contexts.

To identify and address any possible issues or misunderstandings, the researcher pre-tested the measure with the sample of respondents before distributing it to the study participants. This allows the researcher possible to make any necessary adjustments. In addition, the researcher interviewed 15 employees with high expertise and many working experiences in cloud computing from Alibaba Cloud because the researcher believes that all the selected employees have theoretical and practical skills. Therefore, all the data collected may provide helpful context and support for the research findings. As a result, it is essential to employ a variety of methodologies to demonstrate construct validity and ensure the reliability and accuracy of the data.

3.10.4 Reliability

Consistency and replication are components of reliability. The demonstration of reliability in the research is when a researcher successfully replicates and generates the same results as the prior study using the same research design (Saunders et al., 2019). It can be useful to distinguish between internal and external reliability when assessing research reliability. Internal reliability is necessary for a research project's determination to ensure uniformity and standardization (Saunders et al., 2019). External reliability refers to the consistency of findings when the same techniques of data collection and analytic procedures are used by a different researcher or replicated at a different time (Saunders et al., 2019).

The validity of the results can be severely impacted by unreliable research since any bias or inaccuracy can affect the interpretation of the results and raise questions about the method employed to measure the phenomena under study. This led to inconsistent research, often considered ineffective (Saunders et al., 2019). As shown in Table 2 below, the researcher developed a table of issues that must be explored in Alibaba Cloud Sdn. Bhd to ensure a reliable study. So, the researcher can improve the reliability and validity of the findings by addressing these concerns.

Table 3.2: Threats to Reliability

Source: Saunders et al., (2019). Research Method for Business Students.

Threat	Definition and explanation
Participant error	Participant error refers to any factor that negatively affects in which the manner of a participant's performance or response. One common cause of participant error is timing. To minimize participant error and obtain accurate data, the researcher should avoid scheduling the interview right before lunch or at the beginning or end of a workday. These times may cause participants to be busy or distracted in providing correct data.

	Therefore, a researcher can schedule interviews when participants are more likely to be relaxed and focused, such as mid-morning, to ensure the effectiveness of data collection. Furthermore, the researcher conducted shorter interview sessions within 30 minutes to maintain participants' attention and concentration.
Participant bias	Participant bias is any factor that may influence a participant to respond incorrectly. This can occur when a participant feels uncomfortable and pressured to provide a specific answer, even if it is inaccurate. For example, the participants may feel uncomfortable or self-conscious when an interview is conducted in an open space which may cause participants to provide falsely positive answers where they may be overheard. Thus, the researcher may hold an interview session in a room or private location to ensure that participants feel comfortable and relaxed in sharing their honest opinions and answers during the interview.
Researcher error	Research errors occur when the researcher's interpretation is affected by several factors, such as the researcher being tired, distracted, or lack of preparation. To ensure precision data interpretation, the researcher should better comprehend the research questions and be well-versed in the relevant literature. During the interview, the researcher had to pay attention to the participant's responses and gain a further understanding of their opinions.
Researcher bias	Research bias is any factor that induces bias in the recording of responses by the researcher. A researcher's personal beliefs, values, and experiences can influence the participant's interpretation of data, which can lead to inaccurate. The researcher must know how their beliefs and assumptions may

	impact the results. To minimize this bias, the researcher must remain neutral, approach the study with an open mind, and use objective measures and methods for data collection and analysis.

3.11   Data Analysis

According to Saunders et al. (2019), thematic analysis, template analysis, explanation building and testing, grounded theory method, narrative analysis, discourse analysis, visual analysis, and data display analysis are the eight types included in data analysis. In this research, the researcher used thematic analysis to analyze qualitative data.

Saunders et al. (2019) explain that thematic analysis concerns identifying themes or data patterns, which are interviews, observations, documents, diaries, or websites. This technique involves a researcher coding qualitative data and discovering themes or patterns linked to the research issue that could be further analyzed. It is systematic because it offers a rational and ordered approach to analyze qualitative data (Saunders et al., 2019). Moreover, thematic analysis can be used to analyze small and large qualitative data sets for generating a variety of theories and interpretations.

In a nutshell, the qualitative data were analyzed using thematic analysis in this study. This analysis enables the researcher to obtain relevant and crucial information related to the research questions and achieve the objectives of this study.

3.12   Interview Protocol

Agarwal (2019) states that an interview guide covers the critical topics and inquiries that guide information gathering during the interview. An interview guide is an instrument for ensuring consistency in the questioning of each interviewee. It is also a framework for the interviewer to explore and highlight the subject being discussed in more detail and ask follow-up questions within the context of the topics or areas outlined in the guide (Agarwal, 2019). The interviewer also has the flexibility to develop the discussions within specific issues, informally ask questions, and maintain a casual tone while focusing on predetermined topics. The instructions can be used as a checklist to address all essential questions during the interview.

According to Agarwal (2019), an interview guide helps the interviewer to make the most of the limited time available to outline the topics to be covered for the interview. This makes the process more systematic and accurate. In focus group interviews, a guide is necessary for maintaining the discussions on a topic while allowing the individual to express opinions and experiences to emerge. An interview guide can be considered a tentative travel route by providing a plan for the investigator to follow (Brinkmann et al., 2015). The duration of each section or specific questions that will be asked would not be included in an interview guide because it does not provide detailed information on each step of the interview process. However, it does provide a clear idea of the overall direction and scope of the interview.

A reliable interview protocol is essential to obtain high-quality qualitative data. By establishing the topics to be covered in advance, the interview process can be carried out systematically, consistently, and thoroughly across numerous groups of individuals (Gugiu and Rodríguez-Campos, 2007). Additionally, an interview protocol improves the effectiveness of the interview process by ensuring that the required information can be collected within the specified time. Hence, a researcher can obtain and utilize these rich qualitative data to comprehend the respondents' experiences and identify critical elements pertinent to the topic.

Table 3.3: Four-Phase Process to Interview Protocol Refinement (IPR)

Source: Yeong et al. (2018).

STEPS	EXPLANATION	EXAMPLE
Ensuring interview questions align with research questions	- Improve the usefulness of interview questions - Ensure that the study's questions are necessary	A researcher will not discuss the entire questionnaire about the positive impact of cloud computing and the strategies used to create internal business value because it wastes time. However, the researcher must eliminate unnecessary questions and set the relevant questions according to the respondents' job scope.
Creating an inquiry-based conversation	- Research questions and interview questions are distinct. - Conversational social rules - Prompt questions	The researcher constructed a list of questions based on the research question. The interview protocol helps the researcher to prevent asking the respondents new questions in isolation and ensures that prior questions provide direction for additional information.
Receiving feedback on interview protocols	- Expert feedback on the interview protocol - Expect responses from respondents - Ensure understandability	After developing the questionnaires, the researcher will consult with an expert to confirm that the questions are not considered sensitive and appropriate for data collection. The feedback from the expert enables the creation of more reliable and accurate questionnaires. It assists the researcher in obtaining relevant data

		regarding the positive impact of cloud computing and the strategies used to create internal business value.
Piloting the interview protocol	- Feedback from actual respondent - Gaining interview experience - Interview scenario testing	The researcher conducted a short test to determine whether the interview questions could be easily understood and answered by the respondents. The researcher will also investigate to see whether the respondents can match their thoughts within the categories of answers that are accessible.

3.13 Summary

In conclusion, this chapter defines the research design as descriptive, specifying a case study. The research design utilized in this study is descriptive research. Descriptive research helped the researcher to analyze the data and gain an in-depth understanding of the research problems. The researchers will benefit from this research study by assisting them in acquiring skills to evaluate and synthesize ideas rather than just precisely describing information.

Besides, the researcher employed the qualitative method as a research methodology to conduct this research. The researcher conducted a semi-structured interview to comprehend the respondent's perspectives and opinions. For the researcher to accomplish the purpose of this research, the questionnaires were developed for the interview session to obtain the research findings from the 15 respondents. The 15 respondents were selected from Alibaba Cloud (Malaysia) Sdn.

Bhd, including cloud security analysts, cloud administrators, and solution architects, enabled the researcher to collect the primary data accurately. Furthermore, the secondary data used to gather additional information about cloud computing and internal business value-creation strategies are from journals, articles, books, websites, and company reports.

The case study approach was employed as the research strategy in this study. The case study methodology assisted the researcher in conducting the study more thoroughly and generating more reliable results. This approach enabled the researcher to focus on Alibaba Cloud Sdn. Bhd and collect valuable data regarding the impacts of cloud computing success and the innovative strategies that Alibaba Cloud uses to create internal business value. The cross-sectional research design was used to conduct this academic research between March 2023 and January 2024.

3.14   Research Framework

Research Objectives:

1. To identify the positive impact of cloud computing in Alibaba Cloud.

2. To propose the new strategies of Alibaba Cloud as a Cloud Service Provider (CSP) in creating internal business value.

Research Design:

Descriptive Research

Research Strategy:

Case Study: Alibaba Cloud (Malaysia) Sdn. Bhd

Methodological Choice:

Qualitative Research

Primary Data

Secondary Data

Interview: 15 Respondents

(a) Cloud security analysts

(b) Cloud administrators

(c) Cloud solution architects

Company report, articles, websites, official social media, and websites of Alibaba Cloud

Data analysis:

Thematic Analysis

CHAPTER 4

DATA ANALYSIS AND DISCUSSIONS

4.1 Introduction

This chapter discussed the results of the research study in Alibaba Cloud (Malaysia) Sdn. Bhd. The data were collected by conducting 11 sessions of semi-structured interviews from 12 to 22 September 2023. Table 3 shows the number of interviewees and their respective designations with three Solutions Architect, two Cloud Developers, two Cloud Support Engineer, two Cloud Administrative, and two Cloud Sales Executive who have adequate knowledge to provide accurate and reliable responses in Alibaba Cloud (Malaysia) Sdn. Bhd. The findings from this research are then analyzed using qualitative thematic analysis.

The two research objectives in this research are to identify the positive impact of cloud computing and to propose innovative strategies for Alibaba Cloud as a Cloud Service Provider (CSP) in creating internal business value. Therefore, the first section presented the job profile of the respondents. The second section discussed the findings on the impacts that bring cloud computing success, and the third section presented the results of the innovative strategy used to create Alibaba Cloud's business value.

4.2   Description of Respondent

The profiles of respondents from each respective respondent are presented in the table below. In addition, the respondents' names are listed in the table below:

Table 4.1: Profile of Respondents

Respondent	Quantity of respondents	Code	Job Scope
Cloud Developer	2	CD 1 CD 2	- Ensuring that all data storage and access are 100% compliant with local Malaysian standards. - Involved in building, testing, deploying, and running applications with consistency, agility, and productivity.
Solutions Architect	3	SA 1 SA 2 SA 3	- Design and implement advanced technology solutions to address client's business challenges.
Cloud Administrator	2	CA 1 CA 2	- Managing user accounts, permissions, and access control - Managing the lifecycle of cloud resources, including creating, modifying, and deleting resources. - Monitor the performance and availability of cloud resources and ensure that they meet the required service level agreements (SLAs).

Cloud Sales Executive	2	SE 1 SE 2	- Generating leads and identifying strategic solution-based sales opportunities. - Develop and manage high-value relationships with key stakeholders and provide leadership and guidance to other team members.
Cloud Support Engineer	2	CSE 1 CSE 2	- Supporting the cloud's backend operations and infrastructure ensures that cloud services run efficiently. - Identifying and solving issues arising from user accounts, from basic to complex problems while using cloud services. - Develop technical plans for new deployments in collaboration with the Program Manager, Project Technical Lead, and the team.

4.3 Positive Impacts of Cloud Computing

In this research, the first objective was to identify the positive impact of cloud the success of cloud computing with its information technology (IT) capability, information system (IS) success model, and the integration of artificial intelligence (AI).

4.3.1   Information Technology (IT) capability

The success of a company's cloud computing and its overall performance are affected by three main cloud delivery structures such as public, private, and hybrid services that interact with a firm's internal IT capabilities. A firm's IT capabilities represent the ability to combine physical and human capital to improve cloud performance (Teece et al., 1997). The IT-based capabilities can include different skills, such as managerial and technical IT skills, which are the positive impacts that contribute to cloud success.

4.3.1.1   Managerial IT Capability

Managerial capabilities refer to the project coordination and leadership skills that expedite technology integration (Bharadwaj, 2000). CD 1 and CA2 mentioned that most IT professionals working in Alibaba Cloud undergo all the professional cloud certifications. There are three tiers of Alibaba Cloud Professional Certifications, which are Alibaba Cloud Associate (ACA), Alibaba Cloud Professional (ACP), and Alibaba Cloud Expert (ACE), offered by Alibaba Cloud Academy to validate and upskill their workforce with the necessary knowledge and skills in Cloud Computing, Big Data, and Security to ensure the high quality of services and products delivered to its customers.
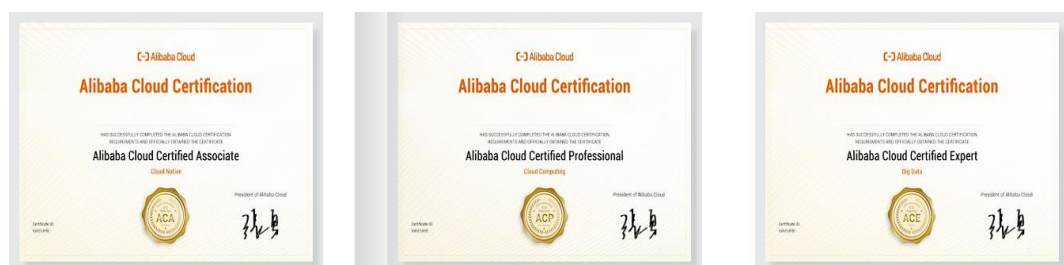
Figure 4.1: Alibaba Cloud Exam Certification

Source: Alibaba Cloud Official Website

Capable IT managers are efficient and effective at integrating new technologies into existing business processes and do it more reliably and cost-effectively (Bharadwaj, 2000). So, CD 1 said that when customers ask how the cloud solution <u>can solve their business's problems</u>, their employees can give the best suggestions <u>by providing how-to</u> and solving practical issues based on Alibaba Cloud products.

In addition, the managerial IT capability is a vital determinant of a firm's successful implementation of a new project and the ability to coordinate multi-faceted activities. Based on the news published by the UN specialized agency for ICTs in 2020, the collaboration with the Malaysia Digital Economy Corporation (MDEC) for the "Malaysia City Brain" initiative is the smart traffic project that showed Alibaba Cloud with strong demonstration expertise in supporting Malaysia's digital transformation <u>with Artificial Intelligence (AI) and Big Data analytics capabilities</u> to reduce traffic congestion and more efficient city planning in Kuala Lumpur. The City Brain is also designed to utilize massive amounts of real-time data from various sources, such as traffic cameras, social media, and other sensors. Therefore, this project is a testament to Alibaba Cloud's IT managerial capabilities that have successfully handled large-scale, technologically advanced projects within a very short period.

Managerial IT capabilities positively influence competitive advantage and firm performance. In the researcher's opinion, IT personnel with the combination of foresight, understanding of business, and IT expertise are crucial for optimizing IT efforts, which will help the firm increase IT capacity and reduce the risk of IT obsolescence.

4.3.1.2   Technical IT Capability

Technical capability refers to physical assets such as computers, network equipment, and databases that provide a wide range for firms to access and share information anytime and anywhere (Bharadwaj, 2000). The core computation capabilities are very fundamental. However, many other pieces still comprise its cloud computing, like network virtualization, security, storage, and data management. All of that is central to the whole cloud offering, and Alibaba Cloud is heavily investing in those areas to ensure its cloud fundamentals are stable and eliminate any interruption.

Additionally, IT technical capabilities refer to the technical knowledge, firm-specific know-how, problem-solving processes, or a business unit collaboration approach that allows the firm to integrate emerging technologies into an existing IT infrastructure (Ravichandran et al., 2005). SA 1 shared that IT technical capability is essential for Alibaba Cloud to create and deliver specialized technical solutions quickly and effectively according to their partner's business requirements. Alibaba Cloud has also established professional cloud exams and relevant training courses for internal technical staff to ensure its cloud platforms and their expertise stay responsive and adapt to the changing digital landscape with advanced infrastructure utilization. Ravichandran and Rai (2000) support that with adequate technical IT capability, Alibaba Cloud could reduce integration complexities and have the knowledge and skills to utilize any disruptive technology rapidly and efficiently.

The firm's technical capability represents the collective resources that provide it with a flexible and scalable foundation for requisite business applications (Garrison et al., 2015). The cloud developer 2 at Alibaba Cloud (Malaysia) mentioned that IT resources can be easily accessed with the robust AliCloud platform without restrictions on device, time, and location. Alibaba Cloud also enables firms to scale their resources depending on the demand and utilize them flexibly, which can enhance their IT capabilities and organizational agility in operations and strategy. Géczy et al. (2013)

point out that the successful performance of a cloud solution is associated with the firm's <u>available IT resources</u> that can be allocated to the cloud implementation process.

In the researcher's view, Alibaba Cloud is accelerating digital transformation and bringing advanced cloud computing and innovative technologies to improve the performance of public services, businesses, and organizations in Malaysia. Consequently, a firm's technical capability is critical to boost its competitive advantage and performance when it enables it to provide technical solutions effectively with improved cycle time and streamlined business processes.

4.3.2 Information System (IS) success model

Liu and Wang (2021) proposed an integrated model based on the DeLone and McLean Information System Success Model (DMISSM) to examine whether quality factors include system, service, and information that can affect user satisfaction and performance of cloud-based marketing systems. SE 2 mentioned that Alibaba Cloud has a proper IS strategy to help companies adhere to all those security or compliance requirements and ensure its customers deploy the right services to become more reliable.

4.3.2.1 Information Quality

Information quality has many attributes, such as interpretability, dependability, consistency, timeliness<u>, safety, and availability of access</u> (Kankam et al., 2023). Data

security in the cloud is crucial, as data removal and leakage in cloud systems are common today. Hence, Alibaba Cloud is aware of data privacy and protection because many enterprises are concerned about this issue, so it remains their top priority.

SA 2 mentioned that Alibaba Coud is committed to comply with local regulations and industry standards. Their ecosystem is also built on and depends on trust; protecting the privacy of its customers and consumers is their highest priority. For example, Alibaba Cloud adhered to the Personal Data Protection Act's (PDPA) requirements to maintain data residency to meet local information security standards in Malaysia. This ensures that the processing of personal information is regulated to protect an individual's data concerning commercial transactions. On top of that, Alibaba Cloud has adhered to more than 80 security and compliance accreditations worldwide, such as international information security standards with ISO27001, CSR STAR, and the Payment Card Industry Data Security Standard (PCI-DSS).
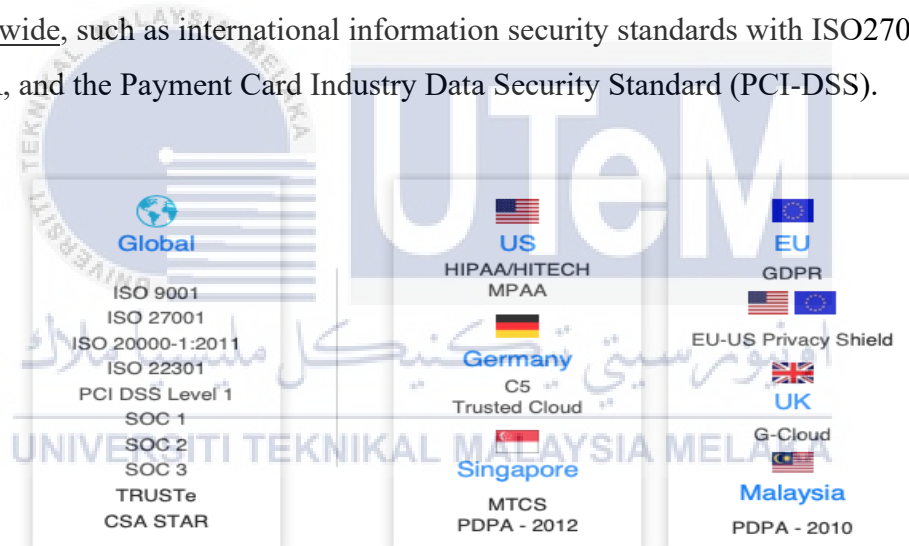
Figure 4.2: Alibaba Cloud International Security Compliances

Source: Alibaba Cloud official website

Besides, CSE 1 mentioned that Alibaba Cloud provides seamless connectivity and effective disaster recovery scenarios by providing two redundant local data centres with high availability levels in Malaysia to support after-sales services. Cloud computing also allows users to store data with strong tenant isolation security and

control capabilities. This ensures that critical information remains accessible and protected in various scenarios.

Alibaba Cloud has been leading the way in cloud computing technology with a high level of reliability and security cloud platform. The cloud system enables users to handle changing demands and provide reliable and scalable services when data is processed in large volumes, as noted by CA 2. Alibaba Cloud's official website showed Alibaba Cloud's customized AI-powered Virtual Queue (VQ) solution for Genting's migration, which efficiently handled massive volumes of data, managed heavy traffic, and provided additional security. As of today, Genting continues to move more and more of its workloads to Alibaba Cloud. Therefore, the high-quality information system will reduce the cost of processing information and enhance user satisfaction by adopting cloud systems.

Figure 4.3: AI-powered Virtual Queue (VQ) solution

Source: Alibaba Cloud official website

From the researcher's viewpoint, the information quality is associated with the data it produces. Suppose the information from the cloud systems is relevant and useful and can meet the needs and specifications of business customers. In that case, the information systems can be considered good quality because the data presented by Alibaba Cloud is able to communicate with its customers effectively and allow its users to make informed decisions.

4.3.2.2 System Quality

The system's quality has addressed the experienced <u>user-friendliness, usefulness, flexibility, and trustworthiness</u> (Prybutok et al., 2008). Chen and Kao (2010) found that the system throughout the arrangement procedure has a higher impact on satisfaction than service offering quality.

As a cloud service provider, Alibaba Cloud has robust security measures to protect data stored in its IT infrastructure. They employ advanced encryption techniques, secure data centres, and access controls to safeguard data. During the interview, CD 1 supported the idea that Alibaba Cloud offers a <u>high degree of flexibility</u> in designing and implementing the IT architecture on the cloud with two local data centres in Malaysia. This distributed infrastructure contributes to a more reliable and responsive computing environment.

Alibaba Cloud's official website shared that its cloud system is highly <u>secure and can handle any technical problems</u> with the establishment of the dual data centre. The first local data centre is the Electronic World Trade Platform (e-WTP) hub serving as a 'one-stop solution centre' for local businesses, which offers Malaysian SMEs the infrastructure for doing commerce with services encompassing e-commerce, logistics, cloud computing, mobile payment, and talent training, which also forms part of the Digital Free Trade Zone (DFTZ). This centre will provide Malaysian enterprises with a local choice to build their businesses and run their applications on a robust, reliable, and secure cloud platform.

The second local data centre was the Anti-DDos Scrubbing Centre in 2018 for strictly adhering to Malaysia's compliance and regulations. It combined with <u>intelligent DDoS detection and protection systems</u> developed at Alibaba, automatically reinforces the security of their client's applications and mitigates risks of confidentiality, integrity, and availability losses when moving to a public cloud.

With the proliferation of mobile devices and the rise of the Internet of Things (IoT), ever more data needs to be accessible in the cloud; the AliCloud platform's scalability is crucial for users to access it from anywhere across a growing variety of devices. Besides, the cloud-native database systems provided by Alibaba Cloud allow a shared distributed storage pool and a shared distributed computing resource pool. CD 1 added that AliCloud often comes with user-friendly interfaces that benefit businesses in scaling their storage or computing resources up or down based on demand, especially for applications. Alibaba Cloud also provides a variety of cloud storage that is highly secure, including shared file storage, archiving storage, hybrid storage, and backup that a business can ever need.

During the interview session, SE 2 emphasized that the good impact of Alibaba Cloud's system is with high scalability and lower cost adoption for firms to spend on how much they use. For example, when an organization fully uses up its computing capacity, that company will need to buy more hardware to increase its capacity, which can be time-consuming and expensive. So, the Elastic Compute Service (ECS) is the foundation for many of Alibaba's cloud-based products and services with lower-cost options, as referred to from the article on Alibaba Cloud's official website. The ECS provides high-performing virtual servers with scalable CPU computing power, memory read, strong network, and performance supported by the company's official website. These features are supported by Alibaba Cloud's platform for businesses that want to expand their markets without having to pay high infrastructure expenses and manage the complexity of technology.

In the researcher's opinion, most companies also want to gain faster, more accurate, and actionable insights without having to invest in computing hardware that will soon be outdated. Hence, the companies that utilize the highly secure and upgraded cloud system of Alibaba Cloud with the latest advanced technology can reduce the latency and process the maximum amount of data that a device can hold or the maximum range of tasks that a cloud can perform, which will improve user satisfaction.

4.3.2.3   Service Quality

Service quality is the provided service level regarding <u>responsiveness, reliability, and assurance</u> (Menon, 2018). According to Lal and Bharadwaj (2015), a cloud-oriented customer relationship management <u>(CRM) system</u> offered by a cloud supplier can improve service quality and have a higher effect on user satisfaction. To reach the firm's expectation, SA 3 added that Alibaba Cloud has tapped into Salesforce's expertise in customer relationship management (CRM), which has helped them provide a more comprehensive suite of services to communicate to their customers and used for sales forecasting. So, companies can leverage Salesforce's powerful CRM capabilities and Alibaba Cloud's robust infrastructure to drive digital transformation initiatives.

Alibaba Cloud designs a secure cloud environment for its business partners. SA 1 pointed out that Alibaba Cloud and its customers are jointly <u>responsible for the security</u> of customers' applications built on Alibaba Cloud. According to Alibaba Cloud's official website, Alibaba Cloud <u>conducts security risk assessments</u> for building enterprise information systems. It can be done by stimulating in-depth attacks on the client's system security to identify risks and providing security consulting services anytime to evaluate the current status of business system security. As such, customers can securely configure and use cloud products by building security risk management capabilities with Alibaba Cloud, thus relieving much of the underlying security burdens while allowing customers to focus more on their core business needs.

Furthermore, the quality of cloud service with different scalability service models is also important to drive the growth of Alibaba Cloud. CD 2 and SA 3 mentioned that Alibaba Cloud offered <u>three pillars of services</u>, which consist of Software as a Service (SaaS), Infrastructure as a Service (IaaS), and Platform as a Service (Paas). These services will depend on the customers' specific needs as their business solution. Many organizations are satisfied with the shift to cloud computing

because it provides dynamic and scalable resources through internet-based services like SaaS, IaaS, and PaaS (Sharma, 2014).

For instance, customers who want more control over their applications might prefer IaaS. In contrast, a customer who wants to avoid the complexity of building and maintaining an infrastructure might go for SaaS. Thus, the AliCloud team is able to choose the appropriate cloud service needed for their customer's information systems and integrate it with their existing systems and processes.

Based on Alibaba Cloud's official website, the Gartner Solution Scorecard proved that the IaaS and PaaS services of Alibaba Cloud in 2021 scored 81 out of 100. Alibaba Cloud also received the highest scores in computing, storage, and network, respectively, and the highest score in security in the required criteria. The researcher believes that the high-reliability cloud system of Alibaba Cloud can satisfy the users due to the different layers of service solutions provided for customers that are effective and high-performance to resolve their problems.
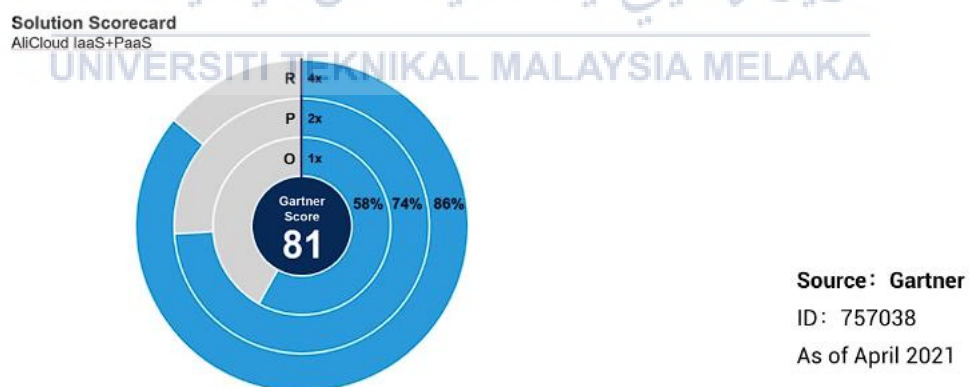
Figure 4.4: Gartner Solution Scorecard (IaaS+PaaS)

Source: Alibaba Cloud official website

4.3.3   Integration of Artificial Intelligence (AI)

Alibaba Cloud is pleased to support Malaysia's advancement in the AI ecosystem. So, they have invested heavily in cutting-edge technologies such as artificial intelligence (AI) and quantum computing because they consider our country an essential market for their investments.

CSE 1 mentioned that Alibaba Cloud Technology's artificial intelligence services provide a wide range of capabilities that businesses can leverage to increase the efficiency of their operations. For example, generative AI is designed to generate new and original content, including natural language processing, image and video recognition, machine learning, and deep learning.

SE 2 and SA 3 highlighted that AI capabilities enable businesses to automate routine tasks, make predictions based on data analysis, and develop personalized, intelligent customer experiences. Additionally, the utilization of AI technology can also improve Alibaba Cloud's security system and services due to it has capabilities of advanced threat detection and prevention. Alibaba Cloud's AI services provide businesses with the tools they need to compete in a rapidly evolving technological landscape. There is an example published on Alibaba Cloud's official website demonstrates that Alibaba Cloud's AI-driven capabilities have successfully helped EasyParcel with the remarkable enhancement in its delivery operations through its real-time tracking systems to provide unprecedented visibility into the movement and security of transported goods and have resulted in a seamless experience for EasyParcel's customers.

Commenting on the collaboration, Founder and CEO of EasyParcel, Clarence Leong said, "Since implementing Alibaba Cloud's advanced technology and cloud services, we have experienced a significant jump in efficiency and overall performance by 55%, effectively balancing our logistics cost and performance needs." he added.

Figure 4.5: Collaboration of EasyParcel with Alibaba Cloud

Source: Alibaba Cloud official website

The researcher believes that the integration of advanced data analytics, machine learning, and artificial intelligence capabilities combined with AliCloud technology can allow firms to stimulate their business growth and optimize their operations. With its commitment to innovation, Alibaba Cloud is poised to be at the forefront of bringing cloud computing success to the industry.

4.3.4   Expectation-Confirmation Model (ECM)

The ECM model includes confirmation and satisfaction variables that capture the impact of initial adoption-related constructs, such as effort expectancy and performance expectancy (Oghuma et al., 2016). Therefore, ECM is the most

appropriate theoretical framework for precisely describing IS post-adoption behavior (Nascimento et al., 2018).

4.3.4.1 Confirmation

Confirmation is the user who can <u>anticipate benefits</u> from utilizing cloud technology and systems that will strongly affect the acceptance and satisfaction levels (Veeramootoo et al., 2018). This comprises usage continuance with evaluating cloud services based on the perceived attributes of relative advantage, complexity, and compatibility for confirming cloud computing adoption.

From the perspective of CD 1, Alibaba Cloud <u>increased agility</u> in deploying and managing IT resources to enhance their customer's business operations. From Alibaba Cloud's official website, the researcher found that Alibaba Cloud Resource Orchestration Service (ROS) provides developers and system administrators with a simple method to <u>automate the deployment</u> and configuration of cloud resources. Therefore, an organization is able to migrate its existing applications and data with a smooth and efficient transition with AliCloud.

CA 1 and SA 2 outlined that the cloud ensures <u>data is secure</u> during transmission and storage using encryption techniques. For instance, the Bring Your Own Key (BYOK) service offered by Alibaba Cloud allows its clients to generate encryption keys to <u>protect highly sensitive data assets</u>. This means that clients can have full control to enable or disable their encryption key at any time, so this provides its holistic data with an additional layer of security and control on AliCloud's architecture.

Besides, CA 1 also shared the insights that AliCloud offerings are also designed to <u>reduce the costs</u> associated with maintaining software, hardware infrastructure and upkeep expenditures. This allows the adopters to concentrate on business growth

without worrying about the cost of maintenance and generate more income by leveraging the power of the cloud. CA 1 emphasized that cost-effectiveness is a critical factor in today's business environment, so Alibaba Cloud's services are dedicated to provide more attractive and high-efficiency solutions for all businesses to optimize their IT investments.

Furthermore, Alibaba Cloud provided training courses to maintain customer loyalty and instil the skill and knowledge in accessing cloud computing to the public who intend to adopt and continue using its cloud services, elaborated by SA3. As a result, the reliability and security of Alibaba Cloud's system allow its partners or end users to gain value from adopting its cloud.

4.3.4.2 End-User Satisfaction

According to Lutfi (2023), user satisfaction is a measure of the value of information system deployment and implementation that meets or surpasses customer expectations. Satisfied customers tend to stay loyal to products that can satisfy their needs and wants (Suki, 2016).

CSE 1 stated that AliCloud teams treat their customers or business partners equally by providing fair service with innovative solutions for each industry to solve their issues. For example, Alibaba Cloud offers many cloud services, including computing resources, database storage, networking, and security solutions for various companies and industries to help them integrate the appropriate services into their existing systems. Thus, the flexible solution provided by Alibaba Cloud enables its customers to access the durability and stability of its cloud system's architecture. Consequently, customers are likely to continue to utilize the cloud services offered by Alibaba Cloud.

SE 2 highlighted that Alibaba Cloud will collect feedback to know <u>customers'</u> <u>expectations</u> for cloud adoption. The experts in Alibaba Cloud observed that most of their customers expect to adopt the cloud with high efficiency, high data protection level, and lower cost. Continuous feedback collection and analysis are crucial for staying aligned with customer expectations and making informed decisions on service improvements, innovation, and strategic direction.

Nowadays, many local companies would like to digitalize their business operations with high productivity. To enhance user expectations, SA 1 added that Alibaba Cloud keeps on <u>investing in its cloud platform with the new AI model</u> that will soon be implemented across all of Alibaba's operations. Hence, Alibaba Cloud could successfully satisfy its users by continually investing in cutting-edge technologies to enhance the capability of its cloud platforms and accelerate the number of adopters in Malaysia's northern and southern regions.

SA 3 mentioned that scalable and reliable cloud computing with Elastic Computing Services (ECS) solutions has the ability to <u>satisfy the needs</u> of different industries of different sizes. Based on the findings from the company's official website, Alibaba Cloud ECS offered a high Service Level Agreement (SLA) that provides users with confirmation of the expected levels of service. The ECS can handle traffic spikes and is applicable <u>to satisfy over 300 different scenarios across various industries</u>, such as retail, finance, and logistics. For example, DingTalk successfully leveraged the ECS solution to scale up and deploy 100,000 units within two hours. Alibaba Cloud's ECS also provides multiple billing methods for cost-effectiveness objectives, such as a pay-as-you-go pricing model and flexible subscription plans, making it easy for companies to choose the services that suit their budget and needs.

In the researcher's viewpoint, Alibaba Cloud can design and build a framework for upgrading its systems and services to align with its business objectives to sustain long-term planning by collaborating with business partners. This can increase the

satisfaction level of users for cloud adoption due to Alibaba Cloud's rapid response to cloud technology management and can support business development.

4.3.5 Firm Performance

The performance of cloud services can have a profound <u>impact on a firm's operations and processes</u> (Khayer et al., 2020). SA 1 stated that the success of cloud computing caused the firm to <u>perform more efficiently</u> in improving overall IT management by simplifying functions and delivering <u>faster response times</u> for daily business operations. The higher data transfer speed powered by AliCloud also positively impacts businesses accessing data anywhere and handling massive volumes of data in their platforms or applications, leading to quicker decision-making. Alibaba Cloud allows its customers to promptly respond to their end-users inquiries or issues to enhance their confidence level without worrying about adopting their cloud and increasing their loyalty.

The successful leveraging of cloud computing enables firms to <u>scale their resources more efficiently, accelerate innovation, and expand their geographic reach in minutes,</u> as emphasized by CD 1. The flexible and scalable resources based on the demand can help companies gain an advantage in the market. Furthermore, cloud computing allows businesses to launch new applications rapidly and improve productivity. Firms can also expand their markets easily by adopting cloud technology to set up their systems virtually anywhere in the world, thereby reaching new markets and customers.

CA 2 outlined that Alibaba Cloud allows most businesses to <u>avoid the upfront costs</u> of purchasing and maintaining their IT infrastructure and results in reducing the Total Cost of Ownership (TCO). Based on the Alibaba Cloud official website, the database service helps companies <u>save 90%</u> of database operations and maintenance

costs. Then, the organization can use the cost savings to reinvest in the business strategic task to stimulate expansion and innovation.

Lastly, the experts in Alibaba Cloud (Malaysia) Sdn. Bhd agreed that all the positive impacts that the researcher identified are critical components in bringing the innovation cloud computing adoption processes success to support Malaysian businesses towards digital transformation.

Table 4.2: Thematic Analysis of the Positive Impacts of Cloud Computing

in Alibaba Cloud (Malaysia) Sdn Bhd

Positive Impacts	Theory	Primary Data	Secondary Data
A) IT Capability i) *Managerial IT Capability*	Refer to the project coordination and leadership skills that expedite technology integration (Bharadwaj, 2000).	Cloud Developer & Cloud Administrator: - IT team validated with professional cloud certifications, such as ACA, ACP, and ACE. - Able to solve clients' business problems by providing how-to.	UN specialized agency for ICTs website: - Malaysia City Brain: The smart traffic project has been implemented successfully with AI and Big Data Analytics to reduce traffic congestion within a short period.

ii) Technical IT Capability	Physical assets provide firms <u>access and share information anytime</u> (Bharadwaj, 2000). The <u>technical knowledge</u> allow the firm to integrate emerging technologies into the existing IT infrastructure (Ravichandran et al., 2005). The collective resources with a <u>flexible and scalable foundation</u> for requisite business applications (Garrison et al., 2015).	Solution Architect & Cloud Developer: - Able to <u>create and deliver technical solutions</u> quickly and effectively. - Platforms and expertise <u>stay responsive and adapt to the changing digital landscape</u> to use the advanced infrastructure. - With the robust AliCloud platform, IT resources can be <u>easily accessed, scaled as needed and utilized flexibly</u>.	Ravichandran & Rai (2000): - A strong technical capability also reduces integration complexities and allows the IT department to <u>deliver new technologies</u> rapidly and efficiently. Geczy et al. (2013): - Successful performance of a cloud solution is associated with the <u>firm's available IT resources</u> that can be allocated to the cloud implementation process.

| B) IS Success Model

i) Information Quality | The attributes with interpretability, dependability, consistency, timeliness, <u>safety, and availability of access</u> (Kankam et al., 2023). | Solution Architect, Cloud Support Engineer & Cloud Administrator:

- <u>Maintain data residency to meet local information security standards</u>. e.g. Malaysia's Personal Data Protection Act (PDPA)

- Strong <u>tenant isolation security and control capabilities</u>.

- <u>Guarantee consistency and high availability levels of data.</u>

- Able to <u>handle large volumes of data.</u> | Alibaba Cloud official website:

- Adhered to <u>more than 80 security and compliance accreditations worldwide</u>.

- Eg. Alibaba Cloud customized AI-powered Virtual Queue (VQ) solution for Genting's migration that can efficiently <u>handle massive volumes of data, manage heavy traffic, and provide additional security</u>. |

| *ii) System Quality* | The system's quality has addressed the experienced user-friendliness, usefulness, flexibility, and trustworthiness (Prybutok et al., 2008). | Cloud Sales Executive & Cloud Developer:

- Offers a high degree of flexibility in designing and implementing the IT architecture on the cloud with dual local data centres, which are e-WTP hub and Anti-DDos.

- User-friendly interfaces enable businesses to scale their resources up or down based on demand.

- High scalability system and cost-effectiveness. | Alibaba Cloud's official website:

- The e-WTP hub is a 'one-stop solution centre' to handle any technical problems, and the Anti-DDos Scrubbing Centre provides new levels of protection against large-scale cyberattacks.

- Alibaba Cloud's Elastic Compute Service (ECS) provides high-performing virtual servers with scalable CPU computing power, memory read, and strong network/storage performance. |

| *iii) Service Quality* | Service quality is the provided service level regarding <u>responsiveness,</u> reliability, and assurance (Menon, 2018). | Solution Architect & Cloud Developer:

- Alibaba Cloud has tapped into Salesforce's expertise in <u>customer relationship management (CRM).</u>

- <u>Responsible for the security of</u> customers' applications to decrease the enterprise's security burden on customers.

- Involves <u>different scalable service models:</u> IaaS, PaaS, and SaaS. Users can choose their level of control and responsibility for the infrastructure. | Lal and Bharadwaj (2015):

- A <u>cloud-oriented CRM system</u> offered by the cloud supplier can improve service quality and have a higher effect on user satisfaction.

Alibaba Cloud official website:

- <u>Conducts security risk assessments</u> by providing security consulting services anytime.

Sharma (2014):

- Many organizations are satisfied with the shift to cloud computing because it offers dynamic and scalable resources using internet-based services like <u>SaaS, IaaS, and PaaS.</u> |

C) Integration of Artificial Intelligence (AI)	**Innovative idea**	Cloud Support Engineer, Sales Executives & Solution Architect: - Increase in the efficiency of business operations. - Automate routine tasks, make predictions based on data analysis, and develop personalized, intelligent customer experiences. - Provides customers with advanced threat detection and prevention capabilities.	Alibaba Cloud official website: - Eg. AI-driven capabilities have successfully helped EasyParcel enhance its delivery operations through its real-time tracking systems to provide unprecedented visibility into the movement and security of transported goods, resulting in a seamless experience for customers.

D) Expectation-Confirmation Model (ECM) *i. Confirmation*	Confirmation is that the user who can <u>anticipate benefits</u> from using information technology and systems will strongly affect the acceptance and satisfaction levels (Veeramootoo et al., 2018).	Cloud Administrator, Cloud Developer & Solution Architect: - Ensuring <u>data is secure</u> during transmission and storage using encryption techniques. - <u>Reduce the costs</u> associated with maintaining data centers and other hardware infrastructure. - <u>Increased agility</u> in deploying and managing IT resources. - Provided training courses for its customers, enhance the loyalty level.	Alibaba Cloud official website: - Bring Your Own Key (BYOK) generates client's encryption keys <u>to protect highly sensitive data assets</u>. - Alibaba Cloud Resource Orchestration Service (ROS) provides developers and system administrators with a simple method to <u>automate deployment</u> and configuration of cloud resources.

ii. End-User Satisfaction	User satisfaction measures the value of information system deployment and implementation meets or surpasses customer expectations (Lutfi, 2023). Satisfied customers tend to stay loyal with products that can satisfy their needs and wants (Suki, 2016).	Cloud Support Engineer, Sales Executives & Solution Architect: - Collecting feedback, customers expect to adopt cloud systems with high efficiency, security level and lower cost. - Investing in its cloud platform with the new AI model to improve user expectations. - Provides customized cloud computing services and ECS solutions to cater to the needs of different businesses.	Alibaba Cloud official website: - Alibaba Cloud ECS offers a high Service Level Agreement (SLA). - Elastic computing services (ECS) can handle traffic spikes and are applicable to satisfy over 300 different scenarios. - Eg. DingTalk successfully leveraged these services to scale up and deploy 100,000 ECS instances within two hours.

E. Firm Performance	The performance of cloud services can have a profound impact on a firm's operations and processes (Khayer et al., 2020).	Cloud Administrator, Solution Architect & Cloud Developer: - Contribute to improve overall IT management and operational efficiency due to faster response times. - Scale resources rapidly, accelerate innovation, and expand their geographic reach in minutes. - Avoid the upfront costs of purchasing and maintaining their IT infrastructure, reduce total cost of ownership (TCO).	Alibaba Cloud official website: - Database service helps companies to save 90% of database operations and maintenance costs.

4.4 Strategies of Cloud Service Provider (CSP) Create Internal Business Value

The second objective of this research was to propose new strategies for Alibaba Cloud as a Cloud Service Provider (CSP) in creating internal business value. This section discusses Alibaba Cloud (Malaysia) Sdn. Bhd. can generate value with the attributes of strategic positioning, product or service portfolio, and the value proposition for their cloud business models.

4.4.1 Strategic Positioning

Strategic positioning defines the organization attempt to distinguish and establish itself with a unique position in the marketplace to gain competitive advantages (Armstrong and Kotler, 2019). In this research, Alibaba Cloud has positioned itself as a leading cloud service provider (CSP) and is supported by the local government to facilitate Malaysia's digital transformation through adopt the cloud and digital intelligence technologies. Alibaba Cloud has been serving the Malaysian market for almost six years, and they are the first leading cloud service provider operating two data centres locally in Malaysia.

SE 1 outlined that Alibaba Cloud is equipped with a strong local team to support local companies and provide them with leading cloud technologies and professional services in cloud consultancy, solution deployment, operation, and maintenance. So, their team can provide the best solutions suitable for different kinds of businesses to achieve the mission of "Alibaba Cloud in Malaysia for Malaysia." According to Alibaba Cloud's official website, Alibaba Cloud provides a responsive and dedicated support team via DingTalk. It offers premium support that allows TNG Digital to find fast solutions to any problem 24/7.

For further elaboration, SA 2 stated that Alibaba Cloud is leading the way toward digital excellence by providing industry-tailor-made and comprehensive solutions. Alibaba Cloud's innovative solutions have been employed with various industries like finance, retail, and many more at different stages, from new startups to SMEs and large enterprises, to help them unleash their potential to thrive in digital transformation.

By leveraging advanced technology, Alibaba Cloud also can gain a sustainable competitive advantage to provide more intelligent digital marketing solutions with superior customer service. Therefore, Alibaba Cloud will continue introducing the leading products and services to serve customers' demands. SE 1 highlighted that Alibaba Cloud will continue investing in cutting-edge technologies to launch more AI-driven and innovative cloud solutions, such as Virtual Queue Solution for Genting SkyWorlds, EMAS SuperApp for electric vehicle and carbon management platform Energy Expert, as well as tailored vertical solutions to further and elevate Malaysia's digital transformation.

In addition, CA 2 elaborated that Alibaba Cloud expanded its market locally by forming strategic alliances and partnerships to gain a competitive advantage. Because of the partnership, Alibaba Cloud has its own business in various states, and the channel team needs to ensure that the cloud service can satisfy those companies by creating internal business value.

Based on the standpoint of CA 2, the strategy that Alibaba Cloud has for this financial year is that they want to expand their business not only within Klang Valley but also to penetrate the north and south sides. Even now, they are expanding in Sarawak as well. Referred from Alibaba Clou's official website, Sarawak Information Systems (SAINS) decided to launch its Private Cloud with a highly secure solution powered by Alibaba Cloud, marking the first private cloud program that embraced Alibaba Cloud's entrance into East Malaysia to catalyze its digital evolution. This

solution implementation has enhanced SAINS' service reliability, significantly reduced Recovery Time Objectives (RTO), and ensured minimal downtime during a failure or disaster.

Figure 4.6: Collaboration of SAINS with Alibaba Cloud

Source: Alibaba Cloud official website

SA 3 also added that Alibaba Cloud has worked and collaborated with several local organizations and associations from different industries, including CIMB, TNG Digital, Genting SkyWorlds, and Sarawak Digital Economy Corporation Berhad (SDEC) to transform and elevate their journey towards a digitalized nation in Malaysia.

Figure 4.7: Partnerships of Alibaba Cloud Malaysia

Source: Alibaba Cloud official website

In brief, the researcher believes that strategic positioning is necessary for the cloud service provider to create brand awareness of its advanced cloud technology. Alibaba Cloud needs to research and innovate more digital intelligent solutions by forming a strategic partnership to develop talents and skills in cloud computing to differentiate itself in the competitive marketplace.

4.4.2 Product and Service Portfolio

A product and service portfolio can help a company diversify its offerings, reduce risk, and increase revenue (Fairbanks & Buchko, 2018). In an organization where team members are well-versed in product or service portfolio management, they may find it helpful to think through areas for improvement in terms of portfolio

processes. Alibaba Cloud should consider three significant implementation factors, which are the benefits of cost efficiency and reliability of its cloud products portfolio.

CA 1 outlined that Alibaba Cloud is aggressively spending on the Research and Development (R&D) centre to enhance its portfolio of cloud services called DAMO Academy. Alibaba Cloud invested a lot of our manpower to do research in the fields of machine intelligence, embedded chips, and database systems to bring more business value and social benefits. For instance, Alibaba Cloud has some of the hardware and chips in their product designed by their IT team to ensure that the computer's efficiency is what the optimum power is.

Alibaba Cloud is a trusted partner of SAP, offering the reliability and security that your business requires. CSE 2 and CA 2 mentioned that the mature service infrastructure and platforms of Alibaba Cloud, combined with SAP's world-leading applications and Database Management System (DBMS) services, can help enterprises simplify business IT infrastructures and accelerate business growth towards digital transformation initiatives. CA 2 further elaborated that the Elastic Compute Service (ECS) is an online computing service that provides elastic and secure virtual AliCloud servers to cater to a variety of cloud hosting needs; it sits at the heart of SAP offerings.

Most of the cloud products and services offered by Alibaba Cloud have good performance, high availability, and competitive list price. During the interview, SA 1 outlined that Alibaba Cloud provided flexible pricing options with the basis of a "pay-as-you-use" and subscription pricing model for users to pay based on the resources they want to consume to return a profit. This means businesses can quickly and easily increase or decrease the required computing power and storage without committing to a fixed amount. Hence, the affordable price of the cloud services enables Alibaba Cloud to attract a wide range of consumers and compete with other cloud providers.

Furthermore, CD 2 highlighted that Alibaba Cloud has expanded its portfolio to include a wide range of cloud products and services, including cloud servers (ECS)

and storage services (RDS), to address the diverse needs and difficulties local enterprises face. Based on the article from Alibaba Cloud's official website, Alibaba Cloud provided its product portfolio with the availability of robust migration tools to simplify the process of shifting from physical servers, virtual machines (VMs), and hosts on third-party cloud platforms. These tools help minimize downtime and ensure data integrity during the migration process. Meanwhile, Alibaba Cloud also offers various scalable solutions designed to help customers be more agile, such as Elastic Compute Service (ECS), Machine Learning Platform for AI, and Anti-DDoS available for companies to support its digital transformation and growth of businesses in Malaysia.
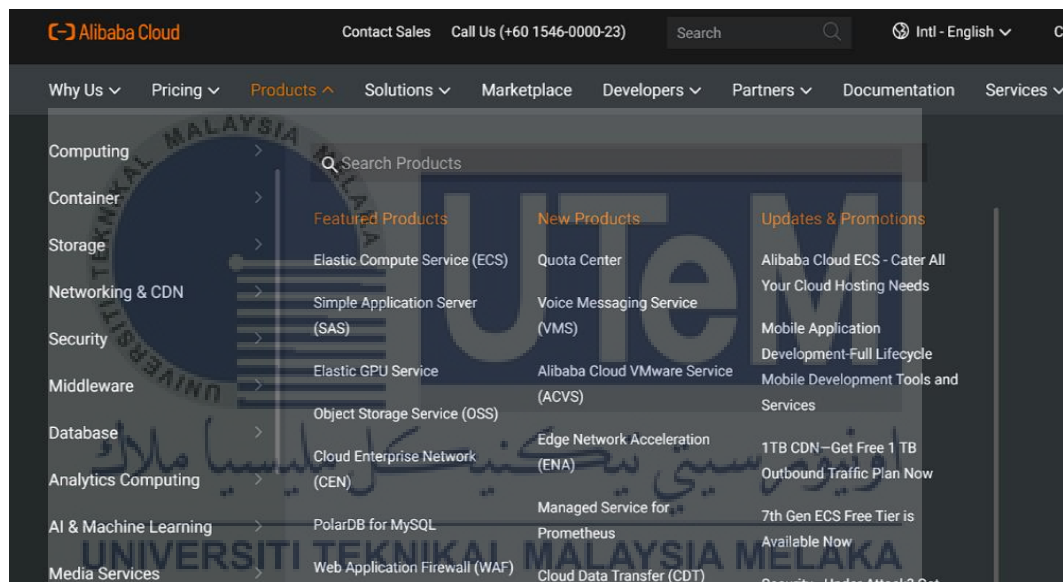
Figure 4.8: Product and Service Portfolio of Alibaba Cloud

Source: Alibaba Cloud official website

In addition, CA1 emphasized that it is important that the Alibaba Cloud portfolio utilizes the latest technology by leveraging Big Data analytics tools and Artificial Intelligence (AI) technology combined with its cloud computing infrastructure to provide its customers with additional value with a flexible and high-performing platform for processing large amounts of data and applications more efficiently. These advanced technologies will help businesses streamline processes, optimize workflows, and reduce operating costs.

Besides, Alibaba Cloud has developed an ecosystem powered by technology infrastructure that enables participants to create and share value on AliCloud platforms. CD 1 mentioned that Alibaba Cloud differentiates from other competitors because it provides a wide range of IT solutions and has different services like Environmental, Social, and Governance (ESG) to achieve sustainability and green cloud computing ecosystems.

Recently, Malaysia has started to pick up many companies that must comply with the ESG requirement to reduce their carbon footprint. Based on Alibaba Cloud's official website, Alibaba Cloud launched an AI-driven Energy Expert platform, a carbon measurement tool for enterprises to monitor their carbon footprint so that carbon emissions can be monitored and help them meet specific criteria. CD 1 added that this is the unique business value generated by Alibaba Cloud with innovative strategies to enhance its cloud product and service with environmental sustainability.
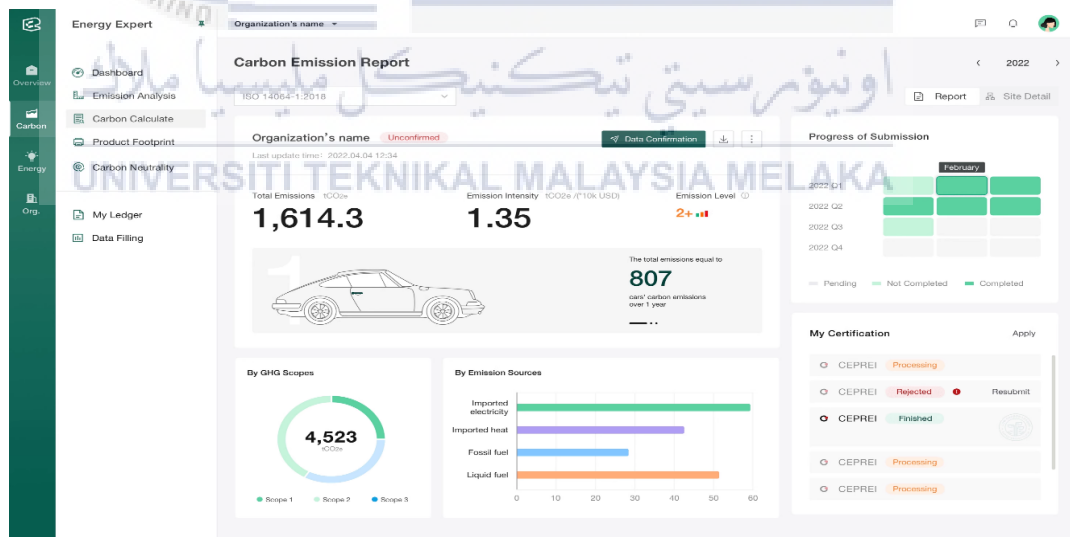

Figure 4.9: Energy Expert Carbon Management Platform

Source: Alibaba Cloud official website

In the researcher's opinion, Alibaba Cloud has achieved the Sustainable Development Goal (SDG 13): Climate Action. Alibaba Cloud is committed to create and promote a sustainable future with innovation in its business portfolio. Therefore, their solutions aim to align with the carbon neutrality goals by offering comprehensive energy and emission control capabilities with outstanding performance. These are based on leading technical capabilities in artificial intelligence (AI), data intelligence, and the Internet of Things (IoT), combined with proven expertise across energy sectors and industries.

4.4.3 Value Proposition

A value proposition describes the benefits a product or service will provide its customers and how it differs from its competitors (Manninen et al., 2018). Localization has been an always-on strategy for Alibaba Cloud to accelerate its business and better meet the growing customer demand in Malaysia. Kun Huang, General Manager of Alibaba Cloud Malaysia, said, "As a trusted cloud service provider and partner in Malaysia, we are incredibly committed to making the country a high-value-added economy by being a part of the nation's digital transformation, which aligns with Malaysia's national Digital Economy Blueprint," reported by the Alibaba Cloud's official website.

SA 1 mentioned that Alibaba Cloud works with local partners with a strong local presence to provide localized solutions, leading technologies, and domain expertise to serve Malaysia's digital transformation needs. To support the customers' operations further and enhance the cloud adoption process for the local customer, Alibaba Cloud has launched the "Global Delivery and Service Program," unveiling the establishment of a Customer Service Centre and Service Delivery Centre in Kuala Lumpur, referred from the news article published from Techwire Asia. Alibaba Cloud worked closely with local partners, providing timely and regionalized cloud migration

and consulting services, as well as extra technology support to the regional offices and local customer project delivery.

The researcher found that Alibaba Cloud Malaysia had met SDG 8: Promote inclusive and sustainable economic growth, employment, and decent work for all. SE 2 outlined that Alibaba Cloud is the first leading cloud service provider in Malaysia with two data centres. The presence of Alibaba Cloud in Malaysia can attract foreign investors such as Amazon and Microsoft; they also see the potential and are building their data centres in Malaysia. When foreign investors bring their advanced technology and expertise to set up their companies, it creates job opportunities in Malaysia. So, it boosts the economy and productivity in Malaysia.

Besides, Alibaba Cloud is committed to foster a supportive environment that helps startups and SMEs to expand and serve Malaysians more efficiently. This is accomplished by establishing a series of digital training programs and workshops focused on cloud-related technology and business. According to Alibaba Cloud Community (2022), Alibaba Cloud launched the Digital Heroes Program. This is one of the many local digital talent-strengthening initiatives that develop the young with emerging digital talent to increase employment opportunities and help them meet increasingly challenging and ever-changing industrial requirements in the IT industry.

Figure 4.10: Digital Heroes Program

Source: Alibaba Cloud official website

SA 3 stated, "The product teams of Alibaba Cloud are consistently involved in upgrading or enhancing our products with AI to adapt and capture the trend nowadays. This not only ensures our competitiveness but also introduces our newer capabilities." Thus, customers will consider accessing AliCloud computing services for a significant development due to they can see the improvement of Alibaba Cloud in productivity and commitment to innovative solutions. These advancements also enable Alibaba Cloud to undertake more complex tasks, including AI-related activities and physical operations.

Lastly, the researcher believes the collaborating platforms in Malaysia and China with AI cloud technology can provide real-time monitoring and management tools for efficient resource usage and cloud-based applications. By leveraging these capabilities, Alibaba Cloud allows its users to save on infrastructure costs, reduce downtime, and increase productivity by focusing on their core business activities. Hence, Alibaba Cloud can foster its digital capabilities by innovating products and services, bringing additional value to its customers and its cloud business model.

Table 4.3: Thematic Analysis of the New Strategies of Cloud Service Provider (CSP) Create Internal Business Value in Alibaba Cloud (Malaysia) Sdn Bhd

Strategies	Theory	Primary Data	Secondary Data
Strategic Positioning	Firms attempt to <u>differentiate and position</u> themselves properly to gain <u>competitive advantages</u> in the marketplace (Armstrong and Kotler, 2019).	Cloud Sales Executive, Solution Architect, Cloud Administrator: - Has a <u>strong local team</u> to support local companies. - Leveraging advanced technology to provide more innovative <u>industry-tailor-made solutions</u> for various industries. - Developing <u>strategic partnerships to gain competitive advantage</u> and expand its business.	Alibaba Cloud official website: - Alibaba Cloud's <u>responsive and dedicated support team</u> via DingTalk offered premium support for TNG Digital to find fast solutions to any problem 24/7. - Eg. Sarawak Information Systems (SAINS) launched its Private Cloud with AliCloud to enhance its service reliability, reducing Recovery Time Objectives (RTO) and minimal downtime during a failure or disaster.
Product and	A product and service	Solution Architect, Cloud Administrator,	Alibaba Cloud official website:

Service Portfolio	portfolio can help a company diversify its offerings, reduce risk, and increase revenue (Fairbanks & Buchko, 2018).	Cloud Support Engineer & Cloud Developer: - Continuous investing R&D centre for its portfolio of cloud services. - Combined with SAP's world-leading applications and Database Management System (DBMS) services to drives business growth. - Provided flexible pricing options: pay-as-you-use and subscription billing. - Innovative solution: ESG in achieving sustainability and green cloud computing ecosystems.	- Offered various scalable solutions such as Elastic Compute Service (ECS), Machine Learning Platform for AI, and Anti-DDoS. - Eg. Alibaba Cloud launched an AI-driven Energy Expert platform, a carbon measurement tool for enterprises to monitor their carbon footprint.
Value Proposition	A value proposition is a statement	Solution Architect, Cloud Sales Executives:	Alibaba Cloud official website:

that describes the <u>benefits that a product</u> or service will provide to its customers and how it is <u>different from its competitors</u> (Manninen et al., 2018).	- With its <u>strong local presence, leading technologies, and domain expertise</u> to serve Malaysia's digital transformation needs. - The first global cloud service provider <u>operating two data centers</u> – attract foreign investors. - To increase its focus on <u>AI technology by upgrading cloud products</u> to ensure competitiveness.	Kun Huang, General Manager of Alibaba Cloud Malaysia, - Alibaba Cloud is committed to making the country a <u>high-value-added economy</u> by being a part of the nation's digital transformation. Alibaba Cloud Community (2020): - Launched Digital Heroes Program to develop young with <u>emerging digital talent and increase employment opportunities</u>. Techwire Asia website: - Global Delivery and Service Program: provide timely and regionalized cloud migration, consulting services, and technology support.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1   Introduction

The two key objectives of this research are to identify the positive impact of cloud computing and to propose new strategies for Alibaba Cloud (Malaysia) Sdn. Bhd as a Cloud Service Provider (CSP) to generate internal business value. This chapter summarises the findings from the preceding chapters, highlighting the identified impacts that contribute to the success of cloud computing. It also explores how the new strategies are implemented to assist cloud service providers in internal business value creation. Besides, the researcher proposes an additional conceptual framework based on the research findings. Future recommendations for further study are also included in the last section of this chapter.

5.2   Positive Impacts of Cloud Computing

The research conducted by Alibaba Cloud (Malaysia) Sdn Bhd has affirmed that the fundamental cloud infrastructure and system are essential impacts for achieving success in cloud computing to stimulate cloud adoption processes. These positive impacts are committed to assisting enterprises in their digital transformation journey with innovative cloud technologies and products to improve firms' performance in Malaysia.

The information technology (IT) capabilities, including the **managerial and technical IT capabilities,** are uniquely employed in the cloud implementation to facilitate positive outcomes such as IT economies of scale, cost reductions and access to professional skills. When the employees in Alibaba Cloud are equipped with managerial IT capability, it ensures that the IT projects can be managed and implemented efficiently with their IT expertise to resolve issues collaboratively; however, a healthy work environment could be preserved, and conflict could be prevented. Furthermore, the enhancement of technical IT capability is another positive impact of cloud computing for Alibaba Cloud, which makes the talented workers with high technical skills able to provide scalable and cost-effective solutions to adapt to the digital landscape in Malaysia. So, companies can focus on their core competencies by adopting cloud computing with the latest technology to improve their overall efficiency and productivity.

The **information, system, and service quality** in the information system (IS) success model is the impact that contributed to cloud success. Most of the respondents from Alibaba Cloud have highlighted that its cloud system has complied with all the international security regulations to protect customer data leakage and hacking. By utilizing the scalable cloud system, Alibaba Cloud empowers its customers to handle the heavy traffic for their applications or platforms. With establishment of two data centers in Malaysia and a dedicated local support team, Alibaba Cloud has proactively addressed customer site issues and power failures, ensuring a robust and reliable cloud

service experience. This is a testament to Alibaba Cloud's commitment in providing its customers with high-quality cloud services.

Besides, Alibaba Cloud has revealed that **integrating Artificial Intelligence (AI)** is a new finding of positive impact to bring the cloud success in this research. Alibaba AI integrates cloud-native data intelligence services to boost business agility, minimize downtime, and enable high performance for processing large volumes of data in real-time and offline. This allows customers to access the resources to run their businesses effectively. Thus, businesses can harness the power of AI to gain a competitive edge in today's digital landscape in Malaysia.

In addition, the previous findings from this research indicated that **users' satisfaction** is significantly influenced by confirmation, information quality, system quality, and service quality. From the respondent's perspective, users always prefer cloud systems with a wide variety of functionalities to meet their requirements in security, less time consumption, and cost efficiency while requiring less effort to learn and operate the systems. To enhance the user experience, Alibaba Cloud offers customized cloud development solutions and multi-scenario business solutions that can meet the various needs of enterprise development. Hence, the cloud computing developed by Alibaba Cloud, with rich technical expertise in frontend, backend, database, terminal, and testing, enables them to enhance user satisfaction in adopting the cloud.

In conclusion, the research highlights the importance of cloud infrastructure and systems with a high user satisfaction level, and the integration of AI has contributed to Alibaba Cloud (Malaysia) Sdn. Bhd to achieve success in cloud computing and maintain the customer's decision to adopt its cloud technology for performance improvement.

5.3   Strategies of Cloud Service Provider (CSP) Create Internal Business Value

Based on the findings from Alibaba Cloud's business value creation model, this section proposed new strategies to enhance its internal business value. These strategies focus on facilitating local companies in accelerating digital transformation, thereby stimulating business expansion within Malaysia.

The researcher concludes that the strategy of **strategic positioning** can help Alibaba Cloud to differentiate its unique position from competitors through strategic alliances and innovative solutions to gain a competitive advantage in the market. The partnership between Alibaba Cloud and other companies is vital to create brand awareness because it shows that local users trust and support its cloud products. Through the partnerships, the digital capabilities of Alibaba Cloud have helped many enterprises and public institutions in Malaysia with streamlined operations, automated risk management, and handling traffic volumes. Alibaba Cloud's cutting-edge technologies with the realms of generative AI have also played a pivotal role in optimizing operations, improving customer experiences, and ensuring a competitive edge in the evolving digital landscape for these businesses.

Referring to the previous discussion, the **product and service portfolio strategy** is crucial for Alibaba Cloud as a leading global cloud service provider since it may help Alibaba Cloud diversify its offerings and adapt to the varied needs of its local customers. With a wide range of products and services, Alibaba Cloud can cater to different sectors and industries, each with unique requirements. The continuous investment in the Research and Development centre named DAMO Academy for its portfolio also allows Alibaba Cloud to innovate more cloud products and introduce new solutions to give it a competitive edge in the rapidly evolving cloud services market. Furthermore, a robust product and service portfolio can generate internal business value and add additional value to customers, driving growth and profitability for Alibaba Cloud.

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Besides, based on the findings on the **value proposition** strategy, the researcher believed that this strategy allows Alibaba Cloud to differentiate itself by offering unique value to customers. Alibaba Cloud has focused on creating business value through digital innovation and industry expertise in upgraded multi-faceted cloud products and services in Malaysia. It provides a multi-model cloud-native database and distributed cloud services. This range of new products aims to provide enterprise customers with a comprehensive range of cloud services covering network, storage, and computing power. Moreover, Alibaba Cloud is the first cloud service provider to build dual local data centers to offer fast and secure data storage and access 100% compliant with local Malaysian standards. Hence, the value proposition strategy helps Alibaba Cloud to provide exceptional value and ensures system operation with ultimate security and elasticity.

In conclusion, Alibaba Cloud's strategic positioning, product and service portfolio, and value proposition strategies have significantly enhanced its business value in Malaysia. These strategies ensure Alibaba Cloud gains a competitive advantage and accelerates growth and profitability while supporting customers' digital transformation processes.

5.4   Contribution of Study

The research framework outlined in Chapter 2 serves as a fundamental guide to gain insights into the positive impacts of cloud computing and strategies for cloud service providers to generate internal business value in Alibaba Cloud (Malaysia) Sdn. Bhd. Therefore, this research can offer practical insights and a deeper understanding of cloud computing. It provides a real-world example of how Alibaba Cloud employs these innovative strategies as a leading cloud service provider to differentiate and sustain itself in a competitive marketplace.

To enrich the original research framework, the first research objective revealed a new finding in the conceptual framework, highlighted that integrating artificial intelligence in cloud computing significantly positively impacts the success of Alibaba Cloud in Malaysia. Then, the second research objective shown below is generated using the three new strategies from the original framework implemented for cloud service providers in internal business value creation by Alibaba Cloud (Malaysia) Sdn. Bhd as a basis.
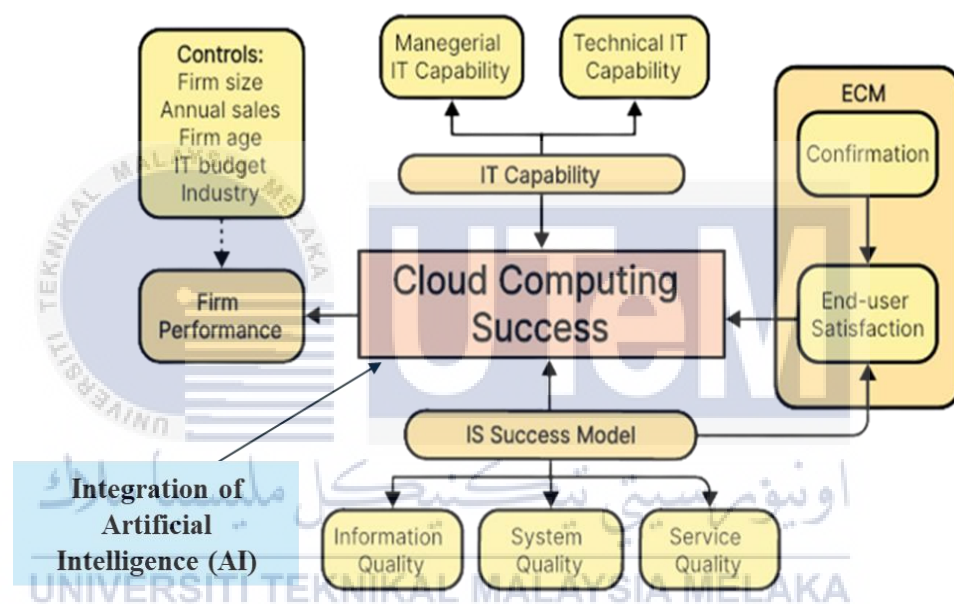
Figure 5.1: Conceptual Framework for the Positive Impact

of Cloud Computing

Source: Khayer et al. (2020)
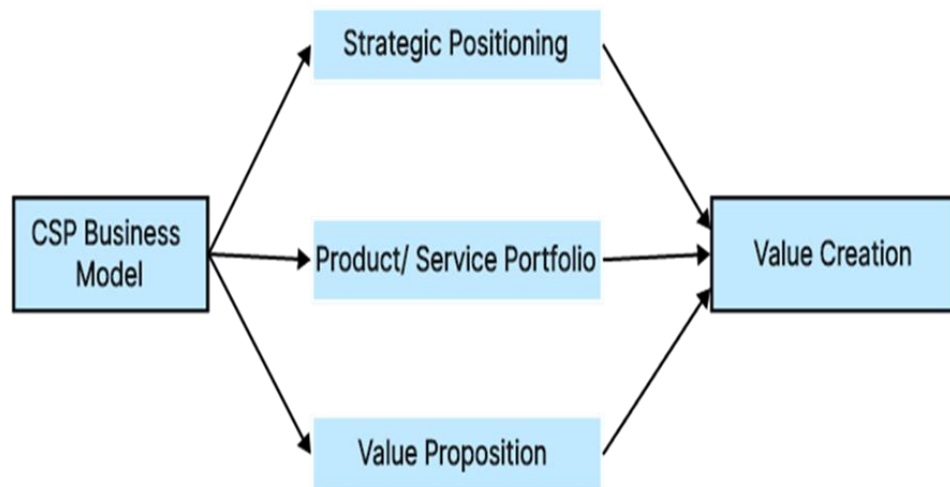
**Figure 5.2: Strategies of Cloud Service Provider (CSP) Create
Internal Business Value**

Source: Currie, W.L. (2004)

5.5 Future Recommendations

Finally, the researcher would like to propose future recommendations since the
research was conducted and interviewed at Alibaba Cloud (Malaysia) Sdn. Bhd. The
researcher observes that the growth of the demand for cloud computing will impact
the environment due to carbon emissions. To minimize the environmental impact of
cloud services aligning with global sustainability goals, Alibaba Cloud should focus
on implementing sustainable practices, such as using renewable energy sources for its
data centres and improving energy efficiency.

In addition, Alibaba Cloud could explore opportunities in underserved sectors or regions within Malaysia and diversify its offerings to cater to different industry needs. For example, they could develop specialized cloud services for the healthcare industry, like secure cloud storage for medical records or cloud-based analytics for patient data. Similarly, cloud-based learning management systems or virtual classroom solutions could be offered for the education sector.

Lastly, a researcher would like to recommend that telecommunications companies such as Maxis, Celcom, or Telekom Malaysia (TM) diversify their services to include cloud computing to cater for the needs of a digitally transforming market. Thus, these companies should enhance their cloud services with robust internet connectivity for rural and remote areas to expand their market reach by improving network infrastructure. The internet connection is essential for businesses to reach out to a broader audience to handle increased workloads and traffic spikes for online platforms, especially when scaling up business.
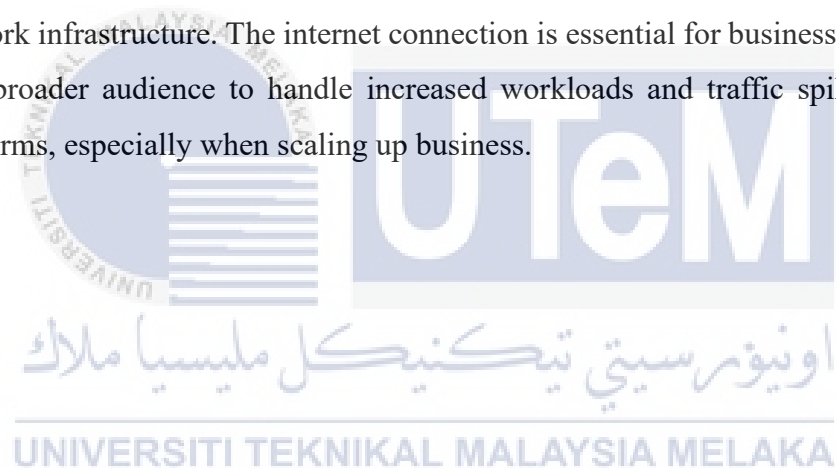
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APPENDICES

Appendix A: Gantt Chart of Final Year Project (PSM 1)

	Gantt Chart for PSM 1																3 month semester break
	March				April				May				June				
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Mid-sem break	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Study Week	
Task																	
(Topic/RQs/ROs), Research Framework																	
Introduction																	
Writing Chap 1 (Introduction)	■	■	■	■													
Completion Chap 1 (Introduction)				■													
Literature Review (LR)																	
Writing Chap 2 (LR)			■	■	■												
Completion Chap 2 (LR)																	
Research Method																	
Writing Chap 3 (Research Method)											■	■	■				
Completion of Chap 3 (Research Method)													■				
Questionnaire Construction																	
Completion of Questionnaire Construction																	■
Data Collection																	■
Completion of Questionnaire Construction																	■
Data Analysis																	■
Completion of Data Analysis																	■
Chapter 4																	
Chapter 5																	

Appendix B: Gantt Chart of Final Year Project (PSM 2)

	Gantt Chart for PSM 2															
	October				November				December				January			
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Mid-sem break	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Study Week
Task																
Discussion & Analysis																
Write up Chap 4 (Discussion & Analysis)																
Writing Chap 1 (Introduction)	■	■	■	■	■	■	■									
Completion Chap 4 (Discussion & Analysis)							■									
Conclusion																
Writing Chap 5 (Conclusion)						■	■									
Completion Chap 5 (Conclusion)											■					
Edit the entire dissertation																
Proof read the entire dissertation													■			
Intend submission and ready for presentation													■	■		
Presentation															■	

Appendix C: Questionnaires

INTRODUCTION OF THE INTERVIEW

<< READ OUT TO RESPONDENT>>

Thank you for taking part in this interview.

The purpose of this research is to identify the positive impact of cloud computing and to propose new strategies for Alibaba Cloud as a Cloud Service Provider (CSP) in creating internal business value.

By conducting the interview, I believed that I can discover more insights into the impact that brings cloud computing success and the new strategy employed to create internal business value in generating proper findings for this research. During this interview, all of the respondents selected will be asked questions based on the research topic and objectives.

I will jot down all of your responses, and I would like to request your permission to voice record our interview session in order to ensure the precision of your responses. I assured that everything recorded will be kept private and confidential and will be used strictly for academic and research purposes.

You are encouraged to share your answers with examples and viewpoints during the interview. If you do not understand any questions or you are uncomfortable or prefer not to answer the particular questions, please do not hesitate to communicate with me. Your seamless participation and willingness are extremely valuable to me.

Lastly, the interview session will last approximately 30 minutes. If you are prepared, let's get start the interview session with me.

QUESTIONNAIRES:

1. Why Alibaba Cloud is the primary option for businesses to adopt in Malaysia?

2. Who are the key players impacting the success of cloud computing in Alibaba Cloud?

3. How does Alibaba Cloud provide technical solutions quickly and effectively?

4. How does Alibaba Cloud position itself with unique value from other competitors?

5. How does Alibaba Cloud ensure the security and privacy of its customers' data are protected?

6. How does the organization integrate the cloud technology with existing infrastructure or business processes?

7. How reliable is the ability of cloud services to match your customer firms' expected requirements and satisfaction?

8. What are the positive impacts of bringing cloud computing success to Alibaba Cloud?

9. How to ensure that the quality of information, system, and service of cloud services positively impacts Alibaba Cloud?

10. Is there any other impact you think will positively impact the cloud computing performance of Alibaba Cloud?

11. Which new strategies that your company implement to empower businesses in Malaysia?

12. Why has Alibaba Cloud Malaysia implemented innovative strategies to differentiate itself from its competitors?

13. Why is it crucial for Alibaba Cloud to have partnerships with local businesses?

14. How did Alibaba Cloud improve its performance and add value to its cloud products and services?

Appendix D: Proof Interview Session with Respondents

From Alibaba Cloud (Malaysia) Sdn Bhd