CHAPTER 1

INTRODUCTION

1.1 Introduction

In many industries, the expectation behaviors of today's customer are much different from those of 20 years ago. They are now increasingly time poor, more savvy and more demanding. This is also similar for the construction industry in the public sector. The ministries as customers are demanding for better service quality from Jabatan Kerja Raya (JKR) and making continuous judgments of overall performance of the service provided.

The acceptance of service quality measure is highly influenced by what the customer obtained in the first place. Perception is the considerable people decisive tool for level of fulfillment. Carrying out assessment from the customers' feedbacks is crucial in making standards in delivering quality of service provided and should be done periodically. It is the quality of service that the customers look upon and give rates notwithstanding the service provider itself (Edvardson, 1998). This is to note that the concept of perception from the customer predominantly become the important criteria in standard making process.

Jabatan Kerja Raya Malaysia was established since 1872 and serves as a technical agency for the Government of Malaysia. JKR acts in implementation of development projects and infrastructure maintenance for customers including

various ministries, departments, statutory bodies and state governments in development of roads, buildings, airports, ports and jetties etc.

As technical agency, the main role of JKR is to give technical advisor in project implementation, during various stages including planning, design, procurement, execution and completion. Eventually, it is becomes one of JKR core businesses. The JKR is expanding the organization's operational nationwide at three major administrative level; the headquarters, state and district and currently JKR has beyond 32,000 employees comprises of technical and non-technical staffs.

This is including those who posted in technical unit at various ministries. Technical staffs are multidiscipline including Civil and Structure Engineers, Mechanical and Electrical Engineers, Architects and Quantity Surveyors. Over 3000 of the technical personnel are professional in the managerial level, middle level and junior level that will support their main role.

Since establishment, JKR was entrusted to implement the entire government project and no doubt, that all project was completed as expected. All ministries and departments become JKR customers. However, since high demand in project implementation in various plans, the government began to propose Project Management Consultant (PMC) back in the 1990's. PMC is a multi-disciplinary company consisting of experienced construction attorneys, architects, and other professionals. They engaged by ministries or departments on behalf of the government to implement the projects and give consultation service in financial and project management issues. Ministries and departments started to have their own technical unit and started to execute the project themselves. In 2009, PMC method no longer implemented. This is because many of the projects were handled by PMC faced a lot of problems during implementation that related to technical issues. Furthermore PMC method always ends up in doubling the cost of project.

Several numbers of projects were failed due to collapse, crack and settlement and resulting in cost overrun. This issue had caused JKR to take over the project for investigation, technical advice and recommendation. As technical advisor to government agencies, JKR is expected to give solution prior to the case. JKR believe this situation can be avoided at early stages and JKR should involve especially during the implementation of the project.

Consequently, all non-technical departments shall refer to JKR whenever to implement the physical projects according to (Arahan Perbendaharaan (AP) 182.1(a)). If JKR is unable to implement the project for them due to limited resources, JKR would grant them to implement the project on their own. However several ministries want to implement the project at their own without referring JKR. This is due to unsatisfied performance of the JKR in implementing project for example delay of work and do not achieve the standard they require. As a result, several ministries such as Ministry of Wellbeing, Housing and Local Government, Ministry of Education, Ministry of Defense are still continuing the implementation of the projects on their own through consultant engagement and JKR to support the ministries by sending the technical personnel to these ministries as technical advisor. To overcome this scenario under AP 186(b), ministries or departments only can proceed project implementation on their own which subject to JKR capabilities. In order to ensure the role of JKR still relevance in his role, the top management of JKR formed a team to study in 2007. The study is to identify problems involving services quality and come out with improvement strategy.

The target of this study is to evaluate and to assess the customer service quality in public agency. In this matter, JKR serves the public agency in giving technical advice in the implementation of physical projects to other government departments and agencies. The MS ISO 9000 quality system is used in monitoring procedures and implementation of the project. Upon completion of each project, the customer's feedback form regarding service quality is collected. The corresponding response rate from customer feedback survey for the year 2007, 2008 and 2009 are 79%, 82% and 50% respectively (SPK, JKR).

The feedback form is a direct medium for the customer to state their level of satisfaction during the period of services. All the data derived from the form were then analyzed and the score is used to classified and conclude the customer satisfaction rating for the project. Despite the use of such system and the data collected, no comprehensive action was taken to utilize the data for upgrading the service quality. The consequences were identified and numerous ministries for instance the Ministry of Defense and Ministry of Wellbeing, Housing and Local Government were no longer engaged JKR for their project and started to implement the projects on their own. The consequences numerous ministries for instance Ministry of Defense, Ministry of Education etc., no longer engaged JKR but starting implement the projects on their own.

The major reason is inability to meet customer needs and delay in project completion (Rahman A., 2009). In 2007, in order to assure an increase in the performance of project delivery in the Ninth Malaysia Plan, a significant plan was introduced and the plan was aimed to improve the ability to perform and capacity in project management and delivery system. Customer Service Plan (CISP) was introduced to expedite communication and connection between the agency and the customer through the whole of the project period. This include in the diagnostic of the customers' needs. In 2009, the study was done by the consultant to determine the level of service quality and to identify the weakness for improvement after implementing the CSIP. The overall result shows that JKR service quality level is moderate and the crucial issues is not meet the customers need in term of project completion and quality and incompetent personnel. JKR as a leading service provider believed that they can improve in all aspect. JKR has developed strategic objectives to emphasis on customer focus and customer loyalty under theme 2, Strategic Framework 2012-2015.

JKR Malaysia then came up with a renewed strategic plan and strives for excellence with aim on five (5) strategic themes in effort to achieve customer satisfaction namely :-

1) Outstanding project delivery
2) Co-creative customer experience

3) Centre of technical excellent
4) Leading sustainability
5) Innovative organization

This study is to review the previous study done by Rahim, (2009) and attempts to determine which dimension which influence most to JKR service quality under new approach. Beside that the study also carried out to investigate the divergence and inconsistency arises from customer anticipation and perception in current service quality and identifies the area of improvement. Furthermore it will conclude that with new strategic framework, is JKR having make improvement. Hypotheses test also be carried out to analyze the relationship between service quality, customer satisfaction and service performance. The next section will review the related literature on service quality and the following section will be the details on the research method used for this study and followed by the final section where discover data analysis and discussion and later conclude the findings and recommendation.

1.2 Research Problem

During providing services to customers, JKR have to work with persistence to meet customer satisfaction. A successful project is a project which complete within the time frame, within allocated budget, achieved acceptable quality by customer and meets or exceeds customer satisfaction or expectation (Keztner, 2008). Only with these four factors customer satisfaction can be achieved. The customer is the judge of the quality of service, not the service provider regardless of how well the service provider's records seem to be (Edvardson 1998). There are many fundamental questions that arguable in terms of the level of satisfaction or expectation to be met. For instance, what is the nature of customers' service expectations? Are there any different types of expectations? What factors influence the formation of these expectations? How consistence is the expectations? Do they change over time? Do they vary among

service situations and the customers? How can organizations manage expectations to enhance customers' perceptions of services? What an organization can do to exceed customers' expectations? These sorts of questions bring JKR in tough position in order to meet the customer satisfaction and in the same time still relevant in term of roles.

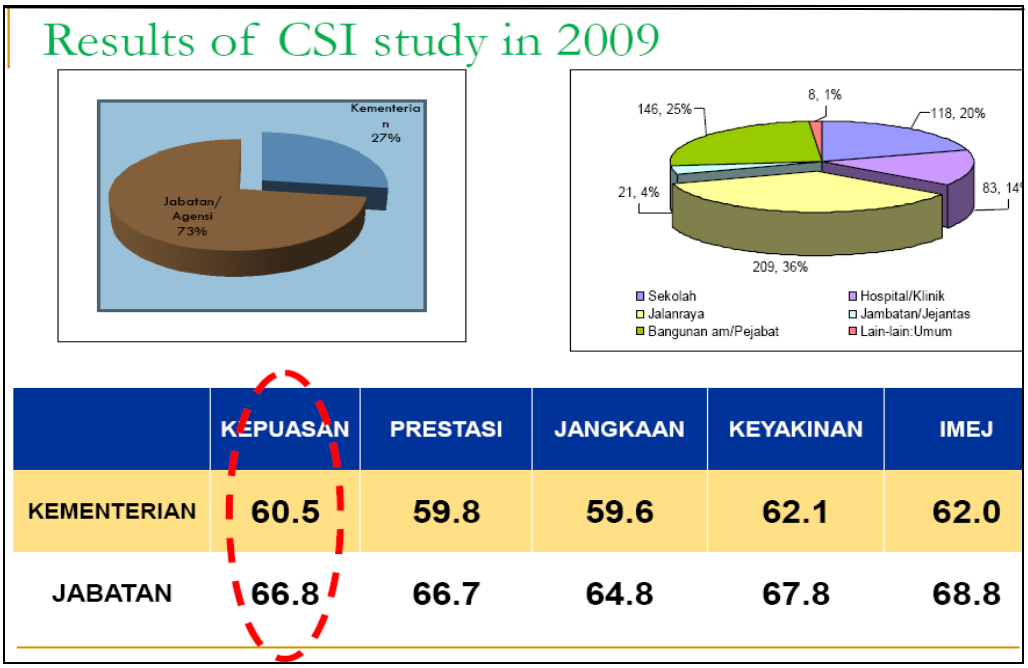
In May 2007, Prof. Dato' Sri ir. Dr. Judin Abdul Karim, the former Director General of JKR Malaysia had worked out JKR Strategic Framework 2007 – 2020 in relation to upgrading and improving the service quality for a better customer satisfaction. The main idea is to improve the service quality which finally hopes to meet customer satisfaction. One of the strategies is to become a strategic partner to customers and increase their involvement and satisfaction for the services provided. This strategies were tailored to the vision and mission of JKR and help our customers realize and aware about the policy information and deliver services through collaboration as a strategic partner. JKR has conducting the study on Customer Satisfaction Index (CSI) in December 2009. The objective of the study is to assess the views of users/customers to the services and products provided by the JKR. The study also wants to assess the customers' viewpoint JKR image and identify strategic action for improvement. The result shows (figure 1.1 to 1.3) that customer satisfaction level is moderate due to not meeting with customer expectation. The study also concludes that projects under JKR implementation were poorly managed. Due to that reason, customer had an impression that JKR is not credible to perform the ability to implement projects in the future. The result of the study also shows that JKR image as the main project implementer agency is below moderate. This can caused disloyalty from customer as they keen to have other project implementer than JKR to carry out their projects.

Although JKR is implementing strategies to improve the quality, the numbers of ministries which go for self execution for projects are increasing. The most of the issue faced by JKR is related to poor quality in services and products delivered. In many situations JKR has tried very hard to manage the customer expectation and addressed several relevant issues as follow:

a. How customers perceive and evaluate JKR services quality?

b. What are JKR managers' perceptions about the service quality?

Therefore, this study is to identify the problems and suggest remedial action for improvement in order to ensure JKR achieved its core vision to be a world-class service providers and Center of Excellence in Asset Management, Project Management and Engineering.



	KEPUASAN	PRESTASI	JANGKAAN	KEYAKINAN	IMEJ
KEMENTERIAN	60.5	59.8	59.6	62.1	62.0
JABATAN	66.8	66.7	64.8	67.8	68.8

Figure 1.1 : Result of JKR Customer Satisfaction Index (CSI) study,(2009)

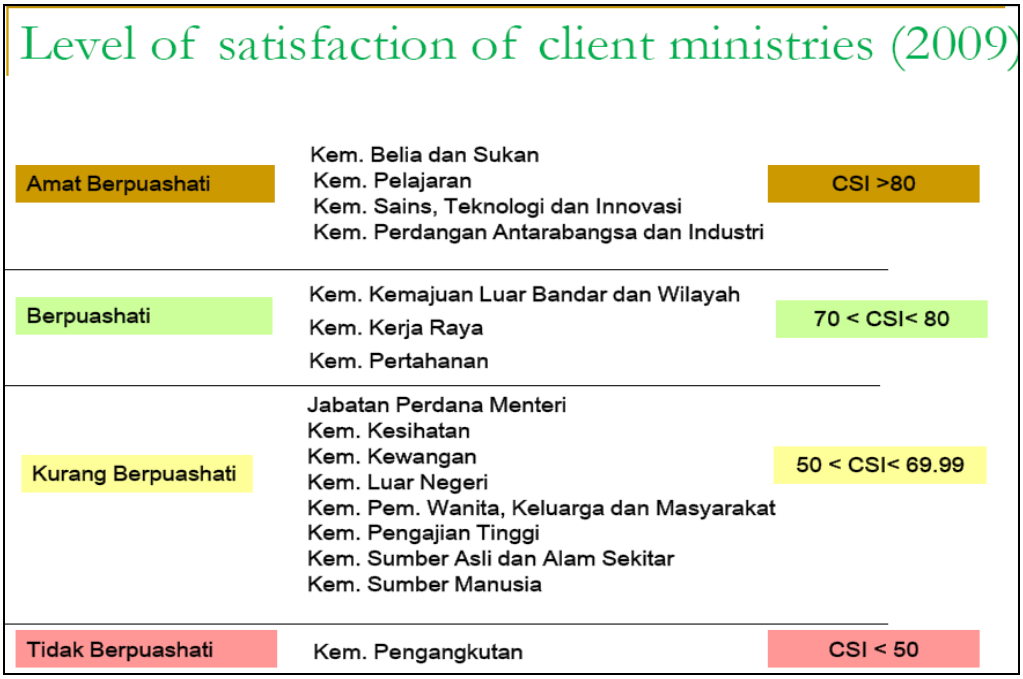


Figure 1.2 : Result of level satisfaction, (2009)

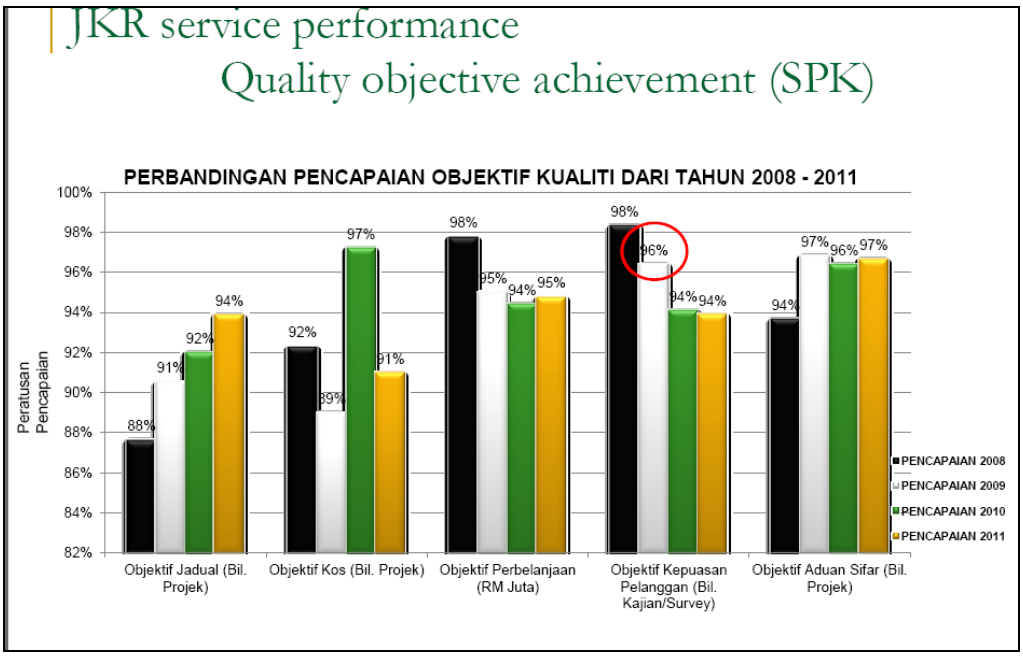


Figure 1.3 : Based on JKR report in quality objective achievement (2012)

1.3 Research Questions

The study will address questions as below:

RQ1 : What is the main service dimensions (tangibility, reliability, responsiveness, empathy and assurance) influence more to JKR service quality?

RQ2 : What is the main attribute to reduce the gaps between customer expectations and customer perception?

RQ3 : Does service performance positively influences customer satisfaction?

1.4 Objectives of the study

The objectives of this study are as follows:

a) To identify the service quality dimension and their prioritization to for improvement.

b) To investigate the attribute of JKR quality services which influence most the gap

c) To analyze the relationship among service quality, service performance and customer satisfaction within the context of the JKR service

1.5 Significant of the study

This research helps to understand more about the quality of services of JKR. The failure of delivering excellent service is mainly because most of the JKR personnel do not understand the terms service quality. It is important for them to know the dimensions of service quality as well as its attributes and their prioritization in order to make improvement.

Previous study done by Abdul Rahim (2009) showed that reliability is the most influential dimension in customer satisfaction and loyalty in JKR. His study also showed that strong significant relationship between customer expectation and customer perception and strong significant relationship of service quality dimension on customer satisfaction. However, is that dimension still relevant even after JKR implementing its strategic framework and enhance the competencies and knowledge of his personnel?

JKR has released the new edition of JKR Strategic Framework 2012 – 2015, which introduced new approach of customer focus. One of the approaches introduced is co-creative customer experience strategic themes. These strategic themes consist of four (4) strategic ways which are :

(1) strengthen the customer involvement through partnership initiative
(2) delighted customer
(3) develop customer-centric workforce
(4) continuous the survey customer satisfaction

Meanwhile, the previous strategic frameworks only focus where the customers become as strategic partner and increase customer involvement. This research will review his study to determine the result of his study still relevance after implementing new approach under new strategic framework. This study also identifies the other signification relationship between service quality and customer satisfaction. The research will test whether service performance has strong relationship to the service quality and customer satisfaction. However this

study will not test the significant between customer expectation and customer perception but the study will investigate the largest gap for improvement.

1.6 Scope of study and limitations

The research for this study will direct to the JKR Malaysia services in project management and consultancy services only at the headquarters' level. The study only focuses to new building projects and not including maintenance project, rehabilitation project, conservation project and remedial work.

The study also aims the areas of service quality provided by JKR Malaysia. Respondents will include customer who prepare the project budget and engaged JKR directly as service provider and project implementer such as ministries. However, this study does not involve technical quality or functional quality of the project and also those who are indirectly involved with JKR in implementing project such as contractors, suppliers and consultants. Due to time constrain and ease of data collection, the project selection will cover projects around the Klang Valley and Putrajaya only.

The outcome will reflect entirely based on JKR Malaysia's customer who directly engaged to the JKR Malaysia services.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the definition of service quality, model service quality, quality service dimensions, customer satisfaction and service performance. This chapter also explain the previous study related to service quality.

2.2 Service Quality

There are many definitions of service quality which come from different perspective and different authors. It is very difficult to come to a consensus among them. However we can conclude that the service quality as something intangible in a way that pleases the costumer and preferably gives some value to that customer and expectation for loyalty. Service quality can be defined as the total of the features and characteristic that bears on its ability to satisfy customer needs. A service quality is usually rated as good service by the customer when the service delivered meet their expectation and perception (Gronroos, 1984, Parasuraman et al. 1985;1988). Parasuraman et al.(1985; Lewis and Mitchell (1990) also define service quality as the differences between customers' expectation service and their perceived service. If the expectation is greater than

the service performance and perceived less than satisfactory it means that customer dissatisfaction occurs. Forsythe; (2008), definition of service quality may differ to different industries. For example, in construction area, he mentioned that service delivery and production occur concurrently with the express purpose of crafting a physical product on site. Whilst in other industry say industrialised processes associated with production usually occur first and service delivery comes second. It is also involves the customer perceptions of how the work being carried out on site. It is important to raise that context of service quality in construction is differ than many industries. Therefore, service quality may require a new and needed dimension to construct rather that use the establish dimension before.

2.2.1 SERVQUAL model in measuring of Service Quality

The previous studied show that SERVQUAL model used widely in measuring service quality. The SERVQUAL model has been applied in service and retailing organizations (Parasuraman et al, 1988; 1991) including banking industries, credit card companies, motor repair shops and long distance telecommunication. Service quality is a function of pre-purchase customers' expectation, perceived process quality and perceived output quality. Parasuraman et al. (1988) define quality services as the gap between customers' expectation of service and their perception of base on their service experience. The five (5) dimensions provide a diagnostic tool for organizations to identify weaknesses in their service delivery systems (Parasuraman *et al*., 1991). SERVQUAL has been used among building designers (Bubshait *et al*.(1999), Love and Li (2000) and Love *et al*. (2000) and quantity surveyors (Procter and Rwelamila,1999). Hoxley (2001) looked at whether service quality can be considered in tender evaluations while Kim Wan Siu *et al*. (2001) focused on mechanical and engineering maintenance services.

In project management, SERVQUAL model also widely used to measure service quality and to determine the gaps. Furthermore, service quality is essential during implementation the project because there are many quality aspects to be taken care such as cost, time, quality, resources, procurement etc. According to Duncan (p.6), project management can be define the application of knowledge, skills, tools and technique to project activities in order to meet or exceed stakeholder needs and expectations from a project. Meeting or exceeding stakeholder or customer needs and expectations invariably involves balancing competing demands among:

(1) Scope, time and quality
(2) Stakeholder with differing needs and expectations
(3) Identified requirements (need) and indentified requirement (expectations)

In project management, meeting customer expectations is also the importance issue. Therefore, measuring the customers' satisfaction is crucial in order to continuous improvement in managing project. SERVQUAL model is one of the popular models to use to measure the service quality in project management.

Referring to conceptualization of service quality explain by Parasuraman et al. (1985), the original SERVQUAL instruments included 22 items for assessing service quality based on customer's perception. The data collected from the 22 attributes were then classified into five (5) dimensions, namely tangible, reliability, responsiveness, assurance and empathy. There are a number of ways in which SERVQUAL results can be used to help identify areas for performance improvement.

2.2.2 Dimension of Service Quality

Parasuraman, Zeithaml, Berry's, (1985) was earlier design a conceptual model of service quality and the first attempt is ten generic dimensions. This was later refined to five dimensions and introduce the SERVQUAL model (Parasuraman *et al.* (1988), consisting of :

(1) Reliability

The ability involves performing the promised service dependably and accurately. It includes "Doing it right the first time" as Japan philosophy, which is one of the most important service components for customer. Reliability also extends to provide services when promised and maintain error-free records.

(2) Tangible

The physical facilities, equipment and appearance of personnel and communication materials used to provide the service.

(3) Responsiveness

Always be prepared and ready to help customer with correct and certain answers or actions and all were handled in professionalism, quick and mistake recovery. The ability for the service provider to handled situations in a well-timed manner is a demanding element of service quality for many customers.

(4) Assurance

Assurance refers to the knowledge and courtesy of employee and their ability to inspire, convey trust and confidence including competence, courtesy, credibility and security.

(5) Empathy

Empathy refers to the provision of caring, individualised attention the firm provides to its customers including access, communication and understanding the customers.

Since SERVQUAL model was introduced it becomes the most popular model. It is also widely used in many organizations not only in marketing industry but extended across most industries.

2.2.3 Service Quality in Malaysia Public Sector

According to Brysland & Curry (2001), the definition service quality in public sector more complex and potentially problematic. It is related to strategic and operational decision. Usually, it is hard to make any decision in public sector because the nature of the government organization. Some services provided by statue and no provision for retreat especially service related to market economies or resources.

Usually, the difficulties in making decision for government agency due to unclear performance target, lack of experimentation, lack of evaluation in order to learn from experience and slow to abandon less successful programs (Brysland, 2001). Problem in quality services is common to both the public and private sector which are lack of vision, emphasis on short term gains and the negative effects of performance evaluations. This has resulted in a number of dilemmas which occur when service quality management practices derived from the private sector are transferred to the public sector (Buckley, 2003). However, it can be successfully applied in public sector, provided that it is appropriately tailored and modified so as to fit the corresponding context (Chatzoglou, Chazoudes, Vraimaki and Diamantidis, 2013). According to Kearsey and Varey (1998), these dilemmas include;

- multiple, non-financial, conflicting and ambiguous goals;

- lack of agreement on mean-end;
- environmental turbulence;
- immeasurable outputs; and
- effects of management intervention unknown.

There are two perspectives for the ongoing pursuit of service quality. From the perspective of the service organization, there is a desire to survive and compete in a global environment. From the perspective of the customer, there is a desire for better quality services. Whereas service quality has achieved considerable popularity across the private sector, the public sector has been slower to take up the concept. However, service quality has now moved to the forefront of public sector management as of the combined pressure of growing customer expectations, an increased focus on revenue, and growing competition between public and private sector organizations who offer identical services (Agus et al., 2007).

Adapting quality management approaches in public sector has not been easy (Brysland and Curry, 2001). Managers in the public sector are under pressure to demonstrate that their services are customer focused and that continuous performance improvement is being delivered.

2.2.4 Service Quality Dimension in Public Sector

Many studies have been done related to service quality in public sector using SERVQUAL model and different results was found. Some result strongly reflected actual situation but some need modification accordingly. For instance, Brysland & Curry, (2001) conducted the study in two areas which are catering and ground maintenance service. They used SERVQUAL model and established five dimensions with related items under every single dimensions. However they make some modification that they include another dimension which is value for money because they feel this dimension need to be elicited,

particularly in existing public sector context, given the best value regime. The advantage of the SERVQUAL is tested instrument can be comparatively to set a benchmarking. This argument was support by previous study (Curry & Brysland, 1999; Curry, 1999). The result shown with value for money has high expectations and the gap score was higher than other five dimensions for both areas of expectation and perception. As a conclusion, they recommend for a further study, necessary to modify the dimensions and items to suit the service provide and the number items applicable may vary. According to Curry (1999), for the further study needs to tailor the SERVQUAL model to the environment it is being applied. Not only in term of wording of expectations but also in distribution of the items.

A study has been conducted in the public sector from different groups of customers in United Kingdom. The result shown as following (Wisniewski, 2001):

Table 2.1: Comparative public sector SERVQUAL results in weight dimension

Dimension	Catering service	Building control	Development control	Ground maintenance	Housing repair	Leisure services	Library service
Tangibles	20	12	12	25	15	23	18
Reliability	30	32	31	29	25	21	23
Responsive	20	23	22	16	22	19	22
Assurance	15	20	21	15	19	20	21
Empathy	15	14	14	15	19	17	16

From the table, reliability is the most influential dimension and critical to public sector with the highest score. This followed by other dimensions which are tangibles, responsiveness, assurance and empathy. In other words the group of customers feel that each of industries is unable to perform the service as promised dependably and accurately.

Currently, there are only a number of studies that were published based on the topic of service quality in Malaysian public sector which exercised SERVQUAL scale. Among those studies are Aliah and Tarmize (1998), Sharifuddin (1998), Sharifah Latifah, Mokhtar and Arawati (2000) and Sharifah Latifah (2001). Aliah and Tarmize applied SERVQUAL model consist of 25 attributes in their study. The study was conducted to estimate and forecast the service quality provided by an income tax department in the country. To do the survey, 300 questionnaires were distributed to the customers. What the result shown came as no surprise. There was a significant disparity between the customers' expectation with the services they get especially in the aspects of reliability, responsiveness and empathy. These three aspects have a distinctive difference as compared to assurance and tangibility. Based on the calculation, the overall service quality is high. This shows that the zone of tolerance exists as the income tax payer are willing to compromise with quality.

Other study was conducted by Sharifudin (1998) and used SERVQUAL model to measure quality service at ten public transportation departments. 400 questionnaires were distributed to six were distributed to six state departments in Penang, Selangor, Terengganu, Perlis, Melaka and Pahang and two department branches at Taiping and Tapah. The result proved that customers' perception was the main thing and with high vote. For that reason, this showed that the customers' expectation were not achievable by the service provider.

Sharifah Latifah et al. (2000) used SERVQUAL model in her study to resolve customer satisfaction as a result of TQM implementation in six ministries. From 290 respondents out of 330 questionnaires distributed, the result displays that responsiveness is the second lowest aspect after empathy which indicates the needs for a significant change.

Later in year 2001, Sharifah Latifah has done another study to survey the internal and external customer satisfaction in six ministries. Total 523 questionnaires were distributed to professional group and support group meanwhile 300 questionnaires were distributed to middle manager and head of

divisions or units. 289 respondents form were collected. From the analysis, she extracted three dimensions which have gap. The first factor is tangibles; the second factor is the combination of reliability, responsiveness and assurance while third factor is empathy. The result revealed that even though the employees are highly satisfied with their organization, they are not able to transform their satisfaction to deliver quality service to the customers. Furthermore, winning quality award does not guarantee that external customers will be fully satisfied with their service provision (IIhamie, 2009).

Other studies were conducted by Noor Hazilah and Phang, Firdaus (2005, 2006), Arawati, Baker and Kandampully (2007) and Wan Zahari, Maziah and Newell (2008) did not used SERVQUAL model in measuring service quality in Malaysia public hospitals, higher educations institutions and public department. Arawati et al, (2007) used SERVPERF in determining the relationship between the service quality, service performance and customer satisfaction in 86 Malaysia public departments. From nine to ten service quality dimension proposed by Parasuraman et al, (1985), they only managed to extract three dimensions. They label the three dimensions as responsiveness, access and credibility. They also found out that all these three dimensions are related to service performance and customer satisfaction.

Differently with Wan Zahari et al (2008), he developed a new model, they named as FM-SERVQUAL in measuring facilities management service provide by a local authority in Johor. The model adopted from Carman, (1990) where the expectation and perception were combined into every items of the dimension. The finding of the study revealed that five elements in technology and ICT and six elements of property were identified to below decrease the service quality level.

2.2.5 Comparison of Dimension

Table 2.2 : Comparative dimension

Author	Industry	Dimension used
Alia & Tarmize (1998)	Income tax department	25 items SERVQUAL 5 dimensions
Sharifudin (1998)	State public transport department	25 items SERVQUAL
Sharifah Latifah (2001)	Six ministries	25 items SERVQUAL 5 dimensions
Chatzoglou, Chazoudes, Vraimaki and Diamantidis (2013)	Citizen's Service Centre	22 items SERVQUAL, 5 dimensions
O'Neill, Wright and Fitz (2001)	On-line library service	18 items SERVQUAL, 4 dimensions (contact, responsiveness, reliability and tangible)
Miguel, Silva, Chiosini and Schitzer	Vehicle repair shop	20 items SERVQUAL, 5 dimension (credibility, competence, courtesy, reliability and tangibles)
Noor Hazilah and Phang, Firdaus (2005, 2006)	Public hospital	SERVPERF
Arawati, Baker and Kandampully (2007)	High education institution	SERVPERF
Arawati, Baker and Kandampully (2007)	High education institution	SERVPERF
Wan Zahari, Maziah and Newell (2008)	Public department	SERVPERF
Abdull Rahim (2009)	Public department : JKR	22 items SERVQUAL, 5 dimensions (tangible, reliability, responsiveness, assurance and empathy)
Sriyam (2010)	Hotel industries	20 items, SERVQUAL, 5 dimensions (tangible, reliability, responsiveness, assurance and empathy)

Table 2.2 : Comparative dimension (continued)

Author	Industry	Dimension used
Hashim, Rasid and Ismail (2011)	Public agency	22 items SERVQUAL, 5 dimensions (tangible, reliability, responsiveness, assurance and empathy)
IIhaamie (2009)	Public agency	22 items SERVQUAL, 5 dimensions (tangible, reliability, responsiveness, assurance and empathy)
Loke, Taiwo, Salim and Downe (2011)	Telecommunication companies	22 items SERVQUAL, 5 dimensions (tangible, reliability, responsiveness, assurance and empathy)
O'Neill and Palmer (2003)	Theme park	22 items SERVQUAL, 5 dimensions (tangible, reliability, responsiveness, assurance and empathy)
Naik, Gantasala, Prabhakar (2010)	Retail	14 items SERVQUAL, 5 dimensions (tangible, reliability, responsiveness, assurance and empathy)

Base on the previous studies, the result showed SERVQUAL model is an appropriate model to measure the service quality in public sector.

2.3 Customer

Generic definition by AS/NSZ, (2004) standard, recipient of a product provided by the supplier and the customer can be either internal or external to the organization. Internal refer to functional levels of the organization versus individuals.

In many industries, the expectation and behaviour of today's customer are much different than 20 years ago. They are now increasingly time poor, more savvy and more demanding. After suffering a negative experience, 80 percent of U.S adults decided to never go back to that company and 74 percent

registered a complaint or told others about problem they were facing (Right Now Technologies, 2007)

2.3.1 Customer Satisfaction

Customer satisfaction, a term frequently used in marketing, is a measure of how products and services supply by a company meet or surpass customer expectation. There are many ways to define customer satisfaction and it is a complex process (Besterfield, 1994; Kanji and Moura, 2002; Fecikova, 2004). Customer satisfaction is the extent to which a product's perceived performance matches a buyer's expectations (Kotler, 1998). It is depends on the product's perceived performance in delivering value relative to buyer's and customer's expectation. Customer satisfaction related to feeling of people whether happy or unhappy after compare the product or service that they received to what they expect (Palmer et.al, 1991). If the product's performance fails short of expectation, the buyer is dissatisfied. If the performance matches or exceeds expectations, the buyer is satisfied or delighted.

Today's world demands changes tremendously. Adapting to today's economic world with eye to the future requires an organization to be totally responsive to customers. Continuous improvement of processes, people, and products aimed at customer satisfaction is essential. The "if it's not broken, don't fix it" attitude does not promote the critical thinking necessary for growth. Continuous improvement is the only way to survive.

According to Diaz and Ruiz (2002), the definition of customer satisfaction is `an effective reaction to an accident during the dispensing of a service'. Complicating the level of satisfaction mean that customers may perceive a virtually identical service encounter in a variety of different ways.

In this circumstance, it is very crucial to understand the customer's behavioral. Organization definitely can't sustain the product or services without any information about customer's behavioral and needs. Therefore, customer satisfaction needs to be measured to obtain the level of expectation. One of the approaches to measure customer satisfaction is via measurement on level of importance and expectation toward service provide by organization (Report CSI JKR, 2009).

2.3.2 Customer Expectation and Perception

Customer normally will look forward the service that they should received when dealing delivery process experience. The totality of all those needs and preferences, both tangible and intangibles, which are customer brings to bear on the supplier services or goods. Needs and preferences are conceived by the customer and translated into a personalised list which associated with the proposed transaction. Expectations are really not well defined and may evolve as the transaction progresses.

The customer will expect to acquire from a service provider and can be define as customer expectation. They feel that service provider should offer more than what would offer (Hsieh & Yuan, 2010). According to Parasuraman et al. (1991), understanding customer expectation of a service played an important role for delivering satisfactory services. In AS 3906 – 2004, quality of services shows the guide to customer expectation. In many industries, the expectation and behaviour of today's customer are much different than 20 years ago. They are an increasing number of poor times, savvy and more demanding. Previous researcher had presented that how customer assess the performance of service provider based on a single level of expectation standard, which mean refer to should offer only. However past researcher had extended the conceptual model of expectation by pinpointing the critical element within customer expectation (Hsieh & Yuan, 2010).

Parasuraman et al. (1991) proposed that customer expectation comprise of two levels, which are desired expectation and adequate expectation (as shown in figure 2.1). Desired expectation is the level of service a customer hopes to received, in other word customer wanted service to be performed or delivered. It was a combination between what customer believed `can be' or `should be' whereas adequate expectation is minimum level of service performed acceptable by customer.

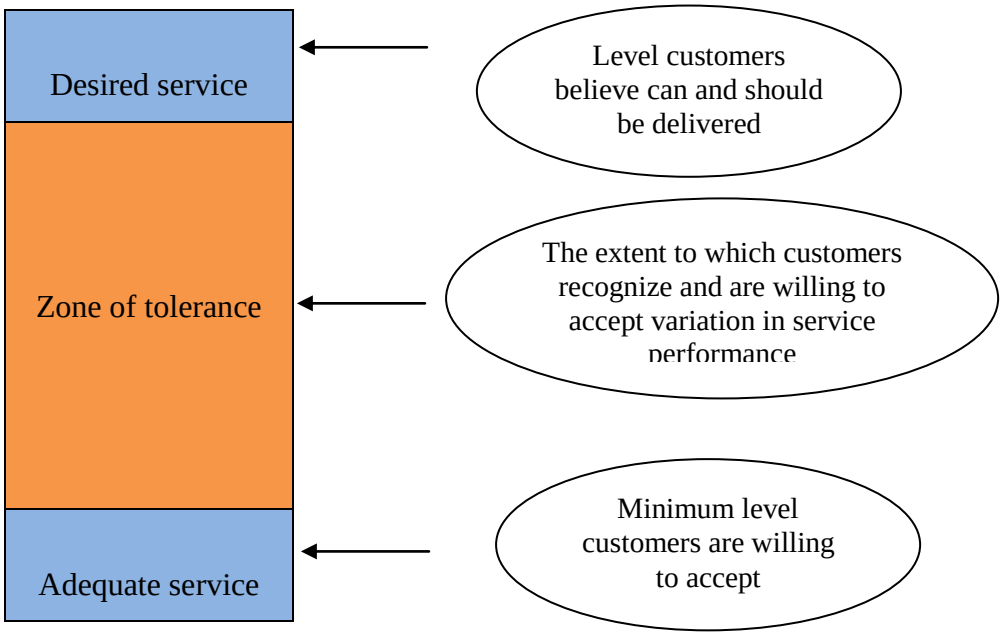


Figure 2.1 : Source, Parasuraman et al. (1991)

According to Gilbert et al. (1982), expectation has been defined as an individual's thought or belief of future performance of a service. They reflect anticipated performance. There are mainly influenced by personnel experience, word of mouth communication and the organization's external communication exercise. On the other hand, perceptions have been described as an individual's formed opinion of the experienced service, (Teas, 1993).

2.3.3 Customer Expectation Management

As we understand earlier, customers play an active participant role during service delivery experience. There is no doubt that managing customer expectation is important factor of service design. Hsieh and Yuan, (2008) had a study about customer expectation management and develop the conceptual framework (as shown in figure 2.2) to show that how service providers can employ further the formulation of service tactics to manage customer expectations during service delivery experience. According to Fitzsimmons and Fitzsimmons, (2006), there are interactions between the three roles which are service provider, contact personnel and customer in the service encounter.

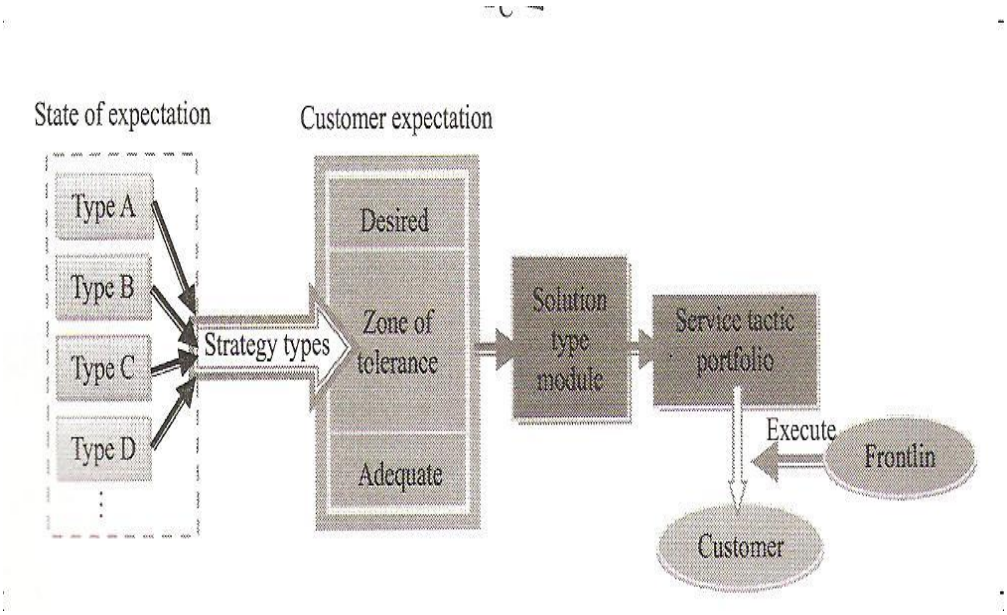


Figure 2.2 : Source : Hsieh & Yuan (2008)

2.3.4 Servqual GAP Analysis

Previous study provides evidence of differences between expectation and perception of the service quality (Parasuraman et al. 1994). Lewis and Mitchell, 1990, defined service quality as the difference between customer expectation

and customer perception of the service. Parasuraman et al. (1985) proposed that service quality is a function of the differences between expectation and performance along the quality dimensions. They developed a service quality model (figure 2.1) base gap analysis. The various gap visualised in the model are :

(1) Gap 1 : Difference between customers' expectation and management's perceptions of those expectation, i.e not knowing what customer expect

(2) Gap 2 : Difference between management's perceptions of customers' expectation and service quality specification, i.e improper service quality standards

(3) Gap 3 : Difference between service quality specification and service actually delivered, i .e the service performance gap

(4) Gap 4 : Difference between service delivery and external communications to consumers about service delivery, i.e whether promises match deliver?

(5) Gap 5 : Different between perceived service and expectation service, i.e service quality gap.

The main usage of gap scores is to enable the service manager to access current service quality and quantify gaps that existed. By using the service quality dimension, will give better understanding about the customers' expectations either high or low and assess of where there may be relatively large gaps. The result can use to focus on particular problem areas. It is also be used to provide an overall understanding of the relative importance from customer's perspective of the five service quality dimensions in terms of an individual service and across different service by using dimension weight, (Wisniewski, 2001). Gap analysis is useful to analyze the customers who have exactly similar needs. However, for those services that have different customer segments, it is useful for comparison. In these surveys, the customer would respond to a series of questions base on five (5) key of service dimensions which are reliability, responsiveness, assurance, tangible and empathy.

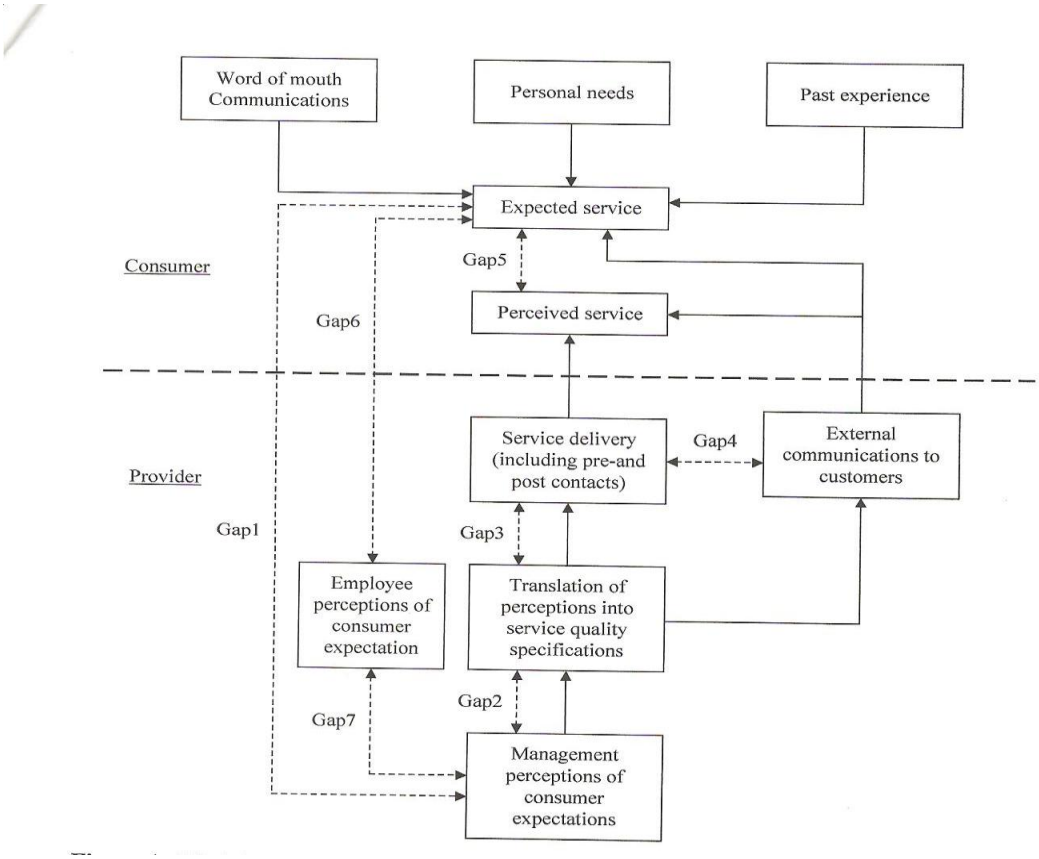


Figure 2.3 : Source : Gap Analysis by Parasuraman et al, (1985)

2.4 Conceptual Framework and Hypothesis Development

2.4.1 Conceptual model for service quality

Though the concept of service quality has been studied by many researchers for many years, but there is no agreeable about the standard conceptualization of service quality (Cronin and Taylor, 1982). Different researcher has different focused on the aspect of service quality. However, Robinson (1999) has concludes that "it is apparent that there is a little similarity and agreeable in terms of opinion but much disputable and disagreement about how to measure the service quality".

Based on all the arguments, many researchers were agreed and accepted that service quality is a comparison between expectations and perceptions of performance in delivery of the service. Perceived quality is the consumer's judgment about an entity's overall excellence or superiority (Zeithaml, 1987). It is clearly differs from objective quality as define by other researcher for instance Garvin (1983).

According to Parasuraman et al, (1988), service quality represents a customer's assessment of the overall level of service offered by an organization and Bitner et al, 1990; Johnston, 1995 said this assessment is often based on perceptions formulated during service encounter. Almost the service dimensions stated in the conceptual model relate to the human-interaction elements of service delivery regardless the technology. Thus, service quality as a product of service dimensions comprised of employee-related behaviors and organizational practices, facilities provided, have the capacity to influence service performance and customer satisfaction.

This study is to identify JKR customer expectation in project delivery service. The purpose is to analyze the relationships among service quality, service performance, and customer satisfaction within the context of the public sector and JKR as a case study. In order to measure the service quality, the most important thing is to identify the dimensions that shall be used in SERVQUAL model in order to get the precise result. Based on analysis on certain dimension used by previous studies, a conceptual framework was designed in order to initiate the study. The proposed conceptual model (as shown in Figure 2.4) is based on four (4) existing service factors, each of which has the largest group body of research. The service factors are:

(1) service quality
(2) service quality dimensions
(3) customer satisfaction
(4) service performance

Beside to improve levels of customer satisfaction (Parasuraman et al, 1991), Zeithaml and itner, (2000) revealed that service quality has also been shown to provide benefits in terms of differentiation. Meanwhile, Buzzell and Gale, (1987) agreed in market share, profitability and developing strategy (Gronroos, 2000). The proposed model use is adopted from the original SERVQUAL model developed by Parasuraman et al, (1988) and Agus et al, (2007). The SERVQUAL model is accepted as a standard model for assessing of various dimensions in service quality as said by Buttle, (1994), and based on the concept of service-quality "gaps" by Parasuraman et al, (1985, 1988).

Adopted from previous study, five (5) original service dimensions identified by Parasuraman et al. (1988) were used. The result showed from previous study these dimensions are appropriate and reliable and can measure service quality precisely in public sector. However the items shall be modified according to the environment and practicality of the department and type of service provided. For the purpose of this study, in measuring service quality in JKR, the similar dimensions will be used. The five dimensions are tangible, reliability, responsiveness, assurance and empathy. The researchers agree that not all service-quality determinants have the same finding and effect on customer quality perceptions and satisfaction. According to Agus et al., (2007), it can be modified accordingly to suit the organization profile especially in terms of items to assess.

The attributes for this study will be modified according to the role of JKR during project implementation. JKR is involved from early phase of project until completion and hand over to the customer. The phases involve in the project including planning, design, procurement, execution and closing. Every phases were involved all those five dimensions. All five dimensions in SERVQUAL model shall be cross reference to these project phases then items under phases within the dimension shall be measure. The items has been designed based on six quality dimensions where related and influent most in project phases. The items are time, cost, quality, safety, attitude and communication. These items also have some measurement under their smaller

items. By using the phases of the project will drive the customer more understanding and familiar on what measurement to be evaluate. The propose respondents for this study are from technical background so there are familiar enough about the project life cycle except for managerial level.

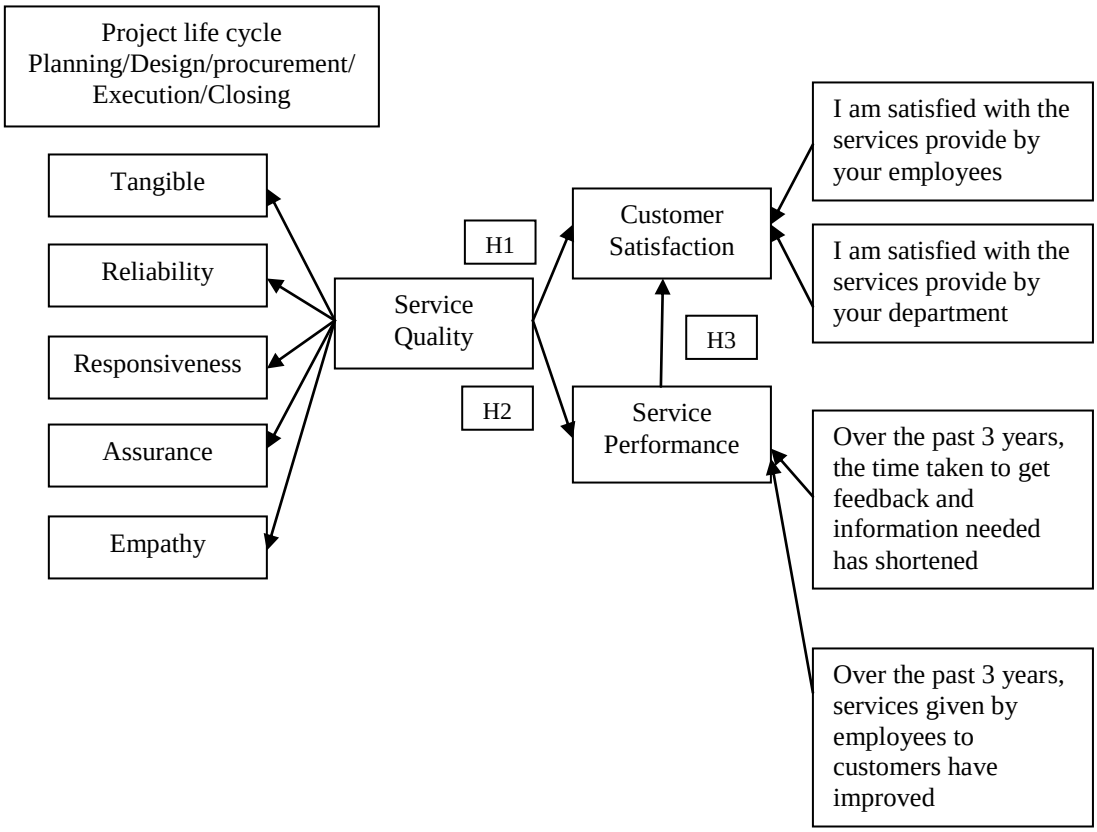


Figure 2.4 : Conceptual Model for SERVQUAL for study

2.4.2 Conceptual model SERVQUAL Gap analysis

The conceptual model presented for this study is based on service concept relationship which is widely recognized within the private sector. Therefore, the aim of this study is to test these relationships with the context of the JKR particularly and to public sector as general. However some modification has been made to the model to suit the policies, requirements, job descriptions, roles and responsibilities of the department.

For the purpose of the evaluation of the model, evaluation will be making perfectly base on five (5) service dimensions which are introduced by Parasuraman (1988) and tied up with dimensions which spell out in the conceptual model. For gap 1, market information gap refer to tangible, where related extensiveness of the information provided by JKR in the data base. Gap 2, service standards gap refer to reliability, where related to standardization of procedure provided and ability to performing the promised service dependably and accurately and conforming the procedures with zero defect. It includes "Doing it right the first time" as Japan philosophy, which is one of the most important service components for customer. Gap 3, service performance gap, even though service performance here is similar to the service performance at conceptual model for service quality, but here refer to measurement of knowledge and courtesy of employee and their ability to inspire, convey trust and confidence including competence, courtesy, credibility and security and professionalism of the JKR's officer. In the other word refer to assurance dimension. Whilst service performance in the concept model above refer to evaluation by customers' particularly base on the quality and speed of service delivery by department. Meanwhile, gap 4, internal communication gap refer to responsiveness, where related to willingness to help customer and provide a prompt service to customer such as quick respond to any issues raise by customer, quick service, professionalism in handling and recovering from mistakes especially professional communication. Lastly gap 5, where combination of the four (4) gaps above to become gaps which refer to empathy where these dimensions very crucial to ensure satisfaction and loyalty of the customer. This gap related to the provision of caring, individualised attention the firm provides to its customers including access, communication and understanding the customers. Hence, in order to find the precise result the appropriate model was designed adopted from Parasuraman (1988) (as shown in figure 2.5).

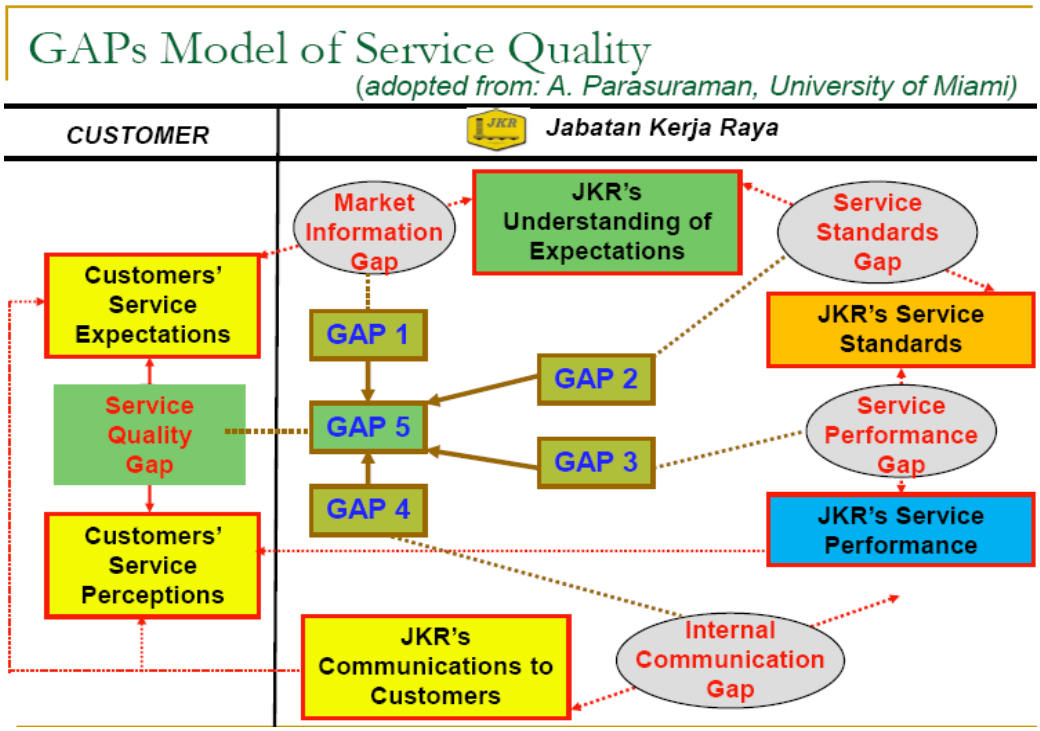


Figure 2.5 : Conceptual Model for Servqual GAP analysis

Reliable and customer satisfaction are two important elements for JKR to remain relevant. These two elements will influence JKR in future. The items will be used to measure service quality is consists of positive opinion about the service delivery, willing to give recommendation, encouraging to give JKR room of continuous improvement.

2.4.2.1 The discrepancy between customer expectation and customer perceptions in service delivery

Smith and Houstan (1982) claimed that satisfaction with services is related to confirmation or disconfirmation of expectations. They based their research on the disconfirmation paradigm, which maintains that satisfaction is related to the size. Brookes (1995) concurred that, expectancy disconfirmation theory is the dominant model for measuring customer satisfaction which is determined by the confirmation or disconfirmation of expectations with

perceptions of the perceived performance on various service items (Danaher and Haddrell, 1996).

Previous studies also provide evidence of differences between expectation and perceptions of service quality (Parasuraman et al., 1994). Rahman A. (2007) and Hashim et. Al (2009), also showed the result to prove that there are relationship between customer expectation and perception. In this relationship brought the scenario where different value of expectation and perception show the gap. The gap values represent the area need to be improved. The largest gap in negative value shows the criticalness of requirement for improvement.

2.5 Hypothesis development

The purpose of this study was to obtain a better understanding among service quality, customer satisfaction and service performance. The hypothesis development of this study was derived from previous studies and literature and design according to the service quality provided by JKR. There are three (3) hypotheses to be tested in this study related to service quality and conjunction to the conceptual model for SERVQUAL (as shown in figure 2.4):

H1 : That service quality positively influences customer satisfaction.
H2 : That service quality positively influences service performance
H3 : That service performance positively influences customer satisfaction

2.5.1 The relationship between service quality and customer satisfaction

Satisfaction can be considered at two levels: the transaction or encounter level and overall satisfaction (Bitner and Hubbert, 1994). Initially, Cronin and

Taylor (1992) hypothesized that satisfaction is an antecedent of service quality. However, their research with a multi-industry sample showed, in a LISREL analysis, an opposite relationship. Quality appears to be only one of the service factors contributing to the customer's satisfaction judgments' (Cronin and Taylor, 1992). Spreng and Mackoy (1996), who test a modified version of a model proposed by Oliver (1993), that sought to integrate the satisfaction and service quality literature. It is also provide support for service quality as being and forerunner to satisfaction. More recently, this relationship has also been confirmed from a study in a health-care setting by Deruyter et al. (1997), who also show that service quality should be treated as an forerunner of service satisfaction.

Iacobucci et al. (1995) conclude that the key difference between service quality and customer satisfaction is that quality relates to managerial delivery of the service while satisfaction reflects customers' experiences with that service. They argue that quality improvements that are not based on customer needs will not lead to improved customer satisfaction. Similar to Dick and Basu (1994), Anderson and Fornell (1994), Iacobucci et al. (1995), and Rust and Oliver (1994), "quality is one dimension on which satisfaction is based" and they view service quality as an antecedent to satisfaction. Bolton and Drew (1994) point out, customer satisfaction depends on preexisting or contemporaneous attitudes about the service quality." Bitner et al. (1994) and Anderson et al. (1994) also point to this link by suggesting that improved service quality will result in a satisfied customer and suggest that to a large extent this relationship is intuitive. Therefore, my first hypothesis is as follows:

H1 : That service quality positively influences customer satisfaction

2.5.2 The relationship between service quality and service performance

This relationship will show to what extend the every each of dimensions under service quality will effect the delivery of service performance. The

research will find the influences of each of dimensions to service performance and which dimensions will effect more to the service performance which is required for more attention to improve service performance delivery. Therefore, my second hypothesis is as follows:

H2 : That service quality positively influences service performance

2.5.3 The Relationship between Service Performance and Customer Satisfaction

In accordance with the conceptual model show in figure 2.4, customer satisfaction was measured in terms of department, employees and hardware and software. Whereas service performance measure in terms of time taken to obtain feedback, provide information and resolve customer problem and quality of the service provided by employee. Therefore, my third hypothesis is as follows:

H3 : That service performance positively influences customer satisfaction

2.6 Organization performance JKR

The need for change has driven initiative in public sector as pressure to improve performance. According Curry, 2001, based on report KPMG (1997), there are four factors influenced the change in public sector which are technology, customer expectations, economy and organizational pressure. Adapting the quality management is not easy in public sector. Drucker (1980) identified several steps to be taken such as :

(1) clear performance target
(2) increase of experimental attitude
(3) learning from experience through feedback or evaluation
(4) abandon unnecessary programs

The organization will be more effective, efficient, economic and contribute to quality as a whole when organization more focus to these four (4) key areas which stated in Audit Commission 1993, (Brysland & Curry, 2001) :

(1) Quality communication
(2) Quality of specification
(3) Quality of delivery
(4) Quality of people and system

Total Quality Management (TQM) programme in place are more customer-focused in their project management practices than those organizations with no TQM programme. Bryde & Robinson (2007) had done the study to explore the influent of the TQM programme on the level of focus in project management which refer to customer focused. Using Cronbach's alpha test, the result showed companies with TQM programme are more likely to be customer-focused in their practise for managing project. They made conclusion, organization might be able to use elements of a TQM programme to facilitate the introduction of the customer-focused in project management. For instance, establishing best-practise from one the findings of Taylor and Wright's study, if an organization wished to move towards a `partnership-type' approach project management that typical requires a high level of customer-focus (Winch et al., 1998).

2.6.1 JKR Vision

JKR vision is to become a world-class service provider and centre of excellence in asset management, project management and engineering services for the development of nation's infrastructure through creative and innovative human capital and state-of-the-art technology.

2.6.2 Role of JKR in Achieving National Mission (Vision 2020)

JKR role is to develop and deliver the national infrastructure in each of the five year Malaysia Planning in concurrent with National Mission (Vision 2020) agenda. As a technical advisor to the Malaysian government which contribute directly in nation-building through (Annual report, 2012):

- Helping their clients deliver policy outcomes and services through working with them as strategic partner
- Standardizing their processes and systems to deliver consistent outcomes
- Providing effective and innovative asset and project management
- Strengthening their existing engineering competencies
- Developing their human capital and new competencies
- Upholding integrity in delivering their services
- Build harmonious relationships with the community
- Taking good care of the environment in delivering their services

2.6.3 National Vision - Vision 2020

Wawasan 2020 or Vision 2020 is a Malaysian ideal introduced by the former prime minister of Malaysia, Tun Dr. Mahathir Mohammad during the tabling of the Sixth Malaysia Plan in 1991. The objective of the vision is to shift the current nation into developed country by 2020. The target is to develop the country in terms of national unity and social cohesion, economy, social justice, political stability, system of government, quality of life, social and spiritual values, national pride and confidence. By the year 2020, Malaysia should be a united nation, with a confident Malaysian society, infused by strong moral and ethical values, living in a society that is democratic, liberal and tolerant, caring, economically just and equitable, progressive and prosperous and in full possession of an economy that is competitive, dynamic, robust and resilient.

Under the development of the vision, Malaysia has identified nine central strategic challenges that will be confronted us from the moment of our birth as an independent nation which are:

(1) establishing a united Malaysian nation with a sense of common and shared destiny. This must be a nation at peace with itself, territorially and ethnically integrated, living in harmony and full and fair partnership, made up of one 'Bangsa Malaysia' with political loyalty and dedication to the nation.

(2) creating a psychologically liberated, secure, and developed Malaysian Society with faith and confidence in itself, justifiably proud of what it is, of what it has accomplished, robust enough to face all manner of adversity. This Malaysian Society must be distinguished by the pursuit of excellence, fully aware of all its potentials, psychologically subservient to none, and respected by the peoples of other nations.

(3) fostering and developing a mature democratic society, practicing a form of mature consensual, community-oriented Malaysian democracy that can be a model for many developing countries.

(4) establishing a fully moral and ethical society, whose citizens are strong in religious and spiritual values and imbued with the highest of ethical standards.

(5) establishing a matured, liberal and tolerant society in which Malaysians of all colours and creeds are free to practice and profess their customs, cultures and religious beliefs and yet feeling that they belong to one nation.

(6) establishing a scientific and progressive society, a society that is innovative and forward-looking, and one of that is not only a consumer of technology but also a contributor to the scientific and technological civilization of the future.

(7) establishing a fully caring society and a caring culture, a social system in which society will come before self, in which the welfare of the people will revolve not around the state or the individual but around a strong and resilient family system.

(8) ensuring an economically just society. This is a society in which there is a fair and equitable distribution of the wealth of the nation, in which there is full partnership in economic progress. Such a society cannot be in place so long as there is the identification of race with economic function, and the identification of economic backwardness with race.

(9) establishing a prosperous society, with an economy that is fully competitive, dynamic, robust and resilient.

2.6.4 10th Malaysia Plan

Under the 10th Malaysian Plan, current government has identified five thrusts with specific programmed to deliver the outcomes needed for the achievement of Vision 2020:

- To move the economy up the value chain
- To raise the capacity for knowledge and innovation and nurture first class mentality
- To address persistent socio-economic inequalities constructively and productively
- To improve the standard and sustainability of quality life
- To strengthen the institutional and implementation capacity

Therefore, as one of the government agencies that have been given mandate to develop national infrastructure, JKR Malaysia involved directly in implementing and delivering the above outcomes.

2.6.5 Strategic service quality improvement

In order to successfully implementing these vision 2020 programs especially 10th Malaysia Plan, JKR Malaysia under the new Director General Dato' Seri Ir. Hj. Mohd. Noor Bin Yaacob has roll out the second planned, JKR strategic Framework 2012 – 2015 as continuity from first strategic framework document planned for 2007-2010. The main purpose of rolling out this strategic framework is to maneuver the department into the right direction in executing their role thus helping the government to successfully implementing vision 2020. The main focus of this strategic framework is to meet customer's satisfaction by:

- Understanding and being sensitive to their needs
- Being friendly and helpful to them
- Listening attentively to what they say
- Being responsive to changes in their needs

By meeting the customer expectation, JKR Malaysia is hoping to be, a performance oriented organization focusing on achieving customer desired outcomes.

JKR exist to work as strategic partner with our clients to deliver outcomes of government projects and policies, be the leader in asset management and engineering excellence for the nation and deliver the nation's infrastructure. In order to JKR to stay relevant in their role, JKR have to deliver the good service. These days, several ministries and department, are not keen to engage JKR service in implementation of their projects. The strong reasons that they used is JKR can't deliver project on time as promised, poor in quality and incompetence personnel. JKR as a leading service provider believed that they can improve in all aspect. JKR has developed strategic objectives to emphasis on customer focus and customer loyalty under theme 2, Strategic Framework 2012-2015.

2.6.6 Five (5) strategic themes in JKR Strategic Framework

With the commitment vowed in the strategic framework, JKR Malaysia has thought and focused on five (5) strategic themes which can lead to customers' satisfaction. The five (5) strategic themes are:

(1) Outstanding project delivery

(2) Co-creative customer experience

(3) Centre of technical excellent

(4) Leading sustainability

(5) Innovative organization

To ensure all projects meeting customer needs by implementing the right methodologies. Figure 2.6 shows the interconnected relationship between one strategic theme to each other. As we can see in the figure, delighting customer is the main aim of the whole strategy map. By implementing all the eight (8) themes, JKR Malaysia is expecting to achieve the customer satisfaction.

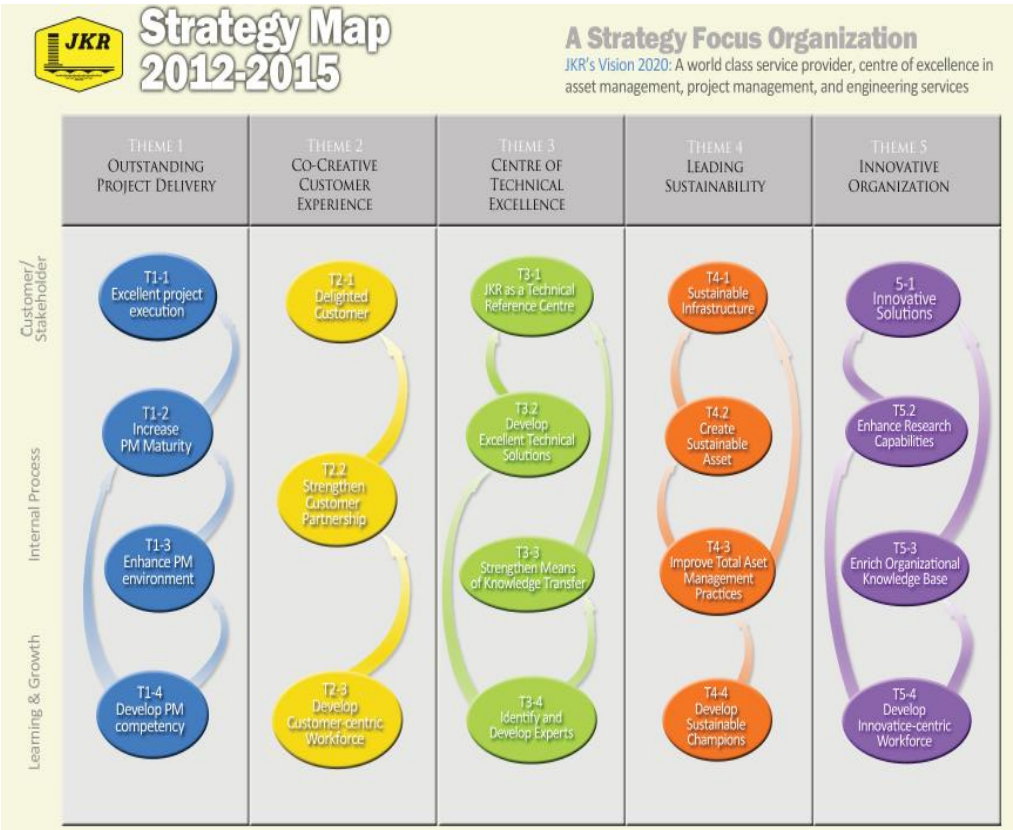


Figure 2.6 : Interconnected relationship between the 5 strategic themes

2.6.7 Meeting customer satisfaction approach

To ensure JKR keeping the quality first and sustain, JKR has develop the system called Sistem Pengurusan Kualiti (SPK). All the officers must use the system when managing the project to ensure standardization. The system becomes a tool for evaluating the JKR performance based on project delivery while for customer satisfaction, evaluated based on customer satisfaction index. To have continuous improvement based on customer focus, JKR has programme two types of survey to be conducted in every two years. The surveys that they conducted are:

(1) Customer (clients) satisfaction survey to identify the level of customer satisfaction

(2) Employee satisfaction survey where JKR created awareness on Customer Service Improvement Plan (CSIP) among our staff with the introduction of CSIP in JKR Senior Officers Conference in May 2007

JKR also established JKR one call centre for customer and the public for continuous improvement and this centre is running 24 hours per day. Moreover, JKR also created the room for public complaint in their website. The complaints will be entertained with three working days as per Customer Charter. For enhance the personnel competencies, JKR has include customer service as one of the subjects covered in induction course for new staff intakes starting in 2007. Furthermore, JKR also made and introduced the importance of soft skills for project managers in 2006.

2.6.8 JKR service performance

Recently JKR has conducted survey for both target participants to evaluate the performance of JKR based on project delivered for year 2011. Based on the survey, the result shows that the Customer Objectives

Achievement has been decreased year by year. In year 2008, the percentage show 98%, followed by 2009 96% and year 2010 and 2011, show the same result, 94% which is reduced 2% from a year before. That mean, JKR has failed to achieve overall Quality Objective Achievement. The result also shows that the worst phase in customer dissatisfaction is during design stage which could mean that the JKR doesn't not paying attention to customer requirement and needs as shown in figure 2.7.

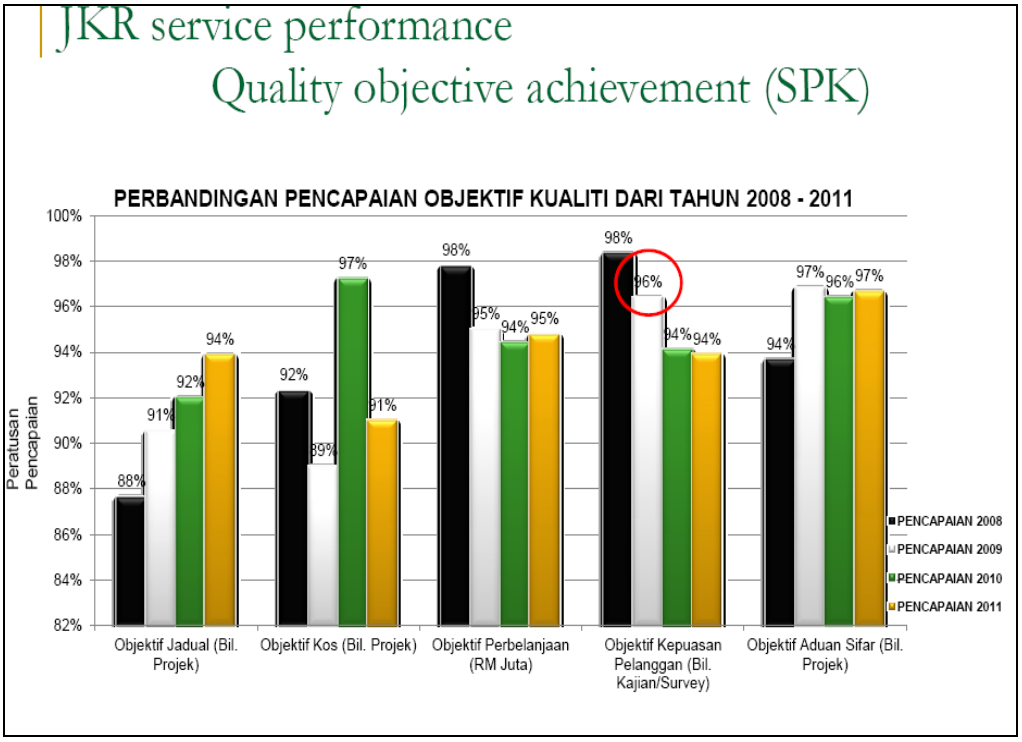
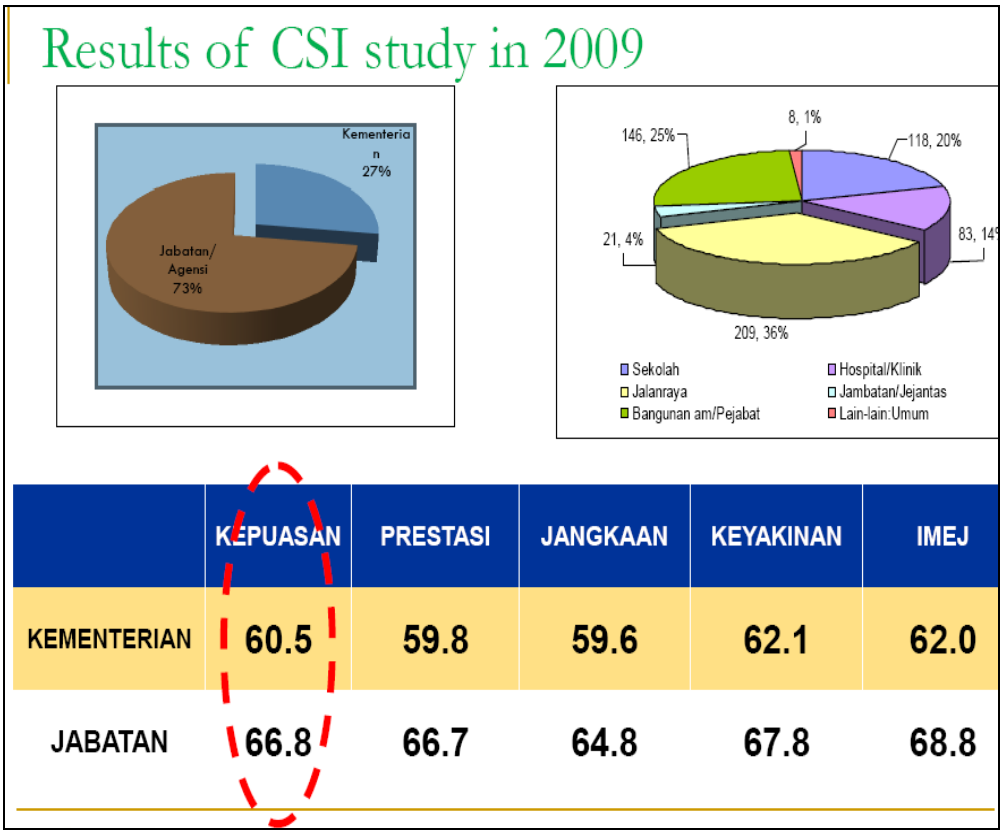


Figure 2.7 : Result for SPK 2011

In year 2009, JKR has conducted a survey for customer satisfaction index (CSI). The objective is to identify customer satisfaction towards the service of JKR. The survey was done in all ministries and departments. The result shows that only 60.5% for ministries and 66.8% for departments satisfied with JKR performance.

The result overall shows that level of satisfaction are moderate as shown in figure 2.8 and 2.9.



	KEPUASAN	PRESTASI	JANGKAAN	KEYAKINAN	IMEJ
KEMENTERIAN	60.5	59.8	59.6	62.1	62.0
JABATAN	66.8	66.7	64.8	67.8	68.8

Figure 2.8 : Result for CSI in 2009

Despite, JKR had implemented the framework to improve on the performance in delivering the projects, but until today there are several ministries and department are still not entrust JKR in total. Why is this happening? So this study will reveal the reason why JKR is still not meeting customer satisfaction despite the improvement that been made.

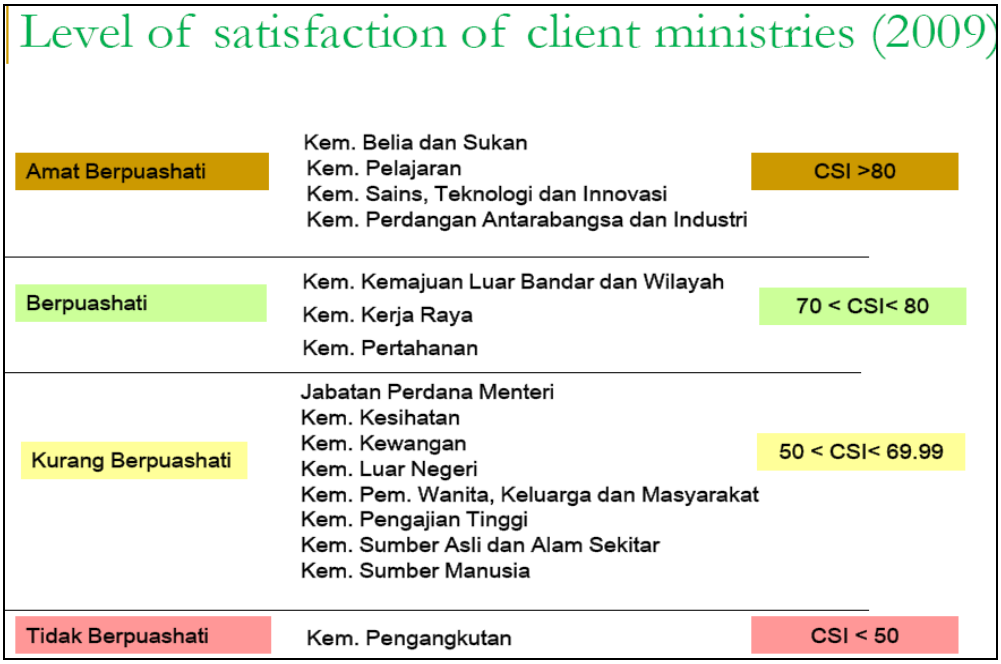


Figure 2.9 : Result for CSI in 2009

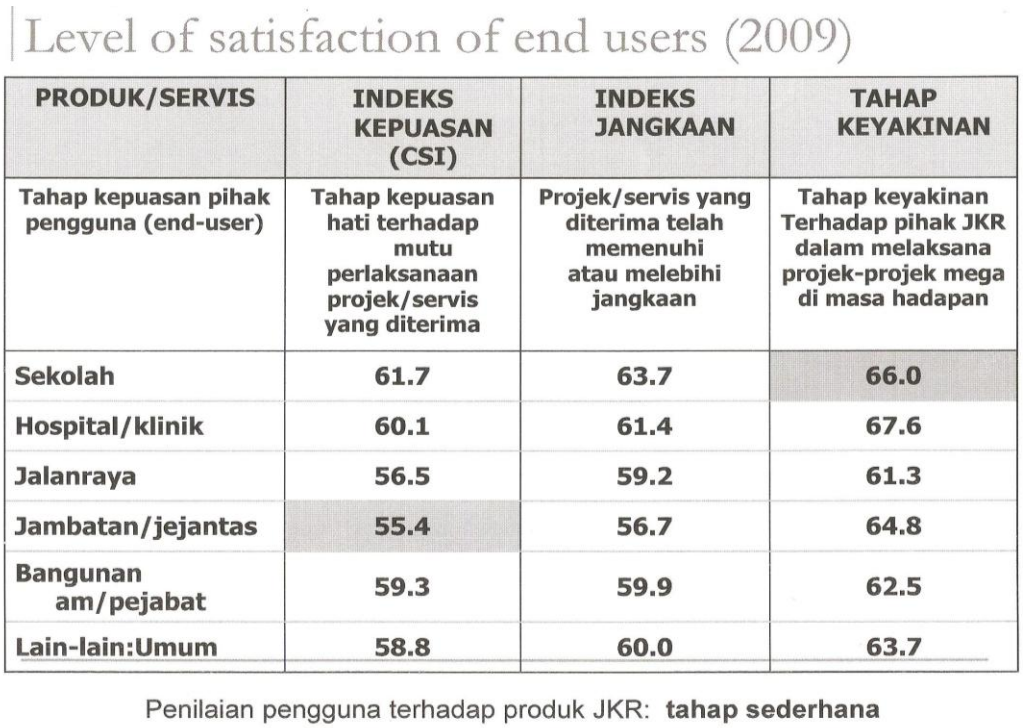


Figure 2.10 : Result for CSI in 2009

CHAPTER 3

METHODOLOGY

3.1 Introduction

The survey was conducted in the concept of service quality, customer satisfaction and service performance in JKR service and to indentify relationship between them which influent the service quality JKR as overall. To assess the current service quality provided by JKR, I adopted the service quality dimensions of Parasuraman et al. (1991) which are reliability, responsiveness, assurance, tangibles and empathy. However, all the five dimensions will be related to the project phase. The project phases are planning, design, procurement, execution/construction and handing over.

3.2 Data collection method

Data collection will be carry out by using a survey. The survey is considered as the fast and quick step in accessing information about the respondents. Survey is a research technique in which a sample is interviewed in some form or the sample's behavior is observed and described. The survey was done based on a listed questionnaires adopted from previous studies that has been done in public sector. This is because there are two different target respondents been identified. The questionnaire will be distributed to respected

respondents which identified earlier and the result of the survey will be analyzed. The questionnaire distributed by hand to respondent and together with a little bit explanation regarding the objectives of the research which was attempted to improve JKR services to encourage them to participate in the study.

3.3 Sampling Technique

Sampling is important to derive a good conclusion for a study. The probability sampling technique with simple random sampling approach has been choosing to carry out the data collection. This sampling technique is used because the population is known and the target respondents have been identified.

3.4 Targets respondents

The population or sampling unit in this study is manager level and technical unit in identified ministries whom directly engage JKR as service provider. Manager level means that the person identified who can decide to engage the JKR and preparing the budget. The personnel's are known as Chief Secretary (KSU or Ketua Setiausaha), Deputy Chief Secretary (TKSU or Timbalan Ketua Setiausaha) or Section Secretary (SUB or Setiausaha Bahagian). Whilst technical unit are those who are JKR staff posted in various ministries. The idea is to get picture of their role in ministries and personnel experience in ministries and personal opinion about the JKR. However for this study, the managerial level, who involved for this survey is SUB Pembangunan, who directly was involved in preparing budget and make recommendation for KSU approval. In other words, the role of SUB Pembangunan is to manage the financial of the Ministry and make recommendation whether to engage JKR or other parties.

The total ministries that been identified are 16 ministries from JKR's database which are directly engage JKR. The ministries are:

(1) Ministry of Foreign Affair
(2) Ministry of Tourism and Culture Malaysia
(3) Ministry of High Education
(4) Ministry of Energy, Green Technology and Water
(5) Ministry of Urban Wellbeing, Housing and Local Government
(6) Ministry of Works
(7) Ministry of Trade and Industry Malaysia
(8) Ministry of Agriculture
(9) Ministry of Defence
(10) Ministry of Natural Resources and Environmental
(11) Ministry of Federal Territories
(12) Ministry of Human Resources
(13) Ministry of Youth and Sports
(14) Ministry of Finance
(15) Ministry of Transport
(16) Ministry of Health

All ministries located in Klang Valley and Putrajaya which was chosen earlier for the purpose of the study. There are three personnel from managerial level and five personnel with professional background from technical unit at every selected ministry as target respondents.

3.5 Sample size

The sampling size for this study uses a simple random sampling approach. The sample size selection is based on level of decision maker on behalf of ministries and professional level. There are three (3) personnel from managerial level and five (5) personnel with professional background from technical unit at every selected ministry as target respondents. The

questionnaires were given personally to the respondents. However, the feedback are base on availability, willingness and agreeable of the respondents to participate in the survey. The total respondents are 128 persons as show in table 3.1 below:

Table 3.1 : Sample size

Item	Population	Estimate targets	Sample size
1	16 ministries		
2	Managerial level 3 x 16 = 48	48	**48**
3	Technical unit 5 x 16 = 80	80	**80**
	Total	**128**	**128**

3.6 Questionnaire development

The questionnaires were done in English in order to make fulfill the research objective. The questionnaires are consists of four (4) main sections. First section is the demographic detail related to respondent's background. Second section is consists of 49 questions related to service quality model. This section is where five (5) dimensions of service quality model are included which are reliability, responsiveness, assurance, tangible and empathy. All questions been prepared based on project implementation process that are planning stage, design stage, procurement stage, execution stage and handing over stage. The answer of each question shall be included in two difference angle which are customer perceived/perception and customer expectation. They will expect a gap between these two areas and the gap need to be assessed. By performing service quality gap analysis, the result is expected to show the desirable improvement in service quality. In related to five dimensions of service quality model that been explained above, there are question for every dimension. For reliability there are fourteen (14) questions to be answered, eleven (11)

questions for responsiveness, twelve (12) questions for assurance, eight (8) questions for tangible and four (4) questions for empathy. Third section consists of two parts, first part measuring customer satisfaction toward JKR whilst second part measuring performance level of JKR. There are nine (9) and six (6) questions in each part to be answered by respondents respectively. The last section is prepared for to comment and recommendation by respondents.

A seven-point of Likert Scale were used as measurement level. The measurement will make between sections II to section III which service quality, customer satisfaction and JKR performance whilst section IV, which are comment and recommendation will not measure at all. It will be used as supporting for the improvement. The seven-point scales ranging from '1' strongly disagree to '7' strongly agree. The scale seems to be valid and correct measurement as many previous researches has used to measure the topic on service quality, customer satisfaction and performance level (Rahim, 2009; Agus et al. 2007; Forsythe, 2008; Hashim, H., Rasid, S.Z.A. and Ismail W.K.W. ,2011).

3.6.1 Service Quality

Service quality consists of five dimensions namely reliability, responsiveness, assurance, tangibles and empathy. All dimensions are similar dimensions has been used by Rahim (2009), (2011), Hashim, H., Rasid, S.Z.A. and Ismail, W.K.W. (2011), JKR (2009), Agus et al. (2007) in their study.

Table 3.2 : Service quality dimension

Dimension	Question	Description	Sources
		Planning/Design/Procurement/Execution/ Handing Over	
Reliability	1	Timeliness for an appointment/meeting:	Rahim (2009), Hashim, H., Rasid, S.Z.A. and Ismail, W.K.W. (2011), JKR (2009), Agus et al. (2007)
	a	• Customer need statement review meeting	
	b	• Design coordination meeting	
	c	• Preparation/review/ up date Q-plan	
	2	Site visit by JKR's design team as schedule	
	3	Cost project suit to design and specification (value for money)	
	4	Concept design meet customer requirement and specification	
	5	Project documentation eg. working drawing and bills of quantities was prepared	
	a	• Comprehensive	
	b	• Clarity	
	c	• As per specification	
	6	Timeliness for an appointment/meeting :	
	a	• Technical and cost evaluation meeting	
	b	• Design coordination meeting	
	7	Design meets the function and performance as required by the clients	
	8	Frequent and effectiveness in handling technical meeting and site meeting	
	9	Project deliver as per schedule	
Responsive	1	Urgency to inform design changes/material (if any)	
	2	Progress reports submitted by JKR on schedule	
	3	JKR prompt action to refer to customer in the event of additional work involving additional cost	

Table 3.2 : Service quality dimension (continued)

Dimension	Question	Description	Sources
	4	JKR prompt action to respond if customer request for changes	Rahim (2009), Hashim, H., Rasid, S.Z.A. and Ismail, W.K.W. (2011), JKR (2009), Agus et al. (2007)
	5	Preparation or projected cash flow of project expenses by JKR	
	6	Regular maintenance plan by the contractor to customer are:	
	a	• Comprehensive and clarity	
	b	• Timeliness	
	c	• Comprehensive service	
	7	Officer responsive to the feedback from customer	
	8	Project status reported on schedule to customer	
	9	Imminence to give instruction to contractor or repairs if there are reports of damage	
Assurance	1	Adherence to the schedule of the construction phase and completion of the project by JKR	Rahim (2009), Hashim, H., Rasid, S.Z.A. and Ismail, W.K.W. (2011), JKR (2009), Agus et al. (2007)
	2	Schedule of testing submitted:	
	a	• Comprehensive	
	b	• Clarity	
	c	• Adherence to the execution schedule	
	3	Quality material used as per specification	
	4	Quality of work compliance to specification	
	5	JKR emphasizes issues related to the environment and the safety of consumers during the planning stage	
	6	Security monitoring of site by contractor	
	7	Monitoring and compliance to environmental requirement on site and surrounding areas	
	8	Project is save for used	

Table 3.2 : Service quality dimension (continued)

Dimension	Question	Description	Sources
	9	PWD officials involved in project management is competent	
	10	Selection of contractor/consultant base on expertise and experience	
Tangible	1	Software use for design such as AUTOCAD useful to customer	Rahim (2009), Hashim, H., Rasid, S.Z.A. and Ismail, W.K.W. (2011), JKR (2009), Agus et al. (2007)
	2	Preparing document tender evaluation using system is precise in selection of contractor	
	3		
	a	Software use for :	
	b	• Project monitoring such SKALA is efficient • Database up to date	
	4	Project management tool such as work programme and Critical Path Method	
	5	Software use for prepare payment is efficient and precise and useful to customer	
	6		
	7	Sistem Pengurusan Kualiti and Quality objective achieving the customer meeting in term of quality and requirement	
		Data keeping and as built drawing in system is secure	
Empathy	1	JKR officer accessible	Rahim (2009), Hashim, H., Rasid, S.Z.A. and Ismail, W.K.W. (2011), JKR (2009), Agus et al. (2007)
	2	Frequency JKR contact customer throughout the project/service	
	3	Prudent officer during the visit / pre-handing over inspection with client projects	
	4	JKR officer very professional during project implementation	

3.6.2 Customer Satisfaction

According to Churcill and Surprenant (1982), satisfaction is similar to an attitude, as it can assess as the sum of the satisfactions with various attributes of the product and service. However, while attitude is a pre-decision construct, satisfaction is a post-decision experience construct (LaTour and Peat, 1979). Satisfaction can be two levels; the transaction or encounter level and overall satisfaction (Bitner and Hubbert, 1994).

However, according to Levesque and McDougall (1996), satisfaction is conceptualized as an overall, customer attitude towards a service provider. Similarly, Andreassen and Lindestad (1998) claimed customer satisfaction is the accumulated experience of a customer's purchase and consumption experiences. It was therefore, client satisfaction develop in this paper will be measured through overall satisfaction toward the services.

Therefore in this study, customer satisfaction constructs where measured through overall satisfaction of customer on the department and their service offered (Bitner, 1990; Bolton & R.N & Drew. H.J, 1991). In this section, the degree of satisfaction towards service quality of JKR is set from 1 to 5. In addition, the translation of level ranking was analyzed follow criteria of customers' satisfaction designed by Best (1977:174) as table below.

Table 3.3 : Customer satisfaction ranking level

Score	Level of satisfaction
1.00 – 1.80	Lowest
1.81 – 2.61	Low
2.62 – 3.41	Average
3.42 – 4.21	Good
4.22 – 5.00	Very good

Table 3.4 : Customer satisfaction dimensions

Dimension	Question	Description	Sources
Customer satisfaction	1 a b c d e 2 3 4 5	I'm fully satisfied with JKR during : • Planning stage • Design stage • Procurement stage • Execution/construction stage • Handing over stage JKR always fulfills my expectation My experience with JKR are excellent JKR has never disappointed me so far Project delivery completely functional, aesthetic, easy maintenance, good workmanship and perfect finishing	Rahim (2009), Hashim, H., Rasid, S.Z.A. and Ismail, W.K.W. (2011), JKR (2009); Agus et al. (2007)

3.6.3 Service performance

For purpose of the evaluation of the service quality model, service performance is evaluated by customer on the basis of the quality and speed of service delivery and quick respond, (Agus et al, (2007). There are six (6) question suggested by Agus et al (2007), Rahim (2009) and Rasid, S.Z.A. and Ismail, W.K.W. (2011). Adopted from three those three researchers, the questions were measuring the effectiveness and efficiency of the JKR service delivery, prompt respond to the customer need and consistency of the improvement.

Table 3.5 : Service performance dimensions

Dimension	Question	Description	Sources
Service performance	1	JKR constantly improve the service	Rahim (2009), Hashim, H., Rasid, S.Z.A. and Ismail, W.K.W. (2011), JKR (2009)
	2	JKR provide feedback and information faster in recent years	
	3	Quality of service provided by JKR better from time to time	
	4	JKR staff competency is increasing from time to time	
	5	Procurement process more transparent recently	
	6	Documentation constantly improve and neat	

3.7 Validity/reliability of the data

To ensure all the questions are reliable and the dimensions used are suitable to this study, the validity and reliability need to be tested. The pilot test shall be conduct. Selection and sequence of questions has been done precisely according to the objective of the study. To test for reliability, internal consistency and stability of the measures, each measure was tested using Cronbach's alpha (Churchil, 1979). The result between 0.5 and 0.6 would be sufficed and should accept as the valid data and result also for service quality dimension as suggested by Nunnally (1978). On the other hand, for customer satisfaction and service performance, she suggested cutting off point is 0.70. According Sekaran (2003) reliability less than 0.6 is poor, 0.7 ranges are acceptable and those over 0.8 are considering good. Prior to the survey, the questionnaires were piloted to the selected ministries in October. Only six (6) ministries were chosen and involved only sixteen (16) respondents. The coefficient alpha or Cronbach's alpha was used to test the reliability of the data

for 16 respondents. The table below showed the ministries involved and the number of respondents.

Table 3. 6 : Pilot test's respondent

No	Ministry	Total respondent
1	Ministry of Health	2
2	Ministry of Education	3
3	Ministry of Transport	4
4	Ministry of Defense	1
5	Ministry of Works	4
6	Ministry of Foreign Affairs	2
	Total	**16**

The pilot test revealed that all the respondents really understood the questionnaires. Cronbach's alpha was calculated for the total of five (5) dimensions consists of 49 items. Result for the pilot test for all items measures is as Table 3.7. The coefficient alpha value is ranged within 0.843 to 0.977, where the lowest score is tangible whereas highest scores is empathy, meaning that the items were confirmed to have a good internal consistency for each construct (Yang and Jolly, 2008). The alpha values for study are 0.975 (good) for reliability, 0.936 (good) responsiveness, 0.974 (good) for assurance, 0.843 (good) for tangible, 0.977 (good) for empathy, 0.958 (good) for customer satisfaction and 0.950 (good) for service performance. The high result of Cronbach's alpha in the pilot study concluded that multi-item service quality scales were reliable measure. It was therefore reflect that no items to be deleted or amended. For the purpose of this study all the sixty (60) items had been use as a valid and reliable question to be used. The valid result allowed the researcher distributes the questionnaire to JKR customer. The respondents of this pilot survey will be use as part of main survey.

Table 3.7 : Cronbach alpha result

Dimensions	No of questions	Cronbach alpha value
Reliability	14	0.975
Responsiveness	11	0.936
Assurance	12	0.974
Tangible	8	0.843
Empathy	4	0.977
Customer satisfaction	5	0.958
Service performance	6	0.950

3.8 Plan of Analysis

Data collected will be analyzed by using SPSS statistical computer package version 17.0 application and SmartPLS software. Analysis will be consists of frequency analysis, cronbach alpha, descriptive analysis and structural equation modelling.

Frequency analysis is used to provide an overview of the respondent the pattern of respondent's profile.

Cronbach's alpha or coefficient alpha is used to view reliability and validity of the measurement. Descriptive analysis is used to analyse what are the perception of customers towards the service quality by JKR and how the service quality dimensions react to satisfaction and service performance. Besides using description statistics of means and standard deviation, gap analysis was used in comparing means between expectation and perception score of respondents.

Structural equation modelling-PLS or semPLS is multivariate regression models. They were employed to test the relationship between observed and latent variables. The SEM results demonstrate that the conceptual model

measurement that being implemented is suitable. The SEM been used to analyse how much service quality dimension described customer satisfaction and customer satisfaction described service performance. It also analyzes the relationship of JKR service quality and service performance are related each other.

Structural equation models (SEM) are very popular in many disciplines. The partial least squares (PLS) approach to SEM offers an alternative to covariance based SEM, which is especially suited for situations when data is abnormal distributed. PLS path modeling is referred to as soft–modeling–technique with minimum demands regarding measurement scales, sample sizes and residual distributions. The semPLS package provides the capability to estimate PLS path models within the R programming environment. Different setups for the estimation of factor scores can be used. Furthermore it contains modular methods for computation of bootstrap confidence intervals, model parameters and several quality indices. Various plot functions help to evaluate the model. The well known mobile phone dataset from marketing research is used to demonstrate the features of the package. Structural Equation Model-PLS or semPLS is used due to its capacity that can analyze more than 2 regressions with abnormal data distribution. SemPLS also can produce better prediction thus more precise result could obtain compare to normal SEM.

To measure validity of the data, average variance extracted (AVE = convergent validity) are well above the minimum required level of 0.50, thus demonstrating convergent validity and consider the acceptable value for model fit.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This chapter presents the analysis of the study consisting of respondent profiles, level of customers' perceived and expectation and analysis of customer satisfaction and service performance.

4.2 Frequency analysis

4.2.1 Respondents profile

Respondent profile for this survey consists of numerous personnel in managerial level and technical personnel in 16 ministries which identified earlier. The total questionnaires distributed were 128 questionnaires where every ministry has been distributed 8 questionnaires. There are three (3) questionnaires distributed to managerial level and five (5) questionnaires to technical personnel with professional background. However until analysis was done only 110 questionnaires were received and valid to be used which is 85.94% response rate. All respondents was answered all the questions given and generally the score recorded between `5' to `7'.

The profile survey cover the ministry which personnel working for, designation or grade, gender, age and how long experience with JKR. Frequency analysis showed the finding that all target respondents from 16 ministries respond to the questionnaires, however the number of respond received from each of ministries not achieved the target. Only 6 ministries returned all 8 questionnaires which are 37% whilst 11 ministries returned only 4 to 7 complete questionnaires. Mostly the respondents are senior officer which are J48 to JUSA level. Of the subject, only 12.7% respondents lower grade than J48, whilst J48 to JUSA contribute 87.3% of total respondents. All findings showed that there were more males' respondents compared to females which are 74% and 26% respectively. The largest age group was between 41 to 50 years old which 44% and followed by 51 to 60 years which 37%. About 87% of the respondents had experience with JKR more than 10 year. Table 4.1 shows the demographic of ministries involved in the survey and table 4.3 displayed in detail the demographic data.

Table 4.1 : Demographic JKR's customer

NO	MINISTRY	NO. OF RESPONDENTS	PERCENTAGE
1	Ministry of Foreign Country	8	7%
2	Ministry of Tourism and Culture Malaysia	8	7%
3	Ministry of High Education	7	6%
4	Ministry of Energy, Green Technology and Water	6	5%
5	Ministry of Urban Wellbeing, Housing and Local Government	8	7%
6	Ministry of Works	7	6%
7	Ministry of Trade and Industry Malaysia	8	7%
8	Ministry of Agriculture	7	6%
9	Ministry of Defence	7	6%
10	Ministry of Natural Resources and Environmental	7	6%
11	Ministry of Federal Territories	8	7%
12	Ministry of Human Resource	8	7%

Table 4.1 : Demographic JKR's customer (continued)

NO	MINISTRY	NO. OF RESPONDENTS	PERCENTAGE
13	Ministry of Youth and Sports	7	6%
14	Ministry of Finance	7	6%
15	Ministry of Transports	4	3.5%
16	Ministry of Health	3	3%

Table 4.2 : Demographic data of respondents profile

Respondent profile	skill	Frequency	Percentage
Grade	J41 – J44	14	12.7%
	J48 – J52	30	27.2%
	J54	29	26.3%
	JUSA C – JUSA A	37	33.6%
Gender	Male	74	67.3%
	Female	26	23.6%
Age	25 – 35 years	14	12.7%
	36 – 40 years	15	13.6%
	41 – 50 years	44	40.0%
	51 – 60 years	37	33.6%
Experience with JKR	Less than 5 years	0	0%
	5 – 10 years	14	12.7%
	10 – 15 years	36	32.7%
	More than 15 years	60	54.5%

4.3 Descriptive Analysis

4.3.1 Descriptive analysis for JKR service quality

There are five (5) dimensions under the SERVQUAL model has been used for this study. Many researchers also used this model to measure the service quality as shown in table 2.2. The SERVQUAL model has been applied in service and retailing organizations (Parasuraman et al. 1998; 1991). He also said that five (5) dimension provide diagnostic tool for organizations to identify weaknesses in their service delivery system. The table 4.3 shows the descriptive statistic of research constructs for JKR service quality as overall results whilst table 4.4 shows in specific items.

The mean range 7-point scales anchored by "strongly disagree" to "strongly agree". The average score for JKR service quality is 5.869. Standard deviation were noticed to be small (ranging from 0.871 to 1.040) which represents that the data are well dispersed and closely distributed to the mean. Whereas mean seems to be more various (from 5.822 to 5.912). Besides using descriptive analysis of mean and standard deviation, gap analysis was used in comparing means between expectation score and perception score of the respondents.

Table 4.3 : Descriptive Statistics

Dimension	N	Range	Min	Max	Mean	Standard Deviation	Variance
Reliability	110	4.71	2.14	6.86	5.8701	.87172	.760
Responsive	110	4.73	2.27	7.00	5.8975	.91790	.843
Assurance	110	4.42	2.58	7.00	5.9121	.89581	.802
Tangible	110	4.38	2.63	7.00	5.8432	.90336	.816
Empathy	110	4.75	2.25	7.00	5.8227	1.04010	1.082
Average					5.8690	.92578	
Satisfaction	110	4.67	2.11	6.78	5.9182	.90526	.819
Performance	110	5.17	1.83	7.00	6.1318	1.01269	1.026
Valid N listware no of respondents	110						

Table 4.4 : Descriptive analysis for JKR service quality. (n = 110)

Dimension	Item	Mean	Standard Deviation
Reliability	**Average score**	**5.870**	**0.872**
	Timeliness for an appointment/meeting:		
SQRL1	• Customer need statement review meeting	5.85	1.547
SQRL2	• Design coordination meeting	5.98	1.613
SQRL3	• Preparation/review/ up date Q-plan	5.99	1.577
SQRL4	Site visit by JKR's design team as schedule	5.96	1.294
SQRL5	Cost project suit to design and specification (value for money)	6.27	1.667
SQRL6	Concept design meet customer requirement and specification	5.87	1.279
	Project documentation eg. working drawing and bills of quantities was prepared		
SQRL7	• Comprehensive	5.87	1.326
SQRL8	• Clarity	5.97	1.382
SQRL9	• As per specification	6.15	1.474
	Timeliness for an appointment/meeting :		
SQRL10	• Technical and cost evaluation meeting	5.98	1.367
SQRL11	• Design coordination meeting	5.98	1.367

Table 4.4 : Descriptive analysis for JKR service quality. (n = 110) (continued)

Dimension	Item	Mean	Standard Deviation
SQRL12	Design meets the function and performance as required by the clients	5.91	1.308
SQRL13	Frequent and effectiveness in handling technical meeting and site meeting	6.15	1.436
SQRL14	Project deliver as per schedule	5.16	1.056
Total score		**82.180**	**12.208**
Responsive	**Average score**	**5.897**	**0.918**
SQRP1	Urgency to inform design changes/material (if any)	5.67	1.132
SQRP2	Progress reports submitted by JKR on schedule	5.89	1.383
SQRP3	JKR prompt action to refer the customer in the event of additional work involving additional cost	5.67	1.581
SQRP4	JKR prompt action to respond if customer request for changes	5.67	1.157
SQRP5	Preparation or projected cash flow of project expenses by JKR	5.90	1.272
SQRP6	Regular maintenance plan by the contractor to customer are:	5.58	1.182
SQRP7	• Comprehensive and clarity	5.64	1.222
SQRP8	• Timeliness • Comprehensive service	5.65	1.223
SQRP9	Officer respond to the feedback from customer	5.92	1.480
SQRP10	Project status reported on schedule to customer	5.83	1.374
SQRP11	Imminence to give instruction to contractor for repairs if there are reports of damage.	5.88	1.382
Total score		**64.867**	**10.098**
Assurance	**Average score**	**5.912**	**0.896**
SQAS1	Adherence to the schedule of the construction phase and completion of the project by JKR	5.75	1.238
	Schedule of testing submitted:		
SQAS2	• Comprehensive	5.96	1.450
SQAS3	• Clarity	5.92	1.575
SQAS4	• Adherence to the execution schedule	5.83	1.497
SQAS5	Quality material used as per specification	6.11	1.407
SQAS6	Quality of work compliance to specification	5.94	1.288

Table 4.4 : Descriptive analysis for JKR service quality. (n = 110) (continued)

Dimension	Item	Mean	Standard Deviation
SQAS7	JKR emphasizes issues related to the environment and the safety of consumers during the planning stage	5.89	1.225
SQAS8	Security monitoring of site by contractor	5.86	1.407
SQAS9	Monitoring and compliance to environmental requirement on site and surrounding areas	5.83	1.289
SQAS10	Project is save for used	6.13	1.623
SQAS11	PWD officials involved in project management is competent	6.01	1.544
SQAS12	Selection of contractor/consultant base on expertise and experience	5.71	1.171
Total score		**70.944**	**10.752**
Tangible	**Average score**	**5.843**	**0.903**
SQTG1	Software use for design such as AUTOCAD useful to customer	2.90	0.478
SQTG2	Preparing document tender evaluation using system is precise in selection of contractor	5.17	1.138
SQTG3	Software use for :		
SQTG4	• Project monitoring such SKALA is efficient	4.92	1.059
SQTG5	• Database up to date	5.12	1.320
SQTG6	Project management tool such as work programme and Critical Path Method	5.01	1.115
SQTG7	Software use for prepare payment is efficient and precise and useful to customer	4.42	0.932
SQTG8	Sistem Pengurusan Kualiti and Quality objective achieving the customer meeting in term of quality and requirement	5.75	1.258
	Data keeping and as built drawing in system is secure	5.31	1.046
Total score		**46.744**	**7.224**
Empathy	**Average score**	**5.822**	**1.404**
SQEM1	JKR officer accessible	5.56	1.453
SQEM2	Frequency JKR contact customer throughout the project/service	5.94	1.116
SQEM3	Prudent officer during the visit / pre-handing over inspection with client projects	6.28	1.483

Table 4.4 : Descriptive analysis for JKR service quality. (n = 110) (continued)

Dimension	Item	Mean	Standard Deviation
SQEM4	JKR officer very professional during project implementation	5.91	1.540
Total score		**23.288**	**5.616**
Overall score		**287.58**	**45.325**
Average score for JKR service quality		**5.869**	**0.925**

4.3.2 Descriptive analysis for customer satisfaction

There are five (5) questions for customer satisfaction base on previous study and suggested by Agus et al. (2007) and the highest score indicate highest level of satisfaction toward JKR service. The total score for customer satisfaction items is 53.262 and the average score is 5.918. Item that had the highest score is "I'm fully satisfied with JKR during procurement stage" (mean = 6.16; S.D = 1.569) whilst the item had the lowest score is "JKR has never disappointed me so far" (mean = 5.32; S.D =1.223). Table below shows the total descriptive analysis for customer satisfaction.

Table 4.5 : Descriptive analysis for customer satisfaction

Dimension	Item	Mean	Standard Deviation
Customer satisfaction	**Average score**	**5.918**	**0.905**
	I'm fully satisfied with JKR during :		
SAT1	• Planning stage	5.85	1.670
SAT2	• Design stage	5.75	1.210
SAT3	• Procurement stage	6.16	1.569
SAT4	• Execution/construction stage	5.59	1.862
SAT5	• Handing over stage	5.44	1.565
SAT6	JKR always fulfills my expectation	5.42	1.689
SAT7	My experience with JKR are excellent	5.66	1.589
SAT8	JKR has never disappointed me so far	5.32	1.223

Table 4.5 : Descriptive analysis for customer satisfaction (continued)

Dimension	Item	Mean	Standard Deviation
SAT9	Project delivery completely functional, aesthetic, easy maintenance, good workmanship and perfect finishing	5.64	1.779
Total score		**53.262**	**8.145**

4.3.3 Descriptive analysis for service performance

Service performance contains six (6) questions as used by Agus et al. (2007) and Rahim (2009) for their study with a little bit modification to suit the objective of this study. The average score for service performance is 6.13. Item "Procurement process more transparent recently" show the lowest score where mean is 5.29 and S.D is 1.013. Whilst item "JKR staff competency is increasing from time to time" show the highest score where mean is 6.06 and S.D is 1.436. Table 4.6 shows the descriptive analysis for service performance.

Table 4.6 : Descriptive analysis for service performance

Dimension	Item	Mean	Standard Deviation
Service Performance	**Average score**	**6.13**	**1.013**
PFM1	JKR constantly improve the service	5.75	1.463
PFM2	JKR provide feedback and information faster in recent years	5.74	1.547
PFM3	Quality of service provided by JKR better from time to time	5.68	1.522
PFM4	JKR staff competency is increasing from time to time	6.06	1.436
PFM5	Procurement process more transparent recently	5.29	1.342
PFM6	Documentation constantly improve and neat	5.48	1.353
Total score		**33.99**	**8.664**

4.3.4 Summary of descriptive analysis

Base on descriptive analysis the result show the mean and standard deviation of service quality dimensions, customer satisfaction and service performance. Table below show the result for service quality dimensions, that tangible is the lowest score while the highest score is assurance. In order to identify service quality dimension and their prioritization for improvement, the section II of the questionnaires, where five (5) dimensions of service quality model are included which are reliability, responsiveness, assurance, tangible and empathy need to be answered. The collected data was tabulated in the same manner and highest means scores considered as the priority to improve. The result shows that assurance (5.91) is the highest score follow by responsive (5.89), reliability (5.87), tangible (5.84) and empathy (5.822).

Table 4.7 : Summary of descriptive analysis for mean and standard deviation

Dimension	Mean	Standard Deviation
Reliability	5.870	0.872
Responsiveness	5.897	0.918
Assurance	5.912	0.896
Tangible	5.843	0.903
Empathy	5.822	1.040
Customer satisfaction	5.918	0.905
Service performance	6.132	1.013
n = 110		

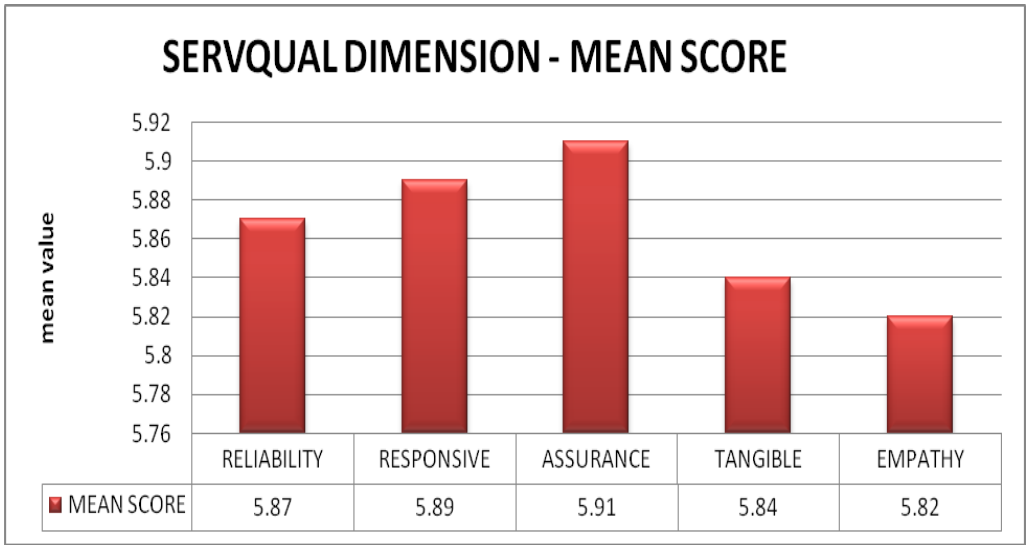


Figure 4.1 : The result of mean score

4.4 SERVQUAL Gap Analysis

An important tool developed by Parasuraman et al. (1998) to assessing service quality is SERVQUAL. The SERVQUAL survey has two parts which are perception and expectation of the customer. The most beneficial of the SERVQUAL instrument is to identify weaknesses of the service provided by organization. It's also can show the area need improvement. The result shows the gap between the customer perception and customer expectation. The largest gap meaning the seriousness needs improvement.

These service quality gaps were calculated by subtracting respondents' expectation from their perceptions (P – E). A negative service quality gap indicates respondents' expectations are greater than their perceptions while a positive service quality gap indicates respondents' perceptions exceed their expectation. Data received from section II of the questionnaires, where there are two difference angles which are customer perception and customer expectation expected to be answered. From the data collected, SEVQUAL gap analysis has been performed. This analysis will help the organization in detecting weak spots in their service and allowed them to prioritise their resources to improve

the most critical service. Then negative value show that the expectation higher than perception. Table 4.8 shows SERVQUAL means by ranking.

Table 4.8 : SERVQUAL mean score by ranking

Dimension	Perception (P)	Expectation (E)	Ranking (P)	Ranking (E)
Reliability	5.87	6.35	3	1
Responsive	5.89	6.17	2	4
Assurance	5.91	6.26	1	3
Tangible	5.84	5.07	4	5
Empathy	5.82	6.30	5	2

As shown in the table 4.9 below, the result show that reliability (-0.48) and empathy have the largest gap and followed by assurance, responsive and tangible. As a result, reliability and empathy are the critical area that needs to be improved. The overall SERVQUAL scores for the JKR were - 0.15. The negative value which indicates generally respondents' expectation is higher than their perception of its service quality. In other words, this situation revealed that the service performance of the JKR was not meeting the expectations of their customer.

Table 4.9 : SERVQUAL Gap analysis

Dimension	Perception (P)	Expectation (E)	SERVQUAL Gap (P-E)	Ranking	Result
Reliability	5.87	6.35	- 0.48	1	Dissatisfied
Responsive	5.89	6.17	- 0.28	4	Dissatisfied
Assurance	5.91	6.26	- 0.35	3	Dissatisfied
Tangible	5.84	5.07	0.77	5	Satisfied
Empathy	5.82	6.30	- 0.48	2	Dissatisfied
Overall	5.86	6.02	- 0.15		
Note :Gap = significant at	*Perception 0.05 level*	*-Expectation*			

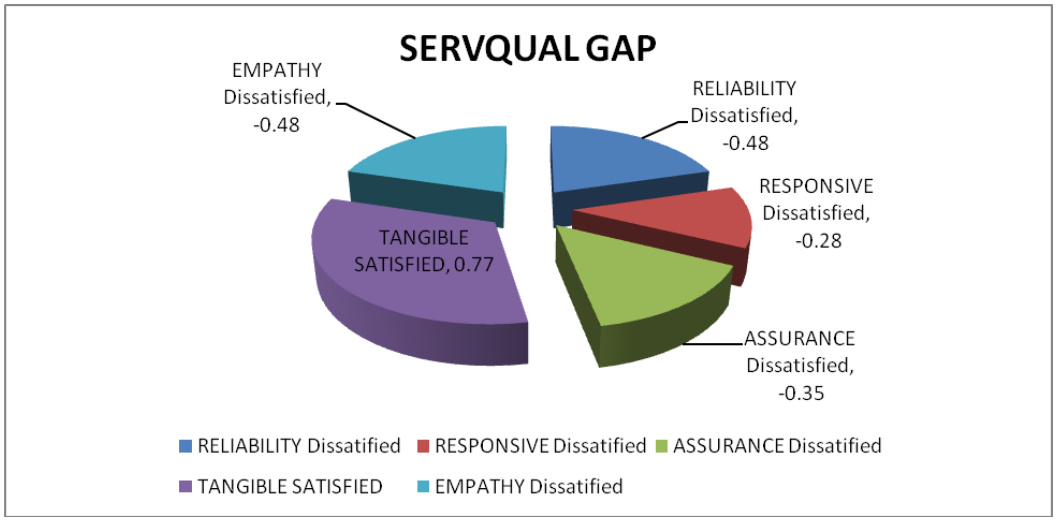


Figure 4.2 : Result of SERVQUAL gap analysis

Prior to the SERVQUAL gap analysis model for this study explained in 2.4.2, the dimension reliability which have a largest gap represent gap 2 where related to service standard. Here, very important for JKR to continuously study and review in certain period to make enhance the standard procedure in order to fulfill the customer expectation. Whilst empathy which also have a largest gap where represent gap 5. Gap 5 is combination of four (4) gap listed which are market information, service standard, service performance and internal communication. As overall, it is back bone to the whole system of service quality. Prior to that JKR need to continuously study the customer needs and entertain the customer respond and frequently do the survey and ensure feedback form were distributed to the customer.

4.5 Measurement Model

In order to analyze the data from measurement and structural evaluation, steps and criteria proposed by Hair, Ringle, & Sarstedt (2011) were followed by means of SmartPLS software (Ringle, Wende, & Will, 2005). To evaluate reflectively measured models, this study examine the outer loadings, composite reliability (CR), average variance extracted (AVE = convergent validity) and discriminant validity. Accordingly, I run the PLS algorithm to obtain

information to evaluate Reflective Measurement Models. As shown in below table and figure 1 all outer loadings of the reflective constructs are well above the minimum threshold value of 0.6 except SQA12, SQRL4 and SQRL5 were deleted due to low loading. Additionally, all three reflective constructs have high levels of internal consistency reliability, as demonstrated by the above composite reliability values. The AVE values (convergent validity) are well above the minimum required level of 0.50, thus demonstrating convergent validity for all three constructs.

Table 4.10 : Construct Validity

Construct	Item	Loading	AVE[a]	CR[b]	Cronbachs Alpha
SQA[c]	SQA1	0.833	0.618	0.947	0.937
	SQA2	0.771			
	SQA3	0.744			
	SQA4	0.725			
	SQA5	0.784			
	SQA6	0.794			
	SQA7	0.849			
	SQA8	0.843			
	SQA9	0.802			
	SQA10	0.835			
	SQA11	0.643			
SQEM	SQEP1	0.861	0.757	0.926	0.893
	SQEM2	0.866			
	SQEM3	0.839			
	SQEM4	0.913			
SQRE[c]	SQRL1	0.853	0.629	0.953	0.946
	SQRL2	0.793			
	SQRL3	0.776			
	SQRL6	0.714			
	SQRL7	0.770			
	SQRL8	0.766			
	SQRL9	0.777			
	SQRL10	0.840			
	SQRL11	0.834			
	SQRL12	0.839			
	SQRL13	0.792			
	SQRL14	0.746			
SQRP	SQRP1	0.758	0.633	0.950	0.941
	SQRP2	0.748			
	SQRP3	0.840			

Table 4.10 : Construct Validity (continued)

Construct	Item	Loading	AVE[a]	CR[b]	Cronbachs Alpha
	SQRP4	0.800			
	SQRP5	0.884			
	SQRP6	0.821			
	SQRP7	0.835			
	SQRP8	0.871			
	SQRP9	0.725			
	SQRP10	0.675			
	SQRP11	0.769			
SQTG	SQTG1	0.739	0.666	0.941	0.928
	SQTG2	0.863			
	SQTG3	0.735			
	SQTG4	0.836			
	SQTG5	0.842			
	SQTG6	0.842			
	SQTG7	0.824			
	SQTG8	0.839			
SAT	SAT1	0.782	0.680	0.950	0.941
	SAT2	0.846			
	SAT3	0.797			
	SAT4	0.838			
	SAT5	0.843			
	SAT6	0.886			
	SAT7	0.863			
	SAT8	0.824			
	SAT9	0.734			
PFM	PFM1	0.867	0.725	0.940	0.922
	PFM2	0.920			
	PFM3	0.885			
	PFM4	0.906			
	PFM5	0.711			
	PFM6	0.800			

Notes: a) Average variance extracted (AVE) = (summation of the square of the factor loadings)/{(summation of the square of the factor loadings) + (summation of the error variances)}
b) Composite reliability (CR) = (square of the summation of the factor loadings)/{(square of the summation of the factor loadings) + (square of the summation of the error variances)}
Note: c) SQA12, SQRL4 and SQRL5 were deleted due to low loading.

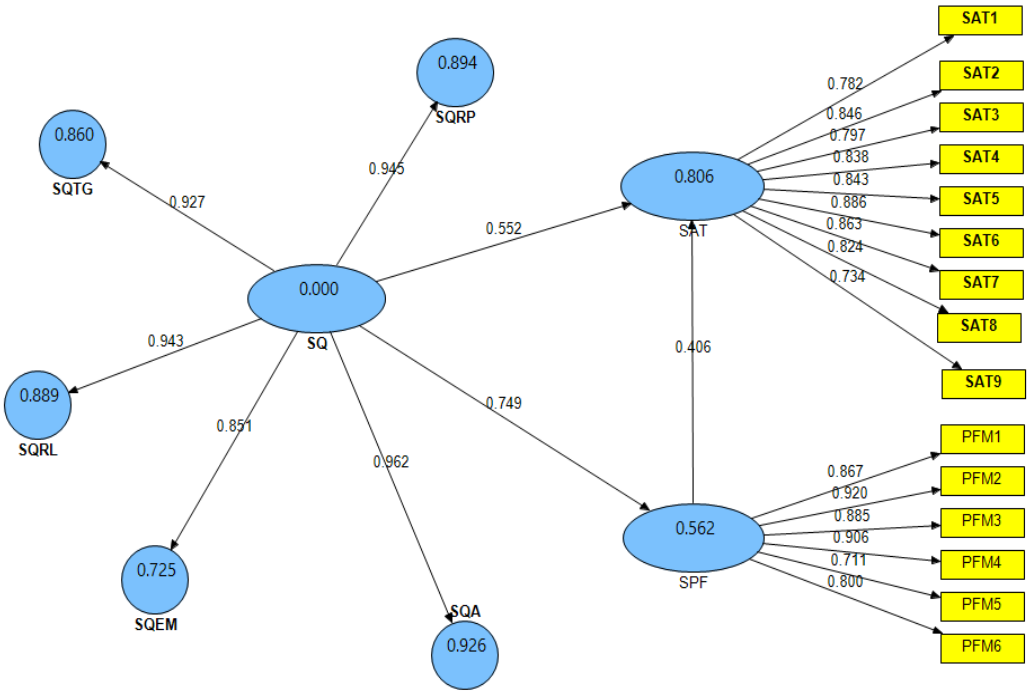


Figure 4.3 : Measurement Model

Table 4.11 : Discriminant Validity

Construct	SAT	SPF	SQ	SQEM	SQRL	SQRP	SQTG
SAT	**0.825***						
SPF	0.673	**0.851**					
SQ	0.534	0.562	**0.744**				
SQEM	0.454	0.519	0.569	**0.870**			
SQRL	0.542	0.435	0.294	0.036	**0.793**		
SQRP	0.647	0.557	0.418	0.175	0.175	**0.796**	
SQTG	0.683	0.485	0.466	0.217	0.217	0.047	**0.816**

***Note:** Diagonals (Numbers in bold) represent the average variance extracted (AVE) while the other entries represent the squared correlations. The off-diagonal values in the above matrix are the correlations between the latent constructs.

The off-diagonal values in the above matrix are the correlations between the latent constructs. Table 3 shows that indicate there is discriminant validity between all the constructs. Moreover, refer to table 4, comparing the loadings across the columns in the above matrix indicates that an indicator's loadings on its own construct are in all cases higher than all of its cross loadings with other

constructs. The results indicate there is discriminant validity between all the constructs based on the cross loadings criterion.

Table 4.12 : Loadings and Cross Loadings

Construct	SAT	SPF	SQA	SQEM	SQRL	SQRP	SQTG
SAT1	**0.782**	0.580	0.667	0.680	0.607	0.659	0.742
SAT2	**0.846**	0.613	0.665	0.804	0.576	0.635	0.657
SAT3	**0.797**	0.579	0.683	0.714	0.562	0.620	0.670
SAT4	**0.838**	0.659	0.644	0.823	0.614	0.697	0.644
SAT5	**0.843**	0.634	0.665	0.695	0.618	0.649	0.732
SAT6	**0.886**	0.755	0.739	0.770	0.630	0.717	0.699
SAT7	**0.863**	0.721	0.770	0.708	0.677	0.719	0.774
SAT8	**0.824**	0.718	0.660	0.695	0.593	0.639	0.631
SAT9	**0.734**	0.799	0.581	0.556	0.575	0.621	0.578
PFM1	0.758	**0.867**	0.640	0.644	0.631	0.701	0.641
PFM2	0.704	**0.920**	0.566	0.611	0.551	0.652	0.601
PFM3	0.750	**0.885**	0.576	0.680	0.556	0.626	0.589
PFM4	0.784	**0.906**	0.668	0.695	0.570	0.654	0.659
PFM5	0.592	**0.711**	0.542	0.508	0.512	0.570	0.529
PFM6	0.563	**0.800**	0.538	0.511	0.544	0.599	0.517
SQA1	0.711	0.672	**0.833**	0.689	0.772	0.841	0.722
SQA10	0.654	0.568	**0.835**	0.662	0.759	0.694	0.730
SQA11	0.440	0.293	**0.643**	0.424	0.507	0.449	0.526
SQA12	0.252	0.240	**0.378**	0.231	0.316	0.218	0.273
SQA2	0.729	0.636	**0.771**	0.664	0.712	0.508	0.524
SQA3	0.679	0.631	**0.744**	0.684	0.626	0.739	0.668
SQA4	0.561	0.495	**0.725**	0.587	0.575	0.648	0.723
SQA5	0.721	0.585	**0.784**	0.692	0.706	0.710	0.728
SQA6	0.631	0.472	**0.794**	0.592	0.678	0.585	0.663
SQA7	0.670	0.529	**0.849**	0.618	0.764	0.693	0.687
SQA8	0.600	0.541	**0.843**	0.609	0.764	0.639	0.676
SQA9	0.643	0.505	**0.802**	0.619	0.729	0.664	0.682
SQEM2	0.768	0.650	0.736	**0.866**	0.678	0.677	0.782
SQEM3	0.658	0.540	0.581	**0.839**	0.540	0.610	0.576
SQEM4	0.799	0.621	0.684	**0.913**	0.644	0.664	0.699
SQEP1	0.784	0.682	0.751	**0.861**	0.672	0.742	0.716
SQRL1	0.643	0.579	0.805	0.679	**0.853**	0.706	0.699
SQRL10	0.629	0.561	0.707	0.586	**0.840**	0.677	0.647
SQRL11	0.574	0.482	0.666	0.524	**0.834**	0.698	0.653
SQRL12	0.548	0.559	0.704	0.585	**0.839**	0.756	0.637
SQRL13	0.587	0.543	0.745	0.577	**0.792**	0.786	0.685
SQRL14	0.525	0.505	0.630	0.485	**0.746**	0.723	0.525
SQRL2	0.579	0.549	0.735	0.622	**0.793**	0.634	0.636

Table 4.12 : Loadings and Cross Loadings (continued)

Construct	SAT	SPF	SQA	SQEM	SQRL	SQRP	SQTG
SQRL3	0.549	0.453	0.608	0.551	**0.776**	0.687	0.583
SQRL6	0.370	0.389	0.565	0.437	**0.714**	0.579	0.552
SQRL7	0.617	0.511	0.739	0.596	**0.770**	0.649	0.717
SQRL8	0.702	0.545	0.751	0.702	**0.766**	0.682	0.712
SQRL9	0.640	0.572	0.719	0.586	**0.777**	0.706	0.696
SQRP1	0.550	0.466	0.641	0.518	0.733	**0.758**	0.621
SQRP10	0.587	0.572	0.633	0.598	0.562	**0.675**	0.583
SQRP11	0.680	0.627	0.733	0.654	0.685	**0.769**	0.752
SQRP2	0.536	0.543	0.644	0.590	0.703	**0.748**	0.554
SQRP3	0.607	0.568	0.711	0.601	0.735	**0.840**	0.685
SQRP4	0.654	0.643	0.721	0.603	0.734	**0.800**	0.653
SQRP5	0.735	0.646	0.726	0.673	0.730	**0.884**	0.746
SQRP6	0.695	0.667	0.734	0.686	0.691	**0.821**	0.660
SQRP7	0.683	0.630	0.786	0.649	0.710	**0.835**	0.742
SQRP8	0.699	0.612	0.670	0.654	0.701	**0.871**	0.699
SQRP9	0.587	0.542	0.609	0.560	0.638	**0.725**	0.553
SQTG1	0.695	0.614	0.777	0.639	0.731	0.680	**0.739**
SQTG2	0.704	0.545	0.717	0.618	0.668	0.729	**0.863**
SQTG3	0.512	0.358	0.534	0.450	0.485	0.498	**0.735**
SQTG4	0.756	0.636	0.790	0.741	0.689	0.731	**0.836**
SQTG5	0.599	0.536	0.702	0.626	0.641	0.638	**0.842**
SQTG6	0.599	0.536	0.702	0.626	0.641	0.638	**0.842**
SQTG7	0.710	0.599	0.759	0.768	0.727	0.711	**0.824**
SQTG8	0.770	0.666	0.757	0.712	0.705	0.759	**0.839**

Note*: Bold values are loadings for items which are above the recommended value of 0.5

Value from section II and III of questionnaires then, been assessed to determine significant relationship between variables. Section II for service quality dimensions while section III for customer satisfaction and service performance. This study is to analyze the relationship among service quality, service performance and customer satisfaction within the context of the JKR service. Structural Equation Model-PLS or semPLS is used due to its capacity that can analyze more than 2 regressions with abnormal data distribution. SemPLS also can produce better prediction thus more precise result could obtain compare to normal SEM. Measurement model was develop to assess the reliability and validity of the data and finally structural model develop to test the hypothesis.

There are three (3) hypotheses to test which are:

H1 : That service quality positively influences customer satisfaction

H2 : That service quality positively influences service performance

H3 : That service performance positively influences customer satisfaction

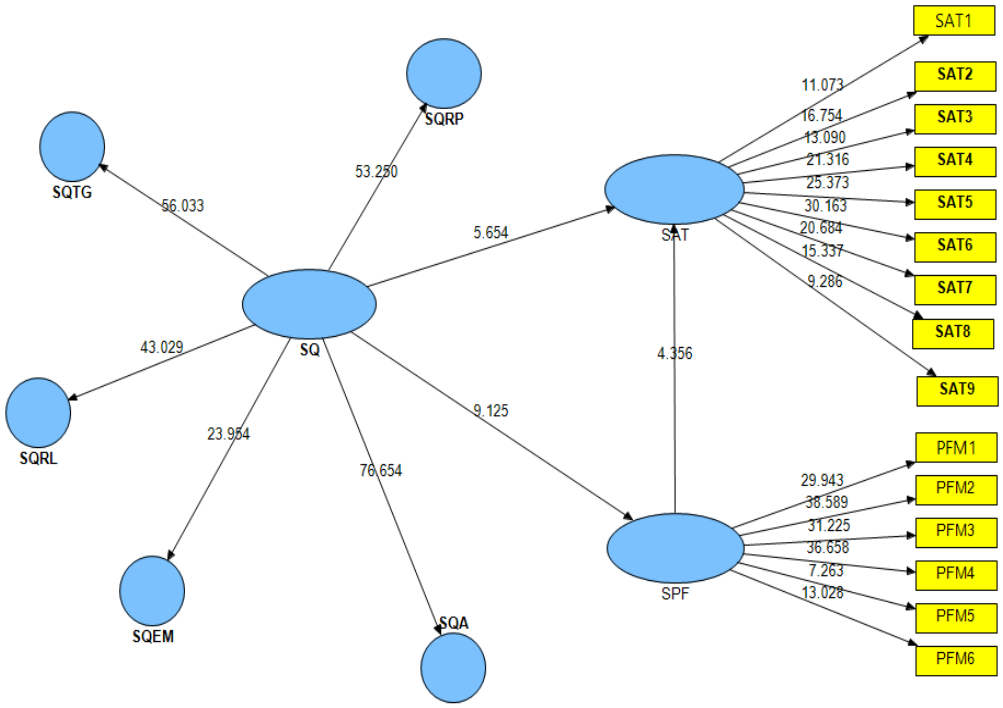


Figure 4.4 : Structural Model

As shown in below table, Hypothesis 1 (SQ -> SAT) with Path Coefficient =0.552, Standard Error= 0.098 and T-Statistics =5.654 was Supported. Hypothesis 2 (SQ -> SPF) Path Coefficient = 0.749, Standard Error= 0.082 and T-Statistics=9.125 was Supported. Additionally, hypothesis 3 (SPF -> SAT) with Path Coefficient = 0.406, Standard Error= 0.093 and T-Statistics=4.356 was Supported.

As a result, the value show there is strong significant between service quality and service performance (9.125), followed by strong relationship between service quality and customer satisfaction (5.654) and between service

performance and customer satisfaction (4.356). Overall result shows in the table below.

Table 4.13 : Structural Model for hypotheses result

Hypothesis	Path	Path Coefficient	Standard Error	T-Statistics	Decision
H1	SQ -> SAT	0.552	0.098	5.654*	Supported
H2	SQ -> SPF	0.749	0.082	9.125*	Supported
H3	SPF -> SAT	0.406	0.093	4.356*	Supported

*t-Statistic > 2.58 (sig. level = 1 %)

R^2 values of 0.75, 0.50, or 0.25 for endogenous latent variables in the structural model can be described as substantial, moderate, or weak, respectively and use bootstrapping to assess the path coefficients' significance (Hair et al., 2011). The minimum number of bootstrap samples is 5,000, and the number of cases should be equal to the number of observations in the original sample. Critical t-values for a two-tailed test are 1.65 (significance level = 10 percent), 1.96 (significance level = 5 percent), and 2.58 (significance level = 1 percent) as shown in above table.

Table 4.14 : R value and Q value

Endogenous Construct	R	Q^2
SAT	0.806	0.508
SPF	0.562	0.367

4.6 Comment and recommendation

There some comment and recommendation written by respondent. All comment and recommendation will not measure or used for measurement but it useful as supporting for part of planning for improvement.

4.6.1 Comment

Table 4.15 : Comment by respondents

No.	Planning Phase
1	Involvement end user needed
2	Planning only essential project and consider locality needs
3	Satisfy
4	Good
5	Enough time frame to do comprehensive study
No.	Design Phase
1	Unsettle land issue and incomplete project brief
2	Upgrade competency of officer
3	Delay in design
4	Innovative in design
5	Excellent
6	To consider maintenance aspect and involvement end user
No.	Procurement Phase
1	JKR very competence but planning
2	Integrity pact
3	Increase quality control
4	Award to the capable contractor not influent by politician
5	Increase minimum capital during evaluation to ensure awarded contractor has strong financial capability
6	Good
7	Open tender

Table 4.15 : Comment by respondents (continued)

No.	Construction/execution Phase
1	JKR very competence but planning
2	Increase officer
3	Overcome the issue of delay in completion project
4	Complete project on stipulated time
5	Completion period unrealistic
6	Good
7	Competence officer for managing project
No.	Handing over Phase
1	JKR very competence but planning
2	To achieve zero defect
3	No action taken toward project delay in completion
4	Good
5	Award to contractor for project delivery on time
No.	Customer satisfaction
1	Moderate
2	Increase competency to increase customer confidence
3	Good
4	Aspect quality need to be taken care
No.	Service performance
1	Moderate
2	Need to improve
3	Good
4	Continuous improvement such as increase the competency through training etc

4.6.2 Recommendation

Table 4.16 : Recommendation by respondents

No.	Recommendation
1	Need to give chance to consultant firm who is not among former JKR staff
2	Enhance project monitoring system to increase efficiency to avoid project delay because of contractor not diligent
3	Data in SKALA not reflect actual progress on site.
4	At design stage, commitment from discipline need to be enhance to reduce time taken for re-design
5	To gain trust from customer
6	Avoid interference from politician
7	Competence team managing project
8	Planning should be start much earlier. Stakeholder should involve and give necessary input for project implementation.
9	Various design give more option to the customer and not only standard design especially government office.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Discussions

The purpose of this study is to examine JKR service quality and its effect to customer satisfaction and service performance. The first objective of this study is to assess the most priority dimensions influent in JKR service quality for sustainable and improvement where necessary. The second objective is to evaluate the gap between customer perception and expectation and come out with improvement strategic to mitigate the largest gap and the final objective is to analyze the relationship among service quality, customer satisfaction and service performance within the context of the JKR service.

During the survey period, the research was distributed the questionnaires form personally to relevant respondents. However, most of managerial level reluctant to give cooperation. This is because they are too busy or they don't want their personnel opinion will reflect to the result. As a result, all the finding and result not totally appear actual situation as overall. However, for indication of level of satisfaction and performance and to detect the weaknesses for make improvement the result still reliable.

From the five (5) dimensions, result shows; mean indicate that dimension assurance has the highest scores followed by responsive, reliability, tangible, and empathy. The questions related to assurance are reflect that how JKR keeping their promise to deliver project on time with valued cost and acceptable or extensive quality, competency of officer involve and fair in

selection of contractor and consultant. However deliver project on time become a crucial issues because its involved cost to the customer for instance involved extra rental, loss of profit etc. Prior to the respond of the questionnaires, that most of the respondents answer for tangible's question is neutral. This is because all the software regardless any phases of project implementation, the customer not directly involve for instance AUTOCAD software, the customer only involve during preparing project brief or need statement but not during design development. Only after completely finished the design, the customer can comment the design base on their experience such as flow, material, requirement, accommodation. However, there is area that customer can involve where the customer can monitor the cashflow and progress project through SKALA. Prior to this issue, JKR need to review any system to open more assess to customer to involve in any phases of project implementation in order to tailor the strategic to strengthen the customer involvement in any aspect.

SERVQUAL gap analysis was performed to investigate the gap between customer expectation and customer perception. The results reveal that reliability and empathy has a largest gap and critically need improvement. When talk about reliability and empathy, both dimensions are related to department and employees commitments. Reliability is related to consistency of service delivery whilst empathy is related to professionalism and competency. Both of dimensions is main support to the excellent service quality delivered.

The SEM approach was used to test the constructs conceptual framework between JKR service quality, customer satisfaction and service performance. The result confirmed that the five dimensions which are reliability, responsiveness, assurance, tangible and empathy are distinct construct for JKR service quality. The result indicated that JKR service quality consists of five (5) dimensions has an appropriate reliability. Each dimension has a significant relationship with service quality. In the JKR service quality, assurance (0.962) has the high contribution followed by reliability, responsiveness, tangible and empathy. This indicates that customer looking for service. This means that

customer is more concern on the overall services provided by the JKR to have good relationship with customer.

Additionally, the result showed a significant relationship between JKR service quality and customer satisfaction. This indicates that high level of service quality will lead to service performance. The result is consistent with a study Agus et al. (2007), who stated that service quality dimensions play as an important indicator for service performance. Similarly, Rahim, A. (2009) identified that service quality with a customer loyalty is significantly influenced service performance.

Besides that, the relationship between customer satisfaction and service performance show a significant relationship. Additionally, the result indicates that customer is more satisfied with problem solve by JKR, overall services that better than expected and services provided by JKR. In the JKR service quality context, customer will service performance was based on willingness to recommend the improvement and willingness to tell good reputation. The result consistent with the study Agus et al. (2007), indicate a significant relationship between patient satisfaction and service performance. The study concludes that the understanding service quality is important for JKR to more understanding their customer's needs. It also helps them to improve the service quality delivered.

5.2 Conclusion

There are three (3) objectives of this study achieved from the research exercises described in the research methodology. Hence, the conclusion that can be explained as follows.

All five service quality dimension introduce by Parasuraman (1991) are relevant to the JKR service quality. Prioritization the service quality will help

JKR to focus the crucial issues to make improvement meanwhile still need to attempt the issues less critical. For instance, the study show the result, mean score indicate that dimension assurance has the highest scores follow by responsive, reliability, tangible, and empathy. The questions related to assurance are reflect that how JKR keeping their promise to deliver project on time with valued cost and acceptable or extensive quality, competency of officer involve and selection of contractor and consultant. However deliver project with acceptable value and quality become crucial issues because its involved cost to the customer for instance involved cost for rectification if doesn't meet quality and building not save for occupy. Mislead in awarding contractor can cause project not deliver on time.

To sustain the roles and relevance and built in trust by customer, JKR need to ensure that they need work closely to the client especially during design stage and construction stage and the same time JKR has to built up officer's competency in order to convict the customers in any relevant issues and come out with method of evaluation more precise and thorough. According to Parasuraman et al. (1988), assurance is knowledge and courtesy of employee and their ability to inspire, convey trust and confidence including competence, courtesy, credibility and security.

SERVQUAL gap analysis has been introduces to measure the weakness of the organisation in service delivery and to help organization to make improvement. The objective of this study is to investigate the gap and perceived level of service quality in JKR. It was found that customer perception scores were below the expectations scores that produced the largest gap for reliability and empathy and this followed by assurance, responsive and tangible. According to Parasuraman et al. (1988), reliability is the ability involves performing the promised service dependably and accurately while empathy is caring, individualised attention the firm provides to its customers including access, communication and understanding the customers. When look at the questionnaire for reliability, the first question that was asked whether JKR was able to deliver their promises on time. According to Macauly (1993), nothing

will damage customer satisfaction more than promises not fulfilled. Refer to SERVQUAL gap analysis model, JKR need to focus more to service standard for instance standard procedure, service performance for instance competency and professionalism, internal communication for instance communication skill and accessibility, market information meaning respond to customer needs and expectation.

Project implementation is a concerted effort and involves various stakeholders, contractor, subcontractor, consultant and local authority. Therefore in giving its promise to the client, JKR must understand the actual capabilities and limitations of these stakeholders so that whatever that is promised to the customer can be fulfilled by the stakeholder(s) concerned. For empathy is related to the professionalism and accessibility of the officer. So JKR need to find way on how to develop the professionalism through the training and experience. There are two previous studied related to gap analysis. The study was conducted under previous strategic framework which was launched in 2007. Comparative result has been done to determine either new strategic framework which was launched in 2011 produced any improvement to the organization. The result shows that the gaps become more significant in 2011 study, that the consequences brought many ministries doing project on their own. However, after launches new strategic framework, the gaps become much closer. Meaning that, close cooperation and co-creative customer experience give opportunity for improvement.

Table 5.1 : Comparison result

Dimensions	Result study by Rahim (2009)	Result study by Hashim (2011)	Current study by researcher (2013)
Reliability	-0.83	-1.38	-0.48
Responsiveness	0.05	-1.16	-0.28
Assurance	-0.18	-1.02	-0.35
Tangible	-0.49	-0.97	0.77
Empathy	-0.09	-0.85	-0.48

There are three (3) hypotheses developed in conceptual framework which is to analyze the relationship among service quality, service performance and customer satisfaction within the context of the JKR service. The result was confirmed established relationship among service quality, customer satisfaction and service performance. The study highlighted the important role played by employees (in terms of assurance, responsive and reliability) in improving customer satisfaction and service performance. The result also show that the stronger relationship between service quality and service performance rather than between service quality and customer satisfaction and between service performance and customer satisfaction. Other meaning is relationship between service quality and service performance more crucial for improvement. As a conclusion the level of JKR service quality need to be improve in order to enhance the customer satisfaction and improve service performance. JKR need to study and develop the strategy to ensure the officer play the important role with adequate competency and professionalism.

As overall conclusion, this study has important implication to the management of service quality provided by JKR. JKR need to take immediate action to resolve issues related to the weakness encounter ensure JKR can improve the service delivered to achieve customer satisfaction into high level.

Strong correlation between service quality, customer satisfaction and service performance give indicator to organization to perform well in any angle to sustain relevant and customer loyalty.

Once attributes of service quality from customer perspective known clearly and understood, JKR should anticipate improvement action rather than react to the dissatisfaction.

5.3 Recommendation

JKR vision towards achieving excellence in service delivery is through the objective of total customer satisfaction, both internal and external. This means meeting or exceeding customer expectations and requires establishing and maintaining a customer-driven organisational culture that focuses on doing whatever it takes to value for the customer.

Continuous improvement of processes, people and product services aim at customer satisfaction is essential and is the only survive way.

The study demonstrates the usefulness of the servqual approach as a good measure of service quality. Even though this study demonstrate the dimension's priority for improvement, but continuous improvement for dimension less important is necessary to sustain excellent.

Effective implementation plan for co-creative customer experience strategies need to be developed and it demand strong support and continuous commitment from leaderships at all levels to successfully execute plan. Even though the researcher have done comparison study on SERVQUAL gap analysis and the result shows that new strategic framework given more opportunity for improvement, however the result for this study still a lot of arguable in term of reliability. JKR need to study whether the improvement made by 2013, survey of new strategic framework is really significance or just coincidence due to government policy or it could be different target respondent doing the survey, hence different feedback on the study.

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