OZBANK LTD.

IMPROVING THE EFFICIENCY AND EFFECTIVENESS OF IT SERVICE PROVISION WITH OUTSOURCING AND IT SERVICE MANAGEMENT

Consultants Report

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1. INTRODUCTION TO THIS REPORT

OZBANK is an Australian bank that provides Retail Banking, Lending, and Wealth Management services to its 16 million customers. IT service in OZBANK is critical for generating business value. Therefore, in order to increase the business value, OZBANK want to improve the efficiency and effectiveness of its IT service provision.

We appreciated the opportunity to analyse the situation and structure of the OZBANK IT and provide recommendations.

According to the requirements report which OZBANK provided, two areas need to be improved: The first one is that the servers are at capacity and make them unable to meet growing demand efficiently and effectively. The second one is that the processes for, planning designing, transitioning, integrating, operating, and improving, IT service provision are neither efficient nor effective. OABANK executive want to improve efficiency and effectiveness in these two areas. Based on the requirements, we proposed two methods: ITIL and Outscoring to solve the problems. In next chapters, we will describe what the two methods are and how to leverage them to create benefits. Meanwhile, we will provide specific recommendations of how to leverage them to meet the OZBANK demands and some risks need to be avoided when implement them.

This report will be divided into five main parts, chapter 2-4 will describe outsourcing method and its characteristic. Also, the general benefit and risk of outsourcing will also be introduced in these chapters. Chapter 5-7 include the introduction of ITSM method and its characteristics. In the third part, we will list the specific characteristics which relate specifically to client's requirements. Based on the characteristics of two method, we will provide some specific recommendations for improving the efficiency and effectiveness of IT service provision in OZBANK. The recommendations and related risks will be shown in chapter 9 and chapter 10. In the chapter 11, customers can understand how IT Governance could enhance the improvements to efficiency and effectiveness.

2. OUTSOURCING

2.1 DEFINITION OF OUTSOURCING

"Outsourcing is the business practice of hiring a provider outside an organisation to provide services for functions that were previously performed in-house by the organisation's own employees." (Stern, 2019, p. 5)

Apart from that, there is a service called Cloud-based services, which are typically outsourced, it is based on cloud computing technique. (Stern, 2019, p. 5)

2.2 CHARACTERISTICS OF OUTSOURCING

Outsourcing has four main characteristics including virtualisation, which could increase in ability to share computing resource. Also, specialization, the providers are focus on a single expertise. Apart from that provider share risks, the customer could shift risks to providers, and finally scalability, this gives the customers the ability to scale up and scale down. (Stern, 2019)

As a form of outsourcing, Cloud-based services has five main characteristics, they are on-demand self-service "A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service's provider.", broad network access "Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms.", resource pooling "The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand.", rapid elasticity "Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in.", measured service "Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service." (Harding, 2011)

3. GENERAL BENEFITS CREATED BY THOSE CHARACTERISTICS AND HOW THEY ARE CREATED

As mentioned in the previous section, outsourcing has many characteristics (low costs, better quality, shift risks to provider and scalability) these characteristics will bring a lot of benefits to the enterprise, in this section I will discuss the benefits of these characteristics and explain how these benefits are generated. We will divide the following paragraph into two parts, one part introduces the benefits of general outsourcing, and the other part introduces the benefits of cloud-based services (stern,2019).

First, many companies or organizations reduce costs by outsourcing, because providers usually serve more than one customer, so many resources are shared, and companies could improve their efficiency. For example, some facilities and data in the data center are shared, and companies can get services at a low price through the data center (stern,2019). Second, outsourcing usually has better quality, so companies can increase their effectiveness through outsourcing, because “Providers are usually more expertise than customers because they only focus on their own speciality” (stern,2019). For example, ERP software developed by software provider SAP is usually more professional than ERP software developed in-house. In addition to these, outsourcing can reduce the risk of the enterprise by transferring the risk to the provider, because provider share risk to all customers. For example, compare to in-house, data centers often providing more redundancy to ensure data security and reduce downtime when accidents occur. Finally, the scalability of outsourcing enables the company to increase capacity through increasing resources, without disrupting the company's existing activities, this greatly improves the convenience of company expansion (stern,2019).

The characteristics of cloud-based services can also bring many benefits. First, on-demand self-service Reduce resource waste, consumer can unilaterally provisionable computing capabilities, such as server time and network storage (Harding, 2011), also reduce labor costs and save times, most of the services are automated, and consumers do not need to interact with each service provider manually, this can hire fewer people and reduce communication time. Secondly, broad network access brings high accessibility, Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms, company can implement added services that can be successfully used by anyone, anywhere on the globe, using a variety of devices (Harding, 2011). Thirdly resource pooling allows efficient resource use, Computing resources may be shared at the infrastructure, platform, or application level. Most cloud computing users share infrastructure and possibly platforms, also high QoS at low cost, cloud service provider can assign pooled resources dynamically to meet demand, cloud service providers can maintain maximum service levels with minimum resources (Harding, 2011). rapid elasticity brings flexible computing service, Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. finally measured service Provide sufficient information, Consumers may wish to use this information for systems management and financial accounting applications Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service. Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service. (Harding, 2011)

In this section, we demonstrate the various benefits of outsourcing (include cloud-based service) and how these benefits are generated, also using the data center as examples. In the next section we will discuss the risks and challenges associated with outsourcing and how do we address them.

4. GENERAL CHALLENGES AND RISKS AND HOW TO MANAGE THEM

As with any other approach, outsourcing brings inevitable risks and challenges. In this section we will explain the risks and challenges of outsourcing and how we should manage these risks and challenges.

In outsourcing, we often encounter four kinds of risks. The first is the problem of losing control (stern,2019). Customers may not be able to make their own decisions because of outsourcing, and may even have no access to their own data, to avoid that, requires effective communication between the company and the provider, while choosing a more transparent and experienced provider (stern,2019). Second is the risk of vendor lock-in. It is possible for customers to find that it is not suitable after outsourcing the service to the provider, so they want to migrate to another provider. However, customers are too dependent on providers, and switching between

providers requires a lot of resources (switching costs) (stern,2019). In order to avoid vendor lock-in, the company should look at the provider in advance, choose the right one, and preferably have an alternative provider, at the same time, avoid outsourcing all the business, keeping the core business on-premise (stern,2019). Apart from the risks above, there are end user satisfaction issue and Misalignment between provider and customers objective, this requires enhanced communication between customers and providers to ensure Achieve provider and Customer Alignment (stern,2019).

In this section, I listed the four types of risks that are common to outsourcing, and gave corresponding solutions. In general, strengthen the communication with providers, also have alternative providers is very important. In the next section we will introduce another method which is ITSM.

5. IT SERVICE MANAGEMENT (ITSM)

This section introduces the definition of IT service management and ITIL which is a set of ITSM best practices. Also, we will explain the characteristics of them. The five characteristics of ITIL can help build a complete and appropriate system or structure for IT infrastructure to further improve the execution efficiency and effectiveness of IT service.

5.1 DEFINITION OF ITSM

ITSM is a set of approach which help enterprises to effectively manage the planning, development, implementation and operation of IT systems. Also, "It is a professional practice supported by an extensive body of knowledge, experience and skills" (Stern,2019, week 3 p.14). ITIL is a best practice framework that gives guidance on how ITSM can be delivered. It "provides guidance to service providers on the provision of quality IT services, and on the processes, functions and other capabilities needed to support them" (Introduction to the ITIL service lifecycle, 2011, p.3). Also, ITIL is a structure for supporting the business services by establishing a high-level set of abstract processes that can be tailored to meet the specific needs of the organization (Spafford, 2011). In this report, we will provide the specific processes which can meet the OZBANK needs. Meanwhile, ITIL as an efficient method for process improvement has been used by many organizations. (Introduction to the ITIL service lifecycle, 2011) Excepting that customers need to avoid some risks, ITIL framework can be used safely.

5.2 CHARACTERISTICS OF ITSM

For ITSM, there are five characteristics need to be explained: The first one is that it includes "a process driven view of designing and delivering end-to-end customer defined IT centric services" (Stern,2019, week 3 p.18). It's a strategy that's based on putting the customer first, and at the core of the business. The second one is that it can "predicts customer need" (Stern,2019, week 3 p.18). Predicting customer needs involves providing a service that customers haven't expressed a demand for yet. Meanwhile, ITSM includes "measures performance" (Stern,2019, week 3 p.18). That will determine method and service which will be provided to customers and recording in the contract. The last one is that ITSM "has knowledge management system to support all processes" (Stern,2019, week 3 p.18) and can "controls the release of costed, agreed changes" (Stern,2019, week 3 p.18).

There are five stages in ITIL framework: Service strategy, Service design, Service transition, service operation and continuous service improvement.

Service strategy: The service strategy stage sets the strategy for IT services and is the centre of the service lifestyle. (Introduction to the ITIL service lifecycle, 2011, p.6). This stage helps decide who your customers are and what IT services you want to offer them. Meanwhile, "it describes the principles underpinning the practice of service management." (Introduction to the ITIL service lifecycle, 2011, p.6).

Service design: The main purpose of the ITIL service design stage of the lifecycle is the design of new or changed services for introduction into the live environment." (Farenden, 2012, p.95) Meanwhile, it is also the stage in the lifecycle that turns a service strategy into a plan for delivering the business objectives (Farenden, 2012, p.95).

Service transition: Service transition is the stage in which you build, test and implement the new service or changed service. "It describes how to transition an organization from one state to another while controlling risk and

supporting organizational knowledge for decision support." (Introduction to the ITIL service lifecycle, 2011, p.7). Processes in Service Transition include Service Transition Planning and Support, Change Management, Service Asset and Configuration Management, Release and Deployment Management, Service Validation and Testing, Evaluation Management, and Knowledge Management. (Farenden, 2012)

Service operation: "ITIL Service Operation describes best practice for managing services in supported environments. It includes guidance on achieving effectiveness and efficiency in the delivery and support of services to ensure value for the customer, the users and the service provider." (Introduction to the ITIL service lifecycle, 2011, p.7). Also, "it includes all the activities necessary to keep the service going on a day-to-day basis and provide support when required." (Farenden, 2012, p.168)

Continuous service improvement: "It is a stage to ensure that the IT services align to the changing business needs and continue to provide value." (Farenden, 2012, p.196) It combines principles, practices and methods from quality management, change management and capability improvement to provide guidance on creating and maintaining value for customers (Introduction to the ITIL service lifecycle, 2011).

6. GENERAL BENEFITS CREATED BY THOSE CHARACTERISTICS AND HOW THEY ARE CREATED

In this section, the general benefits will be divided into two parts to describe: benefits created by ITSM and benefits created by ITIL. Also, this chapter includes the explanation of how the specific characteristics of two methods create benefits.

For ITSM, according to make a mature process i.e. defined, agreed and integrated processes, it can ensure that IT processes support business processes and improve the overall quality of business operations (Stern,2019). Meanwhile, because the process can be improved continuously through feedback mechanisms, more timely and effective business continuity services will be provided (Stern,2019). Secondly, ITSM can tailor products and services to increase customer satisfaction and better fulfil needs and eliminate sources of irritation based on e.g. capacity, availability and service level management (Stern,2019). Thirdly, configuration management data base in ITSM can provide information on the status of all entities, activities and relationships involved in the provision of the IT services, then further improve quality (e.g. reliability) and increase efficiency (Stern,2019). Finally, by changing management process, ITSM framework can provide more reliable business support and keep appropriate service continuity fees. (Stern,2019)

For ITIL, firstly, the service strategy defines and discusses the principles and processes of service management. In this stage you can put policies and standards in place that make it easier for the enterprise to achieve the strategy and hence the strategic goals. "Selecting and adopting the best practice as recommended in ITIL Service Design will assist organizations in delivering significant benefits and can deliver quality, cost-effective services and to ensure that the business requirements are being met consistently." (Introduction to the ITIL service lifecycle, 2011, p.68) Adopting and implementing standard and consistent approaches for service transition will "enable projects to estimate the cost, timing, resource requirement and risks associated with the service transition stage more accurately and then result in higher volumes of successful change." (Introduction to the ITIL service lifecycle, 2011, p.101). In service operation stage, we can reduce unplanned labour and costs for both the business and IT through optimized handling of service outages and identification of their root causes. (Introduction to the ITIL service lifecycle, 2011, p.125). As for continuous service improvement stage, we can align IT services with changing business needs by identifying and implementing improvements to IT services that support business processes. (Farenden, 2012, p.196) Meanwhile, using this stage to improve customer satisfaction or reduce your costs.

In conclusion, using ITIL and ITSM correctly can bring many benefits to the company and can solve problems quickly and efficiently. In next part, we shall describe the general challenges and risks of using these characteristics and show customers how to manage them.

7. GENERAL CHALLENGES AND RISKS AND HOW TO MANAGE THEM

Although ITSM and ITIL are good framework for solve corresponding problems, using the framework blindly can bring out worse results. This section will describe the general risks when leveraging the ITSM and how to manage them to gain more benefits.

Adopting the ITSM framework means organizations will change their internal operation process and customize large numbers of documents, routines and schedules, this then leads to the increase of time and cost consuming. Meanwhile, in order to adapt to this framework, the departments in organizations may be restructured or even cancelled. Therefore, before organisations adapt ITSM to their business lifecycle, they should have a deep understanding of this framework and their own business routine to evaluate whether the method is suit for their enterprises. After that, they should employ the professional IT consultant group to tailor a plan for them.

There are also many challenges and risks when using the ITIL framework. Excessive project expectations and unreasonable project plans are one of the most important factors in all ITIL projects that lead to project failure (Farenden, 2012). After learning the ITIL methodology, many ITIL project managers have very high expectations for the value and results of the project. They neglected the business status of their own business and set some unrealistic goals. Those goals will bring many risks for enterprises and finally the improvement plan will fail. Therefore, they should know everything must be based on existing organizational structure and existing process rules. They should adopt flexible timetables and rationalize resource requirements so that risk mitigation in the process can be controlled at a reliable level. (Introduction to the ITIL service lifecycle, 2011).

Meanwhile, every time we do an IT service, we would get service feedback. So, the only way to know the demand for IT service is to analyse those feedback. Only the service process improvement and service quality improvement that we carry out on the basis of the analysis of these real operation and maintenance services can truly bring value to the enterprise. (Farenden, 2012).

In conclusion, ITIL consists of more than 25 elements and processes, but if only thinking of ITIL as these elements and processes, it is undoubtedly dangerous. A successful IT organization understands that ITIL must be a complete system and a system designed to deliver value to customers. (Bandopadhyay, 2011) Only if the company can understand every stage of the ITIL, company status and make the appropriate plan to leverage ITIL, the framework can create the benefits.

8. EVALUATION OF IMPACT OF METHODS ON EFFICIENCY AND EFFECTIVENESS OF OZBANK'S IT SERVICE PROVISION

CLIENT'S REQUIREMENTS	OUTSOURCING CHARACTERISTICS	ITSM CHARACTERISTICS
SERVER CAPACITY		
Efficiency	Virtualisation: Lower coast , The provider is able to share a pool of resources among many customers (Stern, 2019)	
	Scalability：Save on infrastructure costs, The ability to continuously grow or shrink infrastructure resources as needed, automatically adapt to changes in workloads to maximize resource utilization and the ability to increase workload in existing infrastructure. (Stern, 2019)	

	on-demand self-service, could Reduce resource waste consumer can unilaterally provisionable computing capabilities, such as server time and network storage, as needed also self-service Reduce labor costs and save times. (Harding, 2011)	
Effectiveness	Specialization: Provider has more expertise than customer because they focus just on their speciality (Stern, 2019)this can help to improve effectiveness	
	Rapid elasticity：flexible computing service, Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. So the out come can be achived (Harding, 2011)	
PLAN, DESIGN, TRANSITION, INTEGRATE, OPERATE, IMPROVE IT SERVICES		
Efficiency		Predicts customer need: It involves providing a service that analyses customers haven't expressed a demand for yet (Stern,2019). This service can help establish a long-term development plan and meet the customer's future demands. Then further improve the efficiency.
		Configuration management data base can provide information on the status of all entities, activities and relationships involved in the provision of the IT services (Stern,2019). It can help company to operate the IT service process easily and improve the executive efficiency.
		The service strategy defines and discusses the principles and processes of service management. In this stage you can put policies and standards in place that make it easier for the enterprise to achieve the strategy and hence the strategic goals. The policies and standards help prevent from reinventing the wheel (Farenden, 2012).
		Service operation: Technological components will be monitored and controlled in order to get early warning when things go wrong that can reduce unplanned labour and costs. (Farenden, 2012). That can allow the business to take full advantage of the value created by

		the services it is receiving (Introduction to the ITIL service lifecycle, 2011).
Effectiveness		A process driven view of designing and delivering end-to-end customer defined IT centric services: It ensure that IT processes support business processes and providing more timely and effective business continuity services. (Stern,2019)
		"Measures performance" (Stern,2019, week 3 p.18). Determining method and service which will be provided to customers and recording in the contract: It can make IT service providers have a clearer understanding of customer needs so that improving the effectiveness (Stern,2019).
		Service design: "Selecting and adopting the best practice as recommended in ITIL Service Design will assist organizations in delivering significant benefits and can deliver quality, cost-effective services and to ensure that the business requirements are being met consistently." (Introduction to the ITIL service lifecycle, 2011, p.68) Meanwhile, it can ensure that all current and planned IT services are delivered to agreed, achievable targets." (Farenden, 2012, p.98)
		Service transition: It ensures that the value(s) identified in the service strategy, and encoded in service design, are effectively transitioned so that they can be realized in service operation." (Introduction to the ITIL service lifecycle, 2011, p.7).
		Continuous service improvement: We can align IT services with changing business needs by identifying and implementing improvements to IT services that support business processes. (Farenden, 2012, p.196) Meanwhile, using this stage to improve customer satisfaction or reduce your costs.

9. RECOMMENDATIONS FOR IMPROVING THE EFFICIENCY AND EFFECTIVENESS OF IT SERVICE PROVISION WITH OUTSOURCING AND IT SERVICE MANAGEMENT

9.1 EFFICIENCY

For improving the efficiency of the server capacity, we provide customer with recommendations based on outsourcing.

We recommend OZBANK to outsource its sever to an IaaS company like Amazon or Rackspace, because the current OZBANK's server is at capacity, This will enable the server to obtain Scalability, OZBANK IT could scale in or scale out the server on demand, Saves the company's expansion cost on infrastructure and maintenance, at the meantime avoid any waste, let The Bank getting more profit. Apart from that IaaS service model can allow the OZBANK core banking software stay in house, avoid OZBANK IT too dependent on the provider in case vendor lock-in.

For improving the efficiency of the process of IT service, we provide customer with four recommendations based on leveraging ITSM and ITIL framework.

1. IT process improvement group must define the organizational initiatives and what is required to support them firstly. Then they should begin to make the appropriate strategy which includes principles and processes of service management. In this stage, OZBANK IT department should define who are their customers and what service they should provide them. For instance, if the OZBANK IT wants to allow customers finish some tasks on online bank, they should consider how to keep the service running safely. Overall, a completed plan and strategy of the IT service can make following work be finished more effective.
2. Implementing a configuration management data base which includes the status information for entities, activities, and relationships in IT service. It can help OZBANK IT department easily operate IT service processes and improve execution efficiency.
3. OZBANK IT department should allocate some staffs to analyse future requirements and update it continually. That can help build a long-term plan and meet any customers' demand effectively and quickly.
4. OZBANK IT department should keep monitor the operation status of system and provide the warning before things go wrong. Because the wrong has been found in advance, there are more time for staffs to solve it. The system can keep running and company can avoid some unplanned cost. Also, this measure can improve customer satisfaction. This is an important method to improve efficiency.

9.2 EFFECTIVENESS

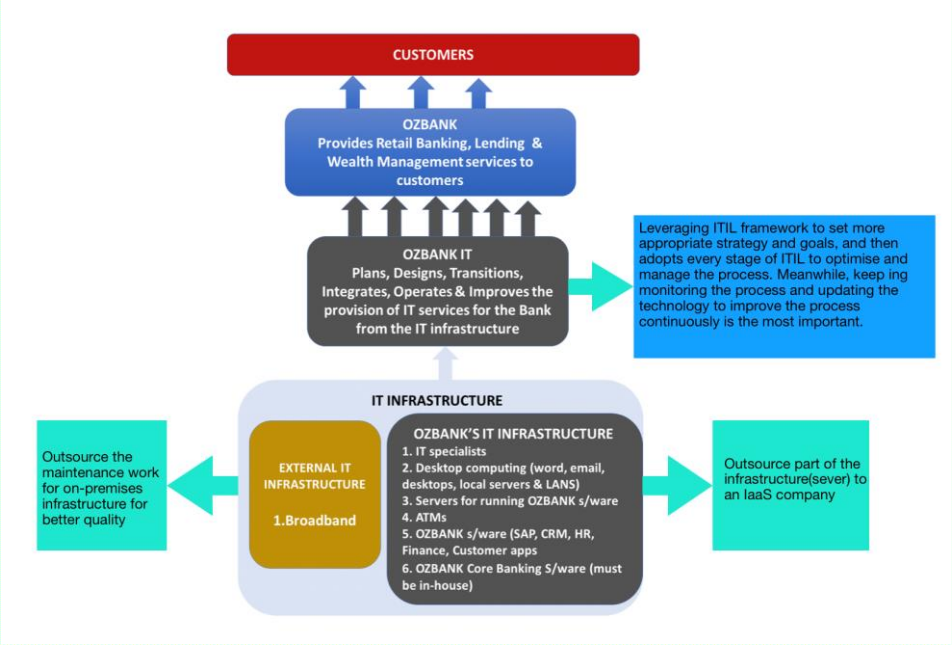
For improving the effectiveness of the server capacity, we provide customer with recommendations based on outsourcing.

We recommend OZBANK outsource the maintenance job of their On-Premise infrastructure to an external provider, because normally an external provider will have more expert than OZBANK itself, they are more professional and have more experience make sure these infrastructures work properly, let the effort achieves the desired outcome.

For improving the effectiveness of the process of IT service, we provide customer with three recommendations based on leveraging ITSM and ITIL framework.

1. Because the appropriate strategy has been made (see above section), the next important step for OZBANK IT is to turn the strategy to the plan which includes how to achieve the service and how to keep the work align with the demands. OZBANK IT department should complete a service design package which includes all sections of design and demands and provide service based on that. In this way, OZBANK can ensure that future goals can be achieved and meet the demands.
2. When some old services should be changed or OZBANK wants to add some new services, the service transition stage in ITIL will be considered. This stage is responsible for moving new and changed services from the test environment to the real-time business environment and ensuring minimal disruption to existing services. In this stage, company should make a transition plan firstly which includes the costs, risks and standards, then they should define what configuration items in new service. After finishing that, IT department should evaluate those major changes whether have an important influence on existing service lifecycle and revise them to minimize risk. In this way, OZBANK IT department can evaluate the information correctly in-service transition stage and get a greater number of successful service changes.
3. Although the company has completed a scientific and appropriate IT service development process, the most important they cannot neglect is to keep monitoring the process and updating method and data. Keeping monitor process is to make the service align with business needs and further improve the effectiveness. Meanwhile, keeping update the data and method is to meet future needs more effectively.

9.3 DIAGRAM OF PROPOSED CHANGES TO OZBANK'S INTERNAL AND EXTERNAL IT INFRASTRUCTURE BASED ON RECOMMENDATIONS



10. MANAGING RISKS ASSOCIATED WITH THESE RECOMMENDATIONS

In this section, we will describe some possible risks when company takes recommendations we provide above and explain how to avoid them or reduce the loss when OZBANK encounters them.

When company adopts the ITIL framework as the guidance of their IT service, although this is the best practice of ITSM, if the executive neglect the business status of their own company and set some unrealistic goals or strategy, that will cause resource waste or causing enormous losses to company. For OZBANK, if a certain IT service is not used by many people, the implementation cost and labour cost invested in this is a waste of resources. Therefore, we recommend OZBANK that before starting operate a certain service process, they should evaluate it and acquire all managers' support.

Meanwhile, the unity of culture and ideas is very important in the enterprise. In some enterprises, ITIL project fails due to the inconsistency of employees' ideas. For example, when an enterprise is faced with problems such as lack of IT resources or insufficient IT budget, everyone knows to change, but everyone's approach and direction are different. Even though the company adopt the ITIL, they cannot achieve the goals. Therefore, for OZBANK, we suggest that they should start with the IT department, the ITIL service system can be implemented only if everyone has a common understanding of it.

When the OZBANK adopts the outsourcing server method, it is likely to have the problem of vendor lock-in. Therefore, to avoid high switching cost, it is necessary to avoid outsource all the business and relying too much on the provider. Also, OZBANK IT should have a back-up provider in case they need to move their business to other IaaS companies for some reasons.

Apart from that, when OZBANK hire external organizations to maintain their locally deployed infrastructure, problems may arise with internal staff communicating with outsiders, or internal staff refusing to cooperate. Therefore, it requires the bank to strengthen staff training and establish frequent and effective communication with external service provider.

In this section, we list some of the common risks and problems that might occur when OZBANK adopts our recommendations, we also give a series of solutions to manage them. These issues cannot be ignored when OZBANK makes decisions, in the next section we will describe what role the IT governance plays.

11. A ROLE FOR IT GOVERNANCE

In this section we will explain what IT governance is and explain how IT governance can enhance the improvements to efficiency and effectiveness.

Firstly, IT governance could enhance the improvements to effectiveness Because IT Governance ensure "enterprise's IT sustains and extends the enterprise's strategies and objectives" which could make sure the enterprise's effort achieves desired outcome. (Kwok, 2019)

Also IT Governance could enhance the improvements to efficiency because it is about business/IT alignment, and creation of business value, which ensure the IT spend maximises value for the enterprise. (Kwok, 2019)

In conclusion it is importance for enterprise to have IT governance because it is positive effect on improve the efficiency and effectiveness.

12. CONCLUSION

In this report, we have described the definition of two methods and have explained characteristics of them. Meanwhile, this report provides some general risks and benefits when adopting the outsourcing and ITIL. Those risks and benefits are come from many different companies which has adopted the two method to help them address problems. The main purpose of the report is to give the specific recommendations according to the OZBANK situation and provides them with a guidance of how to solve two problems they have met.

Based on the experiences of other companies and professional knowledge from ten articles, we recommend that OZBANK adopt outsourcing method to solve the problem of server is full and adopt ITSM method to improve the efficiency and effectiveness of IT service process. The experiences of other company can help us avoid many risks and get more benefits, also we can provide more appropriate advice for OZBANK according to them.

In the future, OZBANK can try to adopt some newer technologies to ensure that the bank is ahead of the times, also OZBANK can learn or hire experts to estimate the development of the banking business and predict when the next major adjustment will be needed, so the bank could prepare in advance to minimize losses.

13. GLOSSARY

Availability: The quality of being able to be used or obtained. ("Availability", 2019)
Blueprint: Reproduction of a technical drawing, specially the one used in construction industry. Its name refers to the older method of making large prints (called Diazo process) in which lines are shown in white on a blue background. Modern plotters can print multicolour lines on a background of any colour. ("Blueprint", 2019)
Business Process: A series of logically related activities or tasks (such as planning, production, or sales) performed together to produce a defined set of results. ("Business Process", 2019)
Capability: "The power or ability to do something". ("capability", 2019)
Capacity: "The maximum amount that something can contain". ("Capacity", 2019)
Configuration management: Administrative and technical actions taken to identify and document the functional characteristics (such as interface settings, jumper settings, hardware drivers, software options) and physical layout of a computer system. It also includes (1) controlling and documenting changes made to the functional characteristics and layout, (2) recording model and vendor information on all discrete parts, and (3) setting up and tracking maintenance and testing schedules. Also called configuration control. ("Configuration management ", 2019)
Contextual: Depending on or relating to the circumstances that form the setting for an event, statement, or idea. ("Contextual ", 2019)
Cost-effective: Effective or productive in relation to its cost. ("Cost-effective ", 2019)
Customer Need: Problems that customers intend to solve with the purchase of a good or service. See also customer expectations and customer requirements. ("Customer Need ", 2019)
Effectiveness: Making sure that the effort is directed outcome. (Stern,2019)
Efficiency: Getting the most output from the least input, i.e. optimisation. (Stern,2019)
Elasticity: "The ability of an object or material to resume its normal shape after being stretched or compressed; stretchiness". ("elasticity", 2019)

End customer: "Person or organization that actually uses a product, as opposed to the person or organization that authorizes, orders, procures, or pays for it." ("End customer ", 2019)
Harmonious: "Tuneful; not discordant." ("Harmonious ", 2019)
Hybrid: "Something having two kinds of components that produce the same or similar results, such as a vehicle powered by both an electric motor and an internal combustion engine as sources of power for the drive train. "The popularity of hybrid vehicles has grown tremendously as gas prices continue to reach record highs." ("Hybrid ", 2019)
IT System: "A combination of hardware, software, infrastructure and trained personnel organized to facilitate planning, control, coordination, and decision making in an organization." ("IT System ", 2019)
Quality of service (QoS): "The degree to which a provided activity promotes customer satisfaction". ("QoS", 2019)
Restructure: "Organize differently." ("Restructure ", 2019)
Scalability: "The capacity to be changed in size or scale". ("scalability", 2019)
Service management: "A system integral of supply chain management that connects actual company sales and the customer. The goal of service management is to maximize service supply chains as they are typically more complex that the supply chain of finished goods. The purposes of service management is to reduce high costs by integrating products and services and keep inventory levels smaller." ("Service management ", 2019)
Strategic assets: "Are needed by an entity in order for it to maintain its ability to achieve future outcomes. Without such assets the future wellbeing of the company could be in jeopardy." ("Strategic assets ", 2019)
Structured processes: "A rigorously defined process with an end-to-end model, that takes into account all the process instance permutations." ("Structured processes ", 2019)
Switching costs: "Fixed cost incurred by a buyer when changing suppliers, because the buyer's product specifications, production equipment, and purchasing cycle is closely tied to the current supplier's products and operations." ("switching cost", 2019)
Undoubtedly: "Without doubt; certainly." ("Undoubtedly ", 2019)

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15. REFLECTIONS

- Joys: Completing this report is a exciting thing for us.
- Frustrations: It takes us much time to finish the report, we find that our reading skill and written ability still need to improve.
- Learnings: By finishing the assignment, we understand the definition of ITSM and outsourcing and their characteristics. Also, we have learned how to use APA 6th format to cite. The most important knowledge we learn is how to write the consultant report.
- Comments/question: None.

16. SYNTHESIS GRID

ITSM

Citation of Source in APA 6th in-text format	Requirement 2 Definition of your method	Requirement 2 Explain the 'characteristics' of the method (i.e. its principles, elements, attributes, models, features, properties, or essential characteristics) that create benefits	Requirement 3 What are the benefits created by each characteristic' and how does the 'characteristics' create those benefits?	Requirement 4 What are the general challenges/risks in using the method and how might they be managed?
Stern,2019	ITSM: ITSM is a set of approach which help enterprises to effectively manage the planning, development, implementation and operation of IT systems. Also, "It is a professional practice supported by an extensive body of knowledge, experience and skills" (Stern,2019, week 3 p.14).	"A process driven view of designing and delivering end-to-end customer defined IT centric services" (Stern,2019, week 3 p.18). It's a strategy that's based on putting the customer first, and at the core of the business (Stern,2019).	Benefit: Ensuring that IT processes support business processes and improve the overall quality of business operations (Stern,2019). Also, providing more timely and effective business continuity services (Stern,2019). How: "A mature processes i.e. defined, agreed and integrated processes continuously improved through feedback mechanisms" (Stern,2019, week 3 p.18).	Adopting the ITSM framework means organizations will change their internal operation process and customize large numbers of documents, routines and schedules, this then leads to the increase of time and cost consuming. Meanwhile, in order to adapt to this framework, the departments in organizations may be restructured or even cancelled. Therefore, before organisations adapt ITSM to their business lifecycle, they should have a deep understanding of this framework and their own business routine to evaluate whether the method is suit for their enterprises.
		"Predicts customer need" (Stern,2019, week 3 p.18). Predicting customer needs involves providing a service that customers haven't expressed a demand for yet (Stern,2019).	Benefit: It can increase customer satisfaction and tailor products and services to better fulfil those needs and eliminate sources of irritation (Stern,2019). How: "Through e.g. capacity, availability and service level management" (Stern,2019, week 3 p.18).	
		"Measures performance" (Stern,2019, week 3 p.18). Determining method and service which will be provided to	Benefit: Customers have more reasonable expectations of IT and are more aware of what they need to achieve these expectations	

		customers and recording in the contract (Stern,2019).	(Stern,2019). Also, IT service providers have a clearer understanding of customer needs. Establish a more harmonious working relationship between customers and IT service providers (Stern,2019). How: "As agreed with customer in the SLA" (Stern,2019, week 3 p.18).	
		"Has knowledge management system to support all processes" (Stern,2019, week 3 p.18)	Benefit: Improving quality (e.g. reliability) and increasing efficiency. How: "Configuration management data base provides information on the status of all entities, activities and relationships involved in the provision of the IT services" (Stern,2019, week 3 p.18).	
		"Controls the release of costed, agreed changes" (Stern,2019, week 3 p.18)	Benefit: Avoiding significant increases in costs. Can provide more reliable business support and keep appropriate service continuity fees (Stern,2019). How:" Through the change management process" (Stern,2019, week 3 p.18)	
Introduction to the ITIL service lifecycle, 2011	ITIL: ITIL is the most widely recognized framework which is used to manage IT services in the world and is used by many hundreds of organizations. "ITIL provides guidance to service providers on the provision of quality IT services, and on the processes, functions and other capabilities needed to support	Service strategy: Is the centre of the service lifestyle. "It provides guidance on how to view service management not only as an organizational capability but as a strategic asset." (Introduction to the ITIL service lifecycle, 2011, p.6). Meanwhile, "it describes the principles underpinning the practice of service management." (Introduction to the ITIL service lifecycle, 2011, p.6).	The service strategy defines and discusses the principles and processes of service management and these principles are then will be applied consistently to the management of IT services. "Having the proper strategies in place can give the company a proactive and productive approach to their business operations" (Introduction to the ITIL service lifecycle, 2011, p.8).	By understanding the investments required to implement ITIL and the desire for value, our schedules and expectations can easily become overly ambitious. This is a natural thing, but we need to guard against the "assuming everything is running correctly" plan, and even

	them" (Introduction to the ITIL service lifecycle, 2011, p.3).	Service Design:" Service design is the stage in the lifecycle that turns a service strategy into a plan for delivering the business objectives. Also, it guides organizations on how to develop design capabilities for service management." (Introduction to the ITIL service lifecycle, 2011, p.7).	"Selecting and adopting the best practice as recommended in ITIL Service Design will assist organizations in delivering significant benefits and can deliver quality, cost-effective services and to ensure that the business requirements are being met consistently." (Introduction to the ITIL service lifecycle, 2011, p.68)	small delays or adjustments are not allowed in the process, which is obviously unscientific. Excessive project expectations and unreasonable project plans are one of the most important factors in all ITIL projects that lead to project failure. Many ITIL project managers are very ambitious at the beginning of the project. After learning the ITIL methodology, they have very high expectations for the value and results of the project. They should know everything must be based on existing organizational structure and existing process rules. They should adopt flexible timetables and rationalize resource requirements so that risk mitigation in the process can be controlled at a reliable level.
		Service transition: "It describes how to transition an organization from one state to another while controlling risk and supporting organizational knowledge for decision support. It ensures that the value(s) identified in the service strategy, and encoded in service design, are effectively transitioned so that they can be realized in service operation." (Introduction to the ITIL service lifecycle, 2011, p.7).	Adopting and implementing standard and consistent approaches for service transition will "enable projects to estimate the cost, timing, resource requirement and risks associated with the service transition stage more accurately and then result in higher volumes of successful change." (Introduction to the ITIL service lifecycle, 2011, p.101).	
		Service operation:" ITIL Service Operation describes best practice for managing services in supported environments. It includes guidance on achieving effectiveness and efficiency in the delivery and support of services to ensure value for the customer, the users and the service provider." (Introduction to the ITIL service lifecycle, 2011, p.7).	Adopting and implementing standard and consistent approaches for service operation will "Reduce unplanned labour and costs for both the business and IT through optimized handling of service outages and identification of their root causes. Reduce the duration and frequency of service outages, which will allow the business to take full advantage of the value created by the services it is receiving." (Introduction to the ITIL service lifecycle, 2011, p.125).	
		Continuous service improvement:" ITIL Continual Service Improvement provides guidance on creating and maintaining value for customers through better	It will help make effective use of the progress to facilitate the effective improvement of service quality. Adopting and implementing standard	

		strategy, design, transition and operation of services. It combines principles, practices and methods from quality management, change management and capability improvement." (Introduction to the ITIL service lifecycle, 2011, p.8).	and consistent approaches for service operation will " Ensure that IT services remain continuously aligned to business requirements. Identify opportunities for improvements in organizational structures, resourcing capabilities, technology and communications" (Introduction to the ITIL service lifecycle, 2011, p.158).	
Farenden, 2012	ITIL: ITIL is an acronym, and when it was first established it stood for the Information Technology Infrastructure Library. Basically, we can see ITIL as a bunch of books that give advice to service providers about how to manage their IT services in such a way that they meet expectations.	Service strategy: The service strategy stage sets the strategy for IT services. This stage helps decide who your customers are and what IT services you want to offer them. The strategy provides direction for all of the service management activities and will have an influence on every activity in service lifestyle stages.	Thinking about strategy can help enterprises get competitive advantage in the marketplace and achieve the strategy goals. When the strategy is set, in the service strategy stage you put policies and standards in place that make it easier for the enterprise to achieve the strategy and hence the strategic goals. The policies and standards help prevent from reinventing the wheel.	Over-emphasizing ITIL's best practices and neglecting the business status of their own business is a major misunderstanding. Every time we do an IT service, we would get service feedback. So, the only way to know the demand for IT service is to analyse those feedback. Only the service process improvement and service quality improvement that we carry out on the basis of the analysis of these real operation and maintenance services can truly bring value to the enterprise.
		Service Design: "The essence of the service design processes: find out what the customer wants, design a service to meet those requirements, talk to the customer about the design, and get agreement." Meanwhile, "the main purpose of the ITIL service design stage of the lifecycle is the design of new or changed services for introduction into the live environment." (Farenden, 2012, p.95)	"A service design package (SDP) is a package of documents that define all aspects of the design and requirements. This package is one of the main outputs of the service design stage of the service lifecycle." (Farenden, 2012, p.97) "Service level management: Defines, agrees and documents service levels Monitors, reports and reviews service levels Improves service levels. The purpose of the service level management process is to ensure that all current and planned IT services are	

			delivered to agreed, achievable targets." (Farenden, 2012, p.98)	
		Service transition: "Service transition is the stage in which you build, test and implement the new service or changed service. In other words, this is where you get physical. In all, there are seven service transition processes." (Farenden, 2012, p.139)	The change management process aims to ensure that all proposed changes are considered appropriately before any build, test and implementation work commences. Change management ensures that IT changes are recorded, assessed and authorised, and then implemented into the live environment in a controlled manner.	
		Service operation: "The service operation stage includes all the activities necessary to keep the service going on a day-to-day basis and provide support when required." (Farenden, 2012, p.168)	The service operation is to understand and manage the technological components, also, monitor and control them to check that all is working as intended and to get early warning when things go wrong.	
		Continuous service improvement: "It is a stage to ensure that the IT services align to the changing business needs and continue to provide value." (Farenden, 2012, p.196)	Aligning IT services with changing business needs by identifying and implementing improvements to IT services that support business processes. (Farenden, 2012, p.196) Meanwhile, using this stage to improve customer satisfaction or reduce your costs.	
Spafford, 2011	"ITIL is a structure for supporting the business services by establishing a high-level set of abstract processes that must be tailored to meet the specific needs of the organization." (Spafford, 2011) ITIL is an efficient method for process improvement. Only if the IT organization has effective and efficient processes, it can deliver	Combining process Improvement Initiatives and Goals:" Process improvement objectives must be clearly linked to business goals, and this relationship must be communicated throughout the life of the process improvement program." (Spafford, 2011)	Using the Ishikawa root cause diagram to document the relationship. This can help with the initial population and/or validation of service composition and catalogues, also, creating these relationships and surrounding discussions can also help filter and prioritize process improvement activities, as well as general IT requirements.	Any organization that engages in process improvement may find it daunting because it seems so large. Therefore, three important topics need to be considered:" All quality improvement work must be identified and prioritized in accordance with the goals of the organization." (Spafford, 2011);" ITIL is a proven
		Gaining Senior Management Support: The senior manager must support the	The support of senior managers will help set the direction of the project,	

	the needed services effectively and efficiently.	life of the process improvement program.	secure funding, and drive organizational change through changes in communication, executive compensation, policies, and so on.	source of reference guidance on ITSM and supporting processes." (Spafford, 2011); The only unchanged is change. The important thing is to start working on process improvement. There will always be opportunities for improvement.
		Establishing a Governance Structure: Assemble a senior management team with the necessary perspective and political muscle to help guide process improvement efforts.	Helping establish the initial orientation. The Committee are responsible for addressing obstacles and key decisions (such as resource allocation, funding, scope or priority changes, etc.) Meanwhile, A process improvement plan charter with clear objectives should be developed, an effective program charter is a critical success factor.	
		Conducting an Assessment and Develop a Road Map.	Using Gartner's ITScore assessment tool and objectively determine the priority process improvement roadmap. The goal is to gain a better understanding of the current state of people (human factors, not just Numbers), processes, and technologies.	
		Utilising Program and Project Management: Program management can oversee individual projects, and project management can oversee more detailed details.	Projects should be planned to deliver value in shorter time frames. Most importantly, senior management and other stakeholders can see the expected benefits at each stage, thereby reducing resistance to change.	
		Designing Relevant Processes: For each process in the roadmap, the process must be carefully designed to achieve the goal by properly supporting IT services.	On the process side, each design must take into account the current state and expected goals. Properly designed processes ensure that work is sustainable and achieve the goal effectively.	

Bandopadhyay, 2011	ITIL:" ITIL is not a software or hardware purchase or implementation decision, but is a framework for ITSM." (Bandopadhyay, 2011) ITIL emphasizes a lifecycle-based approach to continuous improvement for IT service management. Continuous improvement is long term and has footprints in every stage.	At the beginning of the project, managers must identify the organizational process and service problems, then they can optimally leverage the mature ITOM and process automation tools. If the real problem is diagnosed from the beginning, the solution will provide results in a more predictable way.	Identifying key process/service issues. Combing the Gartner research and ITIL to build IT operations process blueprints. Cooperating with tool vendors to ensure that process blueprints can match exactly with tool functionality. "This way, I&O teams can ensure that they are getting the best value for the money spent on tools and automation, and that the solutions are useful for resolving their specific organizational IT service priorities." (Bandopadhyay, 2011)	ITIL consists of more than 25 elements and processes, but if only think of ITIL as these elements and processes, it is undoubtedly dangerous. A successful IT organization understands that ITIL must be a complete system and a system designed to deliver value to customers.
		The plan to offer ITIL basic certification should not be a free proposal, but is a service improvement award to promote best practices. Such as improving I&O processes and individual or team initiatives.	Associating certification with service improvement and process improvement. Linking team and individual training outcomes to service and process improvement benefits. Training and certify employees who show initiative. "This way, ITIL knowledge will cascade internally in an applied and practiced form, and will be contextualized for specific organizational priorities." (Bandopadhyay, 2011)	
		Process maturity comes from internal capabilities. Combining the knowledge of the I&O team's experience and the process blueprint and priorities. ITIL 2011 provides examples of cloud-based service models, best practices, templates, etc. Meanwhile, the irregularity of ITIL makes it more practical and valuable.	"Taking a hybrid approach to ITIL that combines external best practices and internal I&O experiential knowledge, contextual knowhow and specific organizational priorities." (Bandopadhyay, 2011) Letting outside consultants share stories and experiences about ITSM best practices across industries.	

			"This way, I&O will develop process capabilities internally in a "learning by doing" mode." (Bandopadhyay, 2011)	

Outsourcing

	Requirement 2 Definition of your method	Requirement 2 Explain the 'characteristics' of the method (i.e.. its principles, elements, attributes, models, features, properties, or essential characteristics) that create benefits	Requirement 3 What are the benefits created by each characteristic' and how does the 'characteristics' create those benefits?	Requirement 4 What are the general challenges/risks in using the method and how might they be managed?
1. (Harding, 2011)	"**Cloud computing** is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models. "(NIST) However cloud computing is a computing technique the	on-demand self-service	Benefits1: Reduce resource waste, consumer can unilaterally provisionable computing capabilities, such as server time and network storage, as needed Service providers will enable consumers to configure resources and schedule their usage time. Benefits2: Reduce labor costs and save times, Most of the services are automated, and consumers do not need to interact with each service provider manually, this can hire fewer people and reduce communication time.	"Spending on cloud services could go out of control. Employees could refuse to cooperate in the transition process. The cloud services may not integrate with the business model, or transform it in the way that was intended or desired. To take advantage of cloud computing, you must develop a vision for the future of your enterprise, and transform the enterprise to realize that vision. It may mean a changed way of working, and a new culture. This will mean a major architectural transformation, affecting the business processes and the supporting
		broad network access	Benefits1:high accessibility, Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms, company can	

	Services based on this technique are referred as “cloud-based services” and Cloud-based services are typically provided externally to an organisation (i.e. outsourced)		implement added services that can be successfully used by anyone, anywhere on the globe, using a variety of devices.	information systems and technology It will require careful consideration of the factors, discussion with all the people concerned, and big, sometimes painful, decisions.”
		resource pooling	Benefits1: Efficient resource use, Computing resources may be shared at the infrastructure, platform, or application level. Most cloud computing users share infrastructure and possibly platforms Benefits2: high QoS at low cost, Cloud service provider can assign pooled resources dynamically to meet demand, cloud service providers can maintain maximum service levels with minimum resources.	
		rapid elasticity	Benefits1: flexible computing service, Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time. giving users capacity which would be impossible to generate from an in-house implementation without significant investment in resources.	
		measured service (Harding, 2011)	Benefits1:Provide sufficient information, Consumers may wish to use this information for systems management and financial accounting applications	

			Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service.	
2. (Datta & Oschlag-Michael, 2015)	IT outsourcing the practice of turning over part or all of an organization's information system functions to an external service provider.	total outsourcing	Benefits1:enable Business Growth, all or most (usually more than 80 per cent) of the IT budget for IT assets, leases, staff and management responsibility is transferred to an external IT provider.	Oshri et al.'s (2009) risk list : business risks , social risks , logistical risks , workforce risks, legal risks and political risks. Civilis's (2013) compilation of risks: organizational risks, financial risks, contractual risks and environmental risks. Risks can also be classified into structural and operational risks. Companies should pay more attention to innovation rather than cost, and take gain sharing into account
		selective outsourcing	Benefits1:minimizing the risks, only selected IT functions are outsourced to single or multiple vendors and most IT functions are provided internally	
		resource-based view (RBV)	firm's capabilities are critical for its achieving competitive advantage and that firms can fill gaps in their existing capa-bilities or develop them further by acquiring resources and capabilities from the market.	
		transaction cost economics (TCE)	firms can reduce costs by out sourc-ing activities to exploit market economies of scale and specialization. Research suggests that TCE is the most important motivator for IT outsourcing	

3. (Stern, 2019)	**Outsourcing** is the business practice of hiring a provider outside an organisation to provide services for functions that were previously performed in-house by the organisation's own employees.	Lower costs(efficiency)	The provider is able to share a pool of resources among many customers e.g. overheads are shared	Risk/Challenges include Loss of control, Vendor lock-in, End-user satisfaction, Misalignment between provider and customers objectives.
		Better quality(effectiveness)	Provider has more expertise than customer because they focus just on their speciality	
		Shift risks to provider	Provider shares risks over all customers	
		Scalability	The ability to enhance capacity by adding resources easily without disrupting existing activities	
4. (Smith, 2017)	"**Cloud computing** is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models. "(NIST) However cloud computing is a computing technique the Services based on this technique are referred as "cloud-based services" and Cloud-based services are typically provided externally	Scalable and Elastic	Benefits1:Save on infrastructure costs, The ability to continuously grow or shrink infrastructure resources as needed, automatically adapt to changes in workloads to maximize resource utilization and the ability to increase workload in existing infrastructure.	"Crafting a cloud strategy is one of the top issues for our clients. Their goal is often to create a blueprint for migrating to cloud services; however, the difficulty with this type of approach is that it assumes cloud computing adoption will follow the technology adoption trends of the past. It assumes that generic decisions about which workloads should go into the cloud or how to govern cloud services in a centralized way will work in most cases. Through our planned research, Gartner will show how this assumption is flawed and guide you through blended strategies that will allow you to take action now and in the future."
		Metered Usage	Benefits1:Provide sufficient information, Consumers may wish to use this information for systems management and financial accounting applications Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service.	
		Service-Based		

	to an organisation (i.e. outsourced)	Shared Services	Benefits1: Reduce costs share services (such as servers) with multiple organizations or individuals to reduce costs	
5. (Buchanan, 2019)	"**Cloud computing** is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models. "(NIST) However cloud computing is a computing technique the Services based on this technique are referred as "cloud-based services" and Cloud-based services are typically provided externally to an organisation (i.e. outsourced)	Cost Savings After Migrating to the Cloud		Most IT organizations continue to control configuration as they migrate to the cloud, which can lead to overconfidence. They usually have no control over the extra costs that may be added. Get access to cloud services. Data may be subject to additional charges such as storage, so the CIO needs to ensure that the provider and its terms are subscribed throughout the vendor.