



ADDIS ABABA UNIVERSITY

ADDIS ABABA INSTITUTE OF TECHNOLOGY (AAIT)

SCHOOL OF MECHANICAL AND INDUSTRIAL ENGINEERING (SMIE)

**DEVELOPMENT OF SERVICE QUALITY ASSESSMENT AND
IMPROVEMENT APPROACH OF A MOTOR INSURANCE COMPANY
IN ETHIOPIA**

BY

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**Development of Service Quality Assessment and Improvement Approach of a
Motor Insurance Company in Ethiopia**

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SERVICE QUALITY ASSESSMENT AND IMPROVEMENT APPROACH

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POSTGRADUATE PROGRAM IN INDUSTRIAL ENGINEERING

DEVELOPMENT OF SERVICE QUALITY ASSESSMENT AND IMPROVEMENT APPROACH OF A MOTOR INSURANCE COMPANY IN ETHIOPIA

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DECLARATION

I hereby declare that the work which is being presented in this thesis entitle “**Development of service quality assessment and improvement approach of a motor insurance company in Ethiopia**” is original work of my own, has not been presented for a degree of any other university and all the resources of materials used for the thesis have been accordingly acknowledged.

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ABSTRACT

With the increasing progress in insurance service in today's global world, people experience prudent delivery of insurance service. This phenomenon has enhanced customer's expectations. Besides this, pre-risk and post risk assessments has a great influence overall insurance service delivery at the time of loss settlements. This study was conducted on development of service quality assessment and improvement approach of a motor insurance company in Ethiopia and carried out at three branches and head office Claims directorate of the case company in Ethiopia. The researcher made this paper anonymous to protect confidentiality of the case company.

Processes study was conducted on files that were available in the archive to find the root cause of customer complaints and found eight root causes. Five teams were created from experts who knows motor insurance service delivery process. The study performed to measure and to develop service quality assessment of motor insurance by using integration of SERVQUAL and KANO Models into QFD method. The standard questionnaire in English, Afan Oromo and Amharic of SERVQUAL and KANO model have been used. Customers' perception and expectation was identified by SERVQUAL and Weak attributes categorized by kano model. The findings of KANO and SERVQUAL models show that five service quality attributes were chosen to be improved and inserted in HOQ to develop the plan of improvement.

Through QFD method, five technical requirements were proposed to answer the customer needs. JIT information flow and updating company's working guideline has the highest weight score and if they improved there will be almost 38.04% of improvement in service quality assessment processes. The correlation among technical requirements indicates that well clarification of policy to customers have a positive relationship with working guideline and just in time information flow. Creating experience sharing habit and adopting breakthrough learned lesson that have positive correlation could bring an improvement of motor insurance service delivery in 26.44%.

The researcher forwarded the step that the case company should follow. Adopting process improvement implementation philosophy of Juran's quality Trilogy is suggested that comprises quality planning, quality control and quality improvements stages. The case company could start with establishing quality goal at a minimum combined cost, develop methods to match the planned service as per customer needs and follow continuous improvement accordingly.

Keywords: *Service Quality, SERVQUAL, Kano model, Customer satisfaction, QFD, AHP, Insurance Company*

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LIST OF ACRONYMS

SERVQUAL.....	Service Quality
CS.....	Customer Satisfaction
CRs.....	customer Requirements
GDP.....	Gross Domestic Product
NBE.....	National Bank of Ethiopia
RATER.....	Responsibility, Assurance, Tangibility, Empathy and Reliability
VOC.....	Voice of Customers
HOQ.....	House of Quality
CR	Customer requirements
TR.....	Technical Requirements
MCDM.....	Multiple criteria decision making
AHP.....	Analytical Hierarchy process

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CHAPTER ONE

1. INTRODUCTION

1.1. BACKGROUND

The term service represents and constitutes various issues. It is challenging to define, it covers ‘a wide range of intangible and heterogeneous products and activities that are difficult to summarize within a simple definition’ (WTO, 2010). However, many scholars’ states that the definitions of “service industries” usually exclude manufacture, agriculture, mining, and construction (Juran, 1992; Kenneth, 2005; Zelalem, 2017). According to Kenneth (2005) the service industry contains Public transportation, Public utilities, Restaurants, hotels, Marketing Finance (commercial banks, insurance, sales finance, investment), News media, Personal services, Professional services, Government (defense, health, education, welfare, municipal services).

The insurance industry is one of the service sectors that has no tangible product; it is sold policy/promise to indemnify insured. There is the uncertainty of the occurrence of an event to realize the insurance coverage for the paid premium. The insurance sector plays a vigorous role in the financial services industry, contributing to economic growth, efficient resource allocation, reduction of transaction costs, creation of liquidity, facilitation of economics of scale in investment, and spread of financial losses (Birhanu, 2018). Dickson (2001) also states that insurance, like most institutions, presents to society with various benefits like, Peace of mind, indemnification, a basis for credit, stimulating savings and providing investment capital are the most important general benefits of insurance.

Hailu (2007) states that the history of insurance service is as far back as the modern form of banking service in Ethiopia which was introduced in 1905. The significant event that the Ethiopian insurance service observation was the issuance of Proclamation No. 281/1970, it was issued to offer for the control & regulation of insurance activities in the country. Accordingly, it forms an insurance council and an insurance controller’s bureau. The controller of insurance licensed 15 domestic insurance companies, 36 agents, 7 brokers, 3 insurance statistician (actuaries) & 11 assessors in agreement with the provisions of the proclamation immediately in the year after the issuance of the law.

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According to Hailu (2007) states that after four years that is after the acting of the proclamation, the military government that came to power in 1974 put an end to all private enterprises, then all insurance companies operating were nationalized and from January 1, 1975, onwards the government took over the ownership and control of these companies & merged them into a single unit called Ethiopian Insurance Corporation. Immediately after the enactment of the proclamation in 1994, private insurance companies began to increase. According to NBE, (2017), the number of insurance companies remained at 17, of which 16 were private.

The truths observed in the structure of Ethiopian economy within a half century are the weakening of agriculture, the growth of service and the stagnation of manufacturing sector. Ethiopia had the highest share of output in the agriculture sector, which is incomparable with the other countries agricultural output share. According to Zelalem, (2017) in 2011 the Ethiopian agriculture sector share to total output is still one of the highest 42% when compared with other countries output share. The manufacturing sector output share just increased from 2 % to 5 %. However, what has changed significantly is the share of the service sector. It increased from 9 % to 44 %, becoming the largest sector in output share and comparable with the level of service output in other developing countries until 2015 (National Bank of Ethiopia, 2015).

In contrast, (National Bank of Ethiopia, 2017) reports the real GDP growth was 10.9 % in 2016/17 up from 8.0 % in 2015/16, as agricultural value added grew by 14.7 percent. The industry has taken over the services as the major contributor to growth in 2016/17. The major contributor to the growth was the industry sector contributing 4.4 percentage points, followed by services 4.0 and agriculture 2.5 percentage points.

According to DM Sheaba & Sekata Kenea (2017), most people choose various insurance policies to protect themselves and their properties. One of the basic sources of competitive advantage between companies to attract customers is the price of goods and services, in the insurance industry case, premium. In today's dynamic world, economies are changing to service oriented, which customer pressed in shape to play a critical role. A company provides services to customers, while overall customer attitude towards the company is defined in the relationship between service quality and customer satisfaction.

Quality is a multi-dimensional phenomenon. Parasuraman, Zenithaml, & Berry, (1985) primarily recognized 10 dimensions used by consumers in evaluating service quality and finally

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merged them into five dimensions that are named as RATER (Reliability, Assurance, Tangibility, Empathy and responsibility).

Belay (2014) states that in Ethiopia it is not trending to see organizations that are committed to building loyal customers and provide excellent service due to various reasons; it may be because of shortage of knowledge on the area, the business may be dependent on traditional system, lack of commitment, less attention for quality and many other reasons. Since competition in the service sector is increasing, organizations have to work on improving service quality and change their current customers to loyal and get a competitive advantage over the others.

Therefore, this research studied service quality improvement. Moreover, a study concerned service quality improvement process or technical steps that in the case of the Ethiopian insurance industry is limited. Existing literature reveals that most of the studies observed service quality in a way which is not showing strong links between service quality and processes improvement. So, this research studied development of service quality assessment and improvement approach of motor insurance in the case company and examined the relationship between service quality in process and customer satisfaction.

Process study was conducted motor claims and eight roots of customer complain were found. The research was performed to measure and to make quality improvement by using integration of SERVQUAL and KANO Models into QFD method with the help of MCDM tool analytical hierarchy process. Five technical requirements are proposed to answer the customer needs as follows: adopting JIT information flow, update working guidelines, clarify policy to customers, breakthrough learned lesson and creating experience sharing habit. This integrated customer oriented approach model provides information to management of case company regarding the factors supporting what customers expect and at the same time to evaluate the quality of services. Thus, organization is able to recognize consumer requirements very well so that appropriate policies can be formulated based on valid information to attain optimal results.

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1.2. STATEMENT OF THE PROBLEM

Customer satisfaction in insurance means the use of the policy product purchased for a cost premium, to the ultimate satisfaction of the buyer, when a claim is paid. The product bought by the policyholder will give them peace of mind during the product cycle when it is in use by the customer. Most research studies Observed in Ethiopian Insurance Industry focuses on customer satisfaction, capital structure, customer loyalty and profitability which is not showing strong links between service quality and processes improvement. Some of the existing literature that studies insurance service quality in Ethiopia include;

DM Sheaba & Sekata Kenea (2017) reveals that the premium was the most competing variable among insurers, the motor policy wordings were too difficult for clients to understand, as it was a direct copy from foreign insurers, there was no initiation and interest on the part of insurers to collect feedback from their customers and in private insurers there is a reduction of bureaucracies to respond to the interest of customers.

Birhanu (2018) states that the growth of insurance industry depends on prudent risk selection decisions, efficient claims management, and innovations, in Ethiopia insurers were concentrating more on investment income at the expense of underwriting profit. Belay (2014) examined that service quality and relationship quality have a significant effect on the development of customer loyalty while the impact of customer satisfaction is less significant. Chali, (2016) forwards the usage of induced knowledge 's and on using automatic knowledge acquisition techniques for the development of the knowledge base system.

Tatek (2018) notes that awareness of contract, ways of compensation, location of branches, service quality, and technology-based service have a positive significant effect on motor insurance customer's satisfaction. According to Birhanu (2018) & DM Sheaba & Sekata Kenea (2017) motor insurance is one of the main insurance services provided by insurers in Ethiopia and in Africa (Kenya, Uganda, and Tanzania). In development of non-life gross written premium from 2010 to 2018 motor insurance is the dominant non-life insurance policy in Ethiopia that records 4,346.5 million-birr (National Bank of Ethiopia, 2018).

To the best of the researcher's knowledge, local studies focused more on customer satisfaction, capital structure, customer loyalty and growth and the other. None of the studies

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address the subject from quality improvement approach including technical process like pre and post risk assessments. The researcher realized that there were high customer complaints in motor insurance claims service in the case company. Identifying customer requirements and focusing at the root cause of customer dissatisfaction are very important to improve service quality of delivered service. Therefore, this study focused on development of service quality assessment and improvement approach of motor insurance in Ethiopian insurance company.

1.3. RESEARCH QUESTIONS

The paper focused on the development of service quality assessment and improvement approach of motor insurance in Ethiopian insurance company, and the study strives to answer the following questions.

- What are the major technical processes at the time of risk handling and loss settlement?
- Where are the problematic areas or stages in insurance processes of Pre and post risk assessment and what are the causes of these problems?
- What is the influential Service quality dimension in motor Insurance?

1.4. GENERAL OBJECTIVE

The general objective of the study is to analyze the process of service delivery in pre and post risk assessment stages on motor insurance and enhance Service excellence and customer satisfaction in the case company.

1.5. SPECIFIC OBJECTIVE

The specific objective of the research;

- To study insurance service processes of operation in claims and underwriting activities.
- To identify problematic areas in pre and post risk assessment stages.
- To illustrate systematic illumination of the inefficiency in the processes and identify customer requirements in the case company.

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1.6. SIGNIFICANCE OF THE STUDY

This study is mainly concerned with development of service quality assessment and improvement approach of motor insurance. Emphasis is given to studying the process of motor claims and measuring the quality of delivered service by the case company. Root causes of customer complaints and technical requirements to improve the problems were identified. Even though the study is carried out for academic purposes, the findings obtained from the study would be helpful to gain information about current delivered service and customer requirements which in turn could help the case company in improving the motor claims process and reducing customer dissatisfaction. In addition, identifying the problems and suggesting appropriate improvement ways to improve the pre and post risk assessment process. Finally, it helps to carry out further research to refine the conceptual and methodology of the present study.

1.7. SCOPE AND LIMITATIONS OF THE STUDY

The scope of the study is on the motor insurance and assessment process improvements in the case company. This study uses data collected, from files available in the archive that were opened in 2017 to April 30, 2019 and from the customers of the case company.

1.8. LIMITATIONS OF THE STUDY

Due to limitation of time, this research is limited to one case company and the researcher faced confidentiality problem that was raised from case company managers and forced to hide the name of case company in this study. This study is limited to customers' needs and circumstances that was in one company while the other cases and companies may be have another needs or technical requirements.

1.9. ORGANIZATION OF THE THESIS

This thesis contains a total of five chapters and four appendices. The report is structured so that the information presented to the reader is arranged in a logical sequence. It is presented in such a manner that the necessary background information is covered before going further into the next level of detail.

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The contents of the chapters are as follows:

Chapter 1 – Introduction: This chapter is to give an opening to the reader about the research work, what initiated it, the problem statement, objectives, significance, scopes and limitations and how the entire thesis is organized.

Chapter 2– Literature Survey: - This chapter will review in detail the literature available in the area of service, service quality, insurance and service quality improvement. It will cover the ideas evolving around customer satisfaction, motor insurance, and customer oriented approaches based on the experience and, research and teaching of prominent writers. The main customer focused approach tools like SERVQUAL, Kano’s model, QFD and MCDM AHP are discussed. The aim of this chapter is to give the reader fundamental background on the concept of Service quality improvement.

Chapter 3 – Research Methodology: - will describe different aspects of the methods used and situations that the researchers must consider during each phase of the study. Different ways of carrying out a study and different ways of collecting information will be discussed. The purpose of this chapter is to make the reader understand the methodological choices made on the study.

Chapter 4 –Data Collection and Analysis: - This chapter will cover the finding of process study, SERVQUAL model, Kano’s model, AHP and analysis and interpretation.

Chapter 5 – Conclusions, Recommendations, and Future Works: - This chapter will present the conclusions drawn from the study, and give recommendations as to how the approach can be used by the case company to reduce customer complaints. It will also include suggestions for further researches in the area.

Ethical Consideration- Participants of the research were informed in advance about the research prior to give their consent. Participant’s information with their names was not made available. In addition to this, the case company confidentiality was kept well in order to protect their privacy i.e. the name of case company was not appeared in this paper so that it would not be recognized by others.

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CHAPTER TWO

2. LITERATURE REVIEW

2.1. THE CONCEPT OF SERVICE

The concept of service has been well-defined in different ways. Gronroos (2000) defined service concept from three dimensions (activities, interactions, and solutions to customer problems), service concept is a series of activities of an intangible nature that normally, but not necessarily, take place in the interaction between the client and service provider or physical resources or goods or systems of the service provider, which are provided as solutions to customer problems.

According to Lovelock & Gummesson (2004) services are deeds, processes, performances and not physical or objects with embedded qualities in the product features. This agreed with the services concept of A. Parasuraman et al., (1985). During the period 1963-1983, Zeithaml et al. (1985) conducted a literature review and found that the most service characteristics that make it different from goods were intangibility, inseparability, heterogeneity, and perishability.

Intangibility denotes that services are activities and not physical objects, as goods. Often services cannot be seen, felt, tasted, or touched before they are purchased, a distinction between physical and mental intangibility is not presented in most textbooks on service marketing (Lovelock & Gummesson, 2004). Inseparability denotes that services are produced and consumed simultaneously because customers are a part of the production process. It is an oversimplification and argued that many services are partly or largely produced independently of the customer (Lovelock & Gummesson, 2004). Heterogeneity denotes that inconsistency, variability or non-standardization because it makes it difficult to establish a standard. Service is delivered by different people with different delivery times and customer involvement levels, that may contribute to customer value while standardization may have a bad impact on value creation (Edvardsson et al., (2005) and Gronroos (2000). Perishability denotes that service are perishable and unlike a good, cannot be stored for later use. Additionally, service cannot be stored, saved, returned and resold ones delivered to the customer (A. Parasuraman et al., 1985).

Edvardsson et al., (2005) studied Service portraits in service research and conducted a survey of the service experts' views, the question sent via email for 16 leading scholars on the

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service concept definitions and most common service characteristics. Finally, Edvardsson et al., (2005) concluded service as a perspective on value creation rather than a category of market offerings, the focus is on value through the lens of the consumers, and co-creation of value with customers is a significant and the interactive, experimental, and relational nature form the basis for characterizing service.

As many scholars discussed Edvardsson et al., (2005); Gronroos (2000); Lovelock & Gummesson (2004) and Parasuraman et al., (1985) service definition is a perspective, general service definition does not exist and has to be determined at a specific time, in a specific company, for a specific service, from a specific perspective. Juran on his book of quality by design states that service industries usually include Public transportation, Public utilities, Restaurants, hotels, Marketing, Finance (commercial banks, insurance, sales finance, investment), News media, Personal services, Professional services, Government (Juran, 1992).

2.2. SERVICE QUALITY

Quality is addressed in many academic and trade journals, most frequently repeated word among managers and executives in contemporary organizations. According to (Zeithaml, Parasuraman, Berry, & Berry, 1990) improvement of service and product quality is the most critical challenge in the businesses. Quality has been defined differently by different quality philosophers. Kathawala (1989); Reeves & Bednar (1994) state that a well-known approach in defining quality are Transcendent approach, Value-based approach, manufacturing-based approach, and user-based approach.

Customers commonly take pride in owning an excellent product or receiving excellent service. Excellence is the basis for advertising campaigns in industries such as automobiles, liquor, and airlines. Excellence approach relies on strong marketing and human resource benefits, and the universally recognizable mark of uncompromising standards (Kathawala, 1989). Some scholars Garvin (1984); Reeves & Bednar (1994) argue this approach because it provides little practical guidance to practitioners, measurement difficulties, attributes of excellence may change dramatically and rapidly.

A broader view of quality was founded on the belief that the consumer was the ultimate mediator of trade, and that business flourished by serving consumer interests or value based.

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According to Feigenbaum (1956) quality means best certain customer conditions, that means, actual use and the selling price of the product, Product quality cannot be thought of apart from product cost. Shewhart & Deming (1986) clearly states that productivity increases with the improvement of quality and total cost of the product is important rather than the price tag.

Shewhart (1931) prevailing view of quality as a measure of goodness was too indefinite for practical purposes. Quality had to be quantifiable if manufacturers were going to be able to use statistical procedures to measure it. Edwards (1986); Juran & Godfrey, 1999) expanded on Shewhart's work quality of conformance concerns how well the product conforms to design specifications and incorporated the notions of both excellence and conformance into his quality definition. Crosby (1980) states that quality is conformance to requirements, it focuses on conformance and reliability.

The most pervasive definition of quality presently in use is the extent to which a product or service meets and/or exceeds a customer's expectations (Gronroos, 2000; Ananthanarayanan et al. 1988; Zeithaml, Parasuraman, Berry, & Berry, 1990). This definition grew out of the services marketing literature (Kotler & Keller, 2009; Lovelock & Gummesson, 2004). Juran argued for a universal concept, applicable to both manufacturing and services, by recognizing additional difficulties posed by services. For internal conformance, the measures of quality have much in common with the well-known measures widely used in control of the manufacturing process. In universal concept, Quality is fitness for use and it focuses on aesthetics and perceived quality (Juran, 1992).

Service quality is the delivery of excellent service relative to client expectations (A. Parasuraman et al., 1985). In today's altering world, developed economies are changing to service oriented, that customer impressions play a great role in this field, on another hand, if service quality declines quickly, customer satisfaction declines dramatically and if service quality develops radically, customer satisfaction rises rapidly too (Fauziah & Sharareh, 2012). They also state service quality has become an important issue for both maintaining current portfolios and gaining new business.

SERVICE QUALITY ASSESSMENT AND IMPROVEMENT APPROACH

2.2.1. Customer Satisfaction

To survive and best in today's competitive market organizations must realize the importance of customer-oriented business thinking and quality management approaches in managing the business (Tazreen, 2012). Every business organization's achievement depends on the satisfaction of the customers. Whenever a business is about to start, customers always come primary and then the profit. Today's business company has known that customer satisfaction is the vital element for the success of the business and at the same time it plays a vigorous role to expand the market value (Khadka & Maharjan, 2017)

According to Khadka & Maharjan (2017); Lovelock & Gummesson (2004) satisfaction is a dynamic, moving target that may evolve over time, influenced by different factors. Mostly when product or service experience takes place over time, satisfaction may be very variable depending on which point in the usage or experience is focusing. Many scholars have watched customer satisfaction (Coleman, 2015; Dan, 2016; Kotler & Keller, 2009). Customer satisfaction is a person's feeling of desire or dissatisfaction resulting from comparing a product's/services perceived performance in relation to the user's prospects. It is the extent to which a Services or product's perceived performance matches a user's expectation (Kotler & Keller, 2009). Bigger customer satisfaction can offer company benefits like customer loyalty, extending the life cycle of a customer expanding customer purchase and increases customers positive word of mouth communication (Khadka & Maharjan, 2017).

2.2.2. Customer Loyalty and Advocacy

Customer loyalty is an important factor in a business organization. The effect of satisfaction on loyalty has been a popular subject in the study of the marketing philosophy. Loyal customers will inspire others to buy from you and think more than twice before altering their mind to buy other services (Khadka & Maharjan, 2017). Loyal customers, they don't just come back, they don't simply recommend you, they insist that their friends do business with you (Bell & Zemke, 1987). According to Kotler & Keller (2009), customer loyalty is a profoundly held commitment to re-use a preferred product/service steadily in the future, thereby causing repetitive same brand set purchasing, despite situational factors. Satisfaction will nurture loyalty to the extent that it is a precondition for keeping a favorable relative outlook and for recommending and re-use the product/ service.

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Lawer & Knox (2006) define customer advocacy as an advanced form of market orientation that responds to the new drivers of consumer choice, involvement and knowledge. Customer advocacy aims to build deeper customer relationships by earning new levels of trust and commitment and by developing mutual transparency, dialogue, and partnership with customers. According to Urban (2005) advocacy is not a way for a company to speak at customers. Rather, it is a mutual dialogue and a partnership that assumes if the company advocates for its customers, those customers will reciprocate with trust, purchases, and enduring loyalty. It is a partnership between a firm and its customers to the mutual benefit of both. Chatterjee (2000) also states that customer advocacy viewed as the top of a pyramid, service quality and customer satisfaction are at the base of the pyramid.

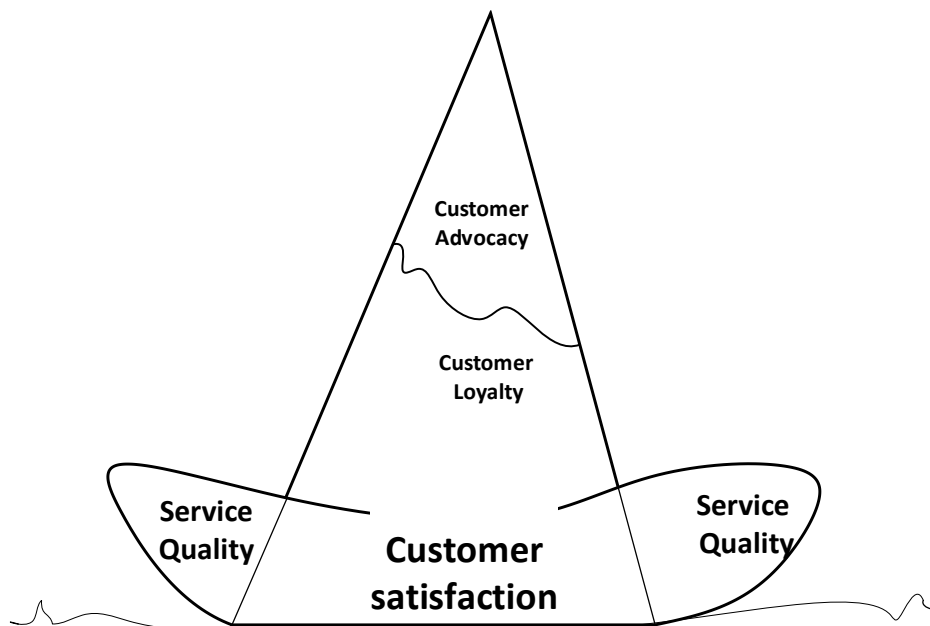


Figure 2.2.1: Managing customer relationship in the business (Source: Chatterjee, 2000) (Modified)

Today's unforgiving market where creating and maintaining customer loyalty is more complex than it used to be in the past years. This is because of technological breakthrough and widespread of the internet uses. Loyalty building requires the company to focus the value of its product and services and to show that it is interested to fulfill the desire or build the relationship with customers (Khadka & Maharjan, 2017).

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2.3. SERVICE QUALITY AND PROCESS IMPROVEMENT

To grow well in strong economic times and survive the unavoidable downturns, a business organization must continuously improve their skill to deliver high-quality goods and services at the required speed and at the lowest cost. Market needs, technology, and new business demands challenge organizations to apply new continuous-improvement tools to create the agility and flexibility in order to respond quickly to their customers and stakeholders (Martin & Osterling, 2007).

Edvardsson (1998) conducted research on quality improvement in service operations and states that Quality improvement is used as a collective expression for quality assurance, quality management, and quality control. Edvardsson proposed 13 propositions on service quality which can be regarded as a guide to new service development with built-in quality and presented what characterizes successful service companies and what can be learned from them:

1. Top management Commitment
2. Strategic development
3. Based on the customer oriented
4. Quality improvement is everybody's responsibility.
5. Based on innovative idea
6. Focus on continuous improvement and reengineering
7. Quality improvement drives profitability
8. Benchmarking
9. create realistic customer expectations
10. Stress on complaint management
11. Stress on employee commitment and customer for perceived total quality
12. Stress on measuring quality for customers, employees, and owners
13. Rewarding quality improvement based on facts

Shiba & Walden (2002) described process improvement as a problem-solving process and proposed three types of tools needed to accomplish problem-solving. First analytical tools provide the path for communication between the problem and the problem solvers. Second skill-gaining tools provide a learning process, supported by the organizational infrastructure to gain greater benefit from the learning. Third project execution tools provide a way to get tangible results, based on learning and communication.

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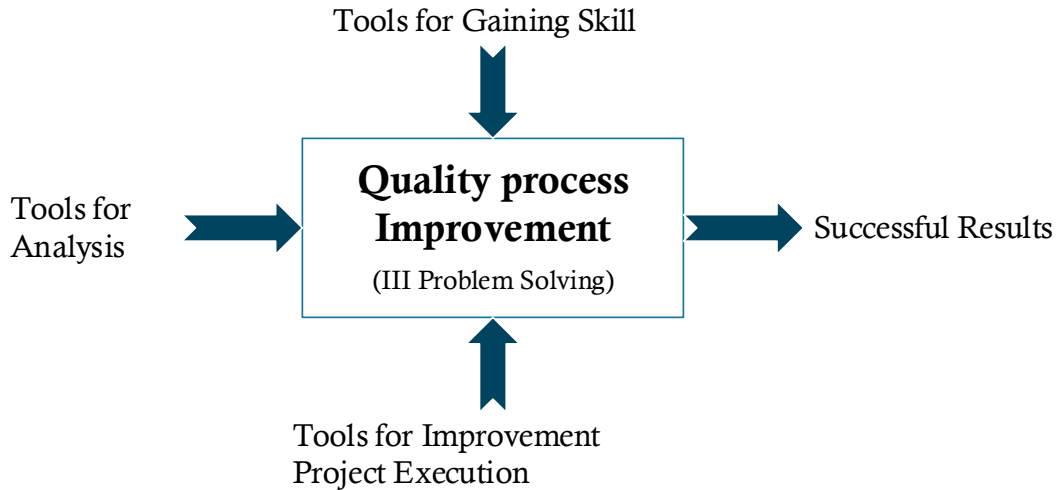


Figure 2.2.2: Three types of tools for successful process improvement (Shiba & Walden, 2002)

Antony (2006) demonstrates the power of six sigma, a disciplined approach to improving service quality in the service industry and presented the potential areas where six sigma could be exploited in service functions by using its series of well-defined steps called DMAIC.

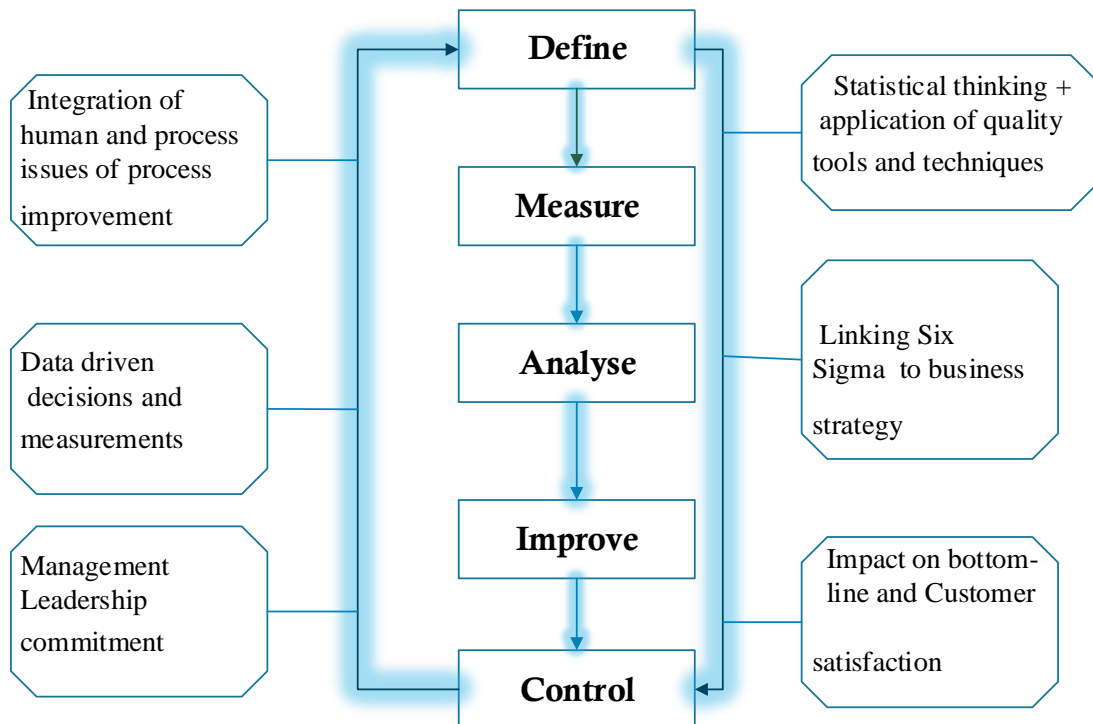


Figure 2.2.3: Six sigma for service processes (Source: Antony, J. (2006).

SERVICE QUALITY ASSESSMENT AND IMPROVEMENT APPROACH

Joseph M. Juran ranks quite near Deming in the contribution he has made to the field of quality. Among Juran contribution to the quality philosophy, quality trilogy is the most important and universally accepted in the quality improvement process. According to Juran (1992), the quality improvement process is the means of raising quality performance to unprecedented levels. Juran quality Trilogy Diagram is a graph with time on the horizontal axis and cost of poor quality on the vertical axis. On the vertical axis, perfection is at Zero, what goes up is not good. Figure below indicates that 20 percent of the work must be redone because of quality shortages. These wastes then become chronic, because it was planned/deliberated that way.

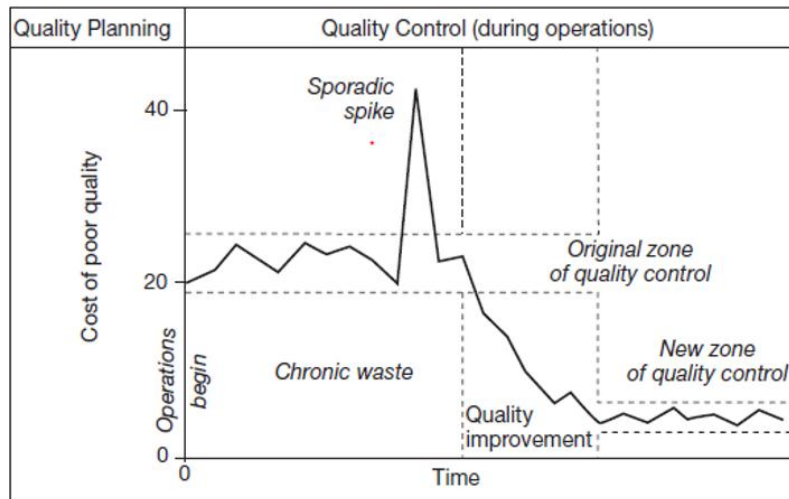


Figure 2.2.4: Juran Trilogy diagram (Source: quality and a century of improvement by Kenneth)

Quality planning is strategic quality management that management chooses a plan of action and allocates resources to achieve goal. Control is putting out the fires, such as that *sporadic spike* and in the quality improvement, it was realized that the chronic wastes also an opportunity for improvement from the lesson learned (Kenneth, 2005). Quality improvements is called quality break through sequence and it requires an action on the part of upper and middle management that deals with creating new design, changing methods or procedures of manufacturing and investing new equipment.

In the world a continuous-improvement philosophy and business management approach for making small, incremental progress on a daily basis. Kaizen is a specific improvement tool in office, service, and technical environments regularly reduce throughput time by 60 %, improve quality by 80 %, and increase capacity by 20 % (Martin & Osterling, 2007).

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2.4. TOOLS OF CUSTOMER ORIENTATION APPROACHES

Many researchers recognize that the voice of customer works as the guide for the service provider by providing their suggestions as well as complains (Coleman, 2015; Mote, Kulkarni, & Narkhede, 2016; Rahmana et al., 2014; Shahin, 2006). These suggestions enable the provider to take accurate steps to design the operational procedure. There are many tools for customer-oriented approaches. SERVQUAL Model, Kano Model and Quality Function Deployment (QFD), are among popular tools.

2.4.1. SERVQUAL Model

Service industry by nature has less control over factors that affect quality. Very few methods are considered to be effective measurement tools for services so far while a number of methods have been introduced and practiced for measuring the quality of physical goods. Tazreen (2012) noted that evaluating the quality of service is one of the challenges for service providers because of the intangible and notably the inseparable and heterogeneous characteristic of service.

SERVQUAL model is one of the well-known models and used broadly for measuring the quality of services, introduced in 1985 by a group of American Marketing Gurus Parasuraman, Berry, and Zeithaml. The model used as a diagnostic technique for uncovering broad areas of an organization's service quality strengths and weaknesses (Rahmana et al., 2014). Many researchers illustrate SERVQUAL model is good at drawing the views of customers regarding service encounters, able to aware management to consider the perception of both management and customers, able to identify specific areas of excellence and weaknesses and it provides benchmarking analysis for organization in the same industry (Apornak, 2017; Dan, 2016; Gupta & R. Sriavastava, 2012).

Further studies by A. Parasuraman et al. (1988) identified ten elements of service quality. These were tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communications, and understanding. Later these ten elements compressed into five factors or service quality dimension that create the acronym RATER.

- I. **Reliability:** it is the ability to carry out the promised service dependably and accurately or doing what you say you will do. Tatek (2018) states that a company's ability to deliver promises is the most vigorous factor in providing service quality.

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- II. **Assurance:** Assurance is well-defined as employees' knowledge, courtesy, the ability of the firm and its employees to inspire trust and confidence. The importance of this dimension increases in proportion to the risk (Gupta & R. Sriavastava, 2012).
- III. **Tangibles:** The appearance of physical facilities, equipment, personnel and communication materials. According to Gupta & R. Sriavastava (2012) Service industries such as hotels and restaurants rely heavily on tangibles. Guests often judge the quality of the physical environment and tangible facilities.
- IV. **Empathy:** Empathy is defined as the caring individualized attention the firm offers its customers. Gronroos (2000) states that Clients perceive the level of a company's empathy by the degree of personalized service offered.
- V. **Responsiveness:** it is the willingness to help customers and to deliver prompt service. Customers judge a company's responsiveness by considering the amount of time it takes and the attentiveness that is offered in response to their demands, questions, complaints, and problems (DM Sheaba & Sekata Kenea, 2017)

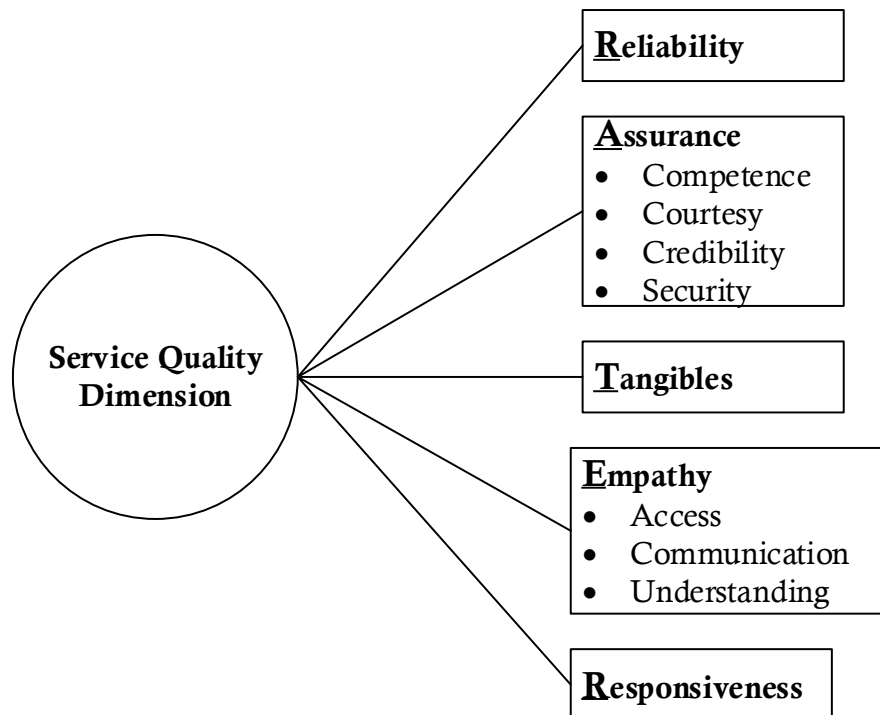


Figure 2.2.5: Service Quality dimensions by A. Parasuraman et al., 1988 (Modified)

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Benefits of SERVQUAL can be summarized as follows:

1. It is good to draw out something hidden the views of customers regarding service encounters (Dan, 2016)
2. It is able to an aware organization to consider the perception of management and customers (Kay C. Tan & Pawitra, 2001a)
3. Addressing the service gaps can serve as a basis for formulating strategies and tactics in order to ensure the fulfillment of expectations (Stephen W. Brown & Swartz, 1989; Buttle, 1996)
4. It can trace the trend of customer relative importance and able to identify specific areas of excellence and weaknesses (Apornak, 2017)

2.4.1.1. Service Quality Gap Models

The Gap model of service quality was originally developed by Parasuraman, Berry, and Zeithaml (1985). It has served as a basis for study in services industries. The model identifies four specific gaps leading to a fifth general gap between customers' expectations and perceived service. These gaps are;

Gap 1: Knowledge gap; A gap arises when the company's knowledge of customer expectations is missing, binding them from approaching consumers in the correct way. The extent of the gap is dependent on the level of upward communication, the number of layers of management, the size of the organization and the extent of marketing research to identify customer expectations (Dan, 2016)

Gap 2: Standards gap; The organization has already designed its own idea about what the customer expects from their service. If this idea is incorrect from the start and does not correspond to what customers actually expect, there is a significant risk that the organization will interpret it wrongly into a quality policy and corresponding rules (Terzakis, Zisis, Garefalakis, & Arvanitis, 2012)

Gap 3: Delivery gap; It also called performance gap, its extent is a function of many variables involved in the provision of service. Service quality may have affected by factors like skill level, type of training received, degree of role agreeability or conflict, and job fit. Service recovery efforts

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along with the extent of responsibility and empowerment also affect the size of this gap (Baki, Sahin Basfirinci, Murat AR, & Cilingir, 2009)

Gap 4: Communications gap; The extent of communications between the company and the advertising agencies will affect the size, it can create the wrong expectations among customers. It also happens that the organization communicates and promises things that are not in line with what they can actually deliver (Apornak, 2017).

Gap 5: Satisfaction/perception gap; It is the total accumulation of variation in Gaps 1 to 4 and represents the difference between expectations and perceived service. Eventually, this will lead to the biggest gap in the experience of quality (Awlachev, 2015).

According to (S.W. Brown & Bond, 1995) the gap model is one of the best received and most heuristically valuable contributions to the services literature and the model recognizes seven key gaps relating to managerial perceptions of service quality, and tasks associated with service delivery to customers which is an extension of Parasuraman et al. (1985).

The External gap happens when the consumers and the company are the main concerns. The internal gap is related to the company's departments and functions. Like the external customer, an internal customer to considers categories of service attributes in judging the quality of the internal service. service organizations need to know how well the organization or employees performed on each RATER dimension and identify the weakness in order to make improvements (S.W. Brown & Bond, 1995; Shahin & Samea, 2010). These authors identified an additional two gaps to Parasuraman et al. (1985) gap model;

Gap 6: The discrepancy between customer expectations and employee's perceptions: as a result of the differences in the understanding of customer expectations by service providers (S.W. Brown & Bond, 1995)

Gap7: The discrepancy between employee's perceptions and management perceptions: as a result of the differences in the understanding of customer expectations between managers and service providers (Shahin, 2006).

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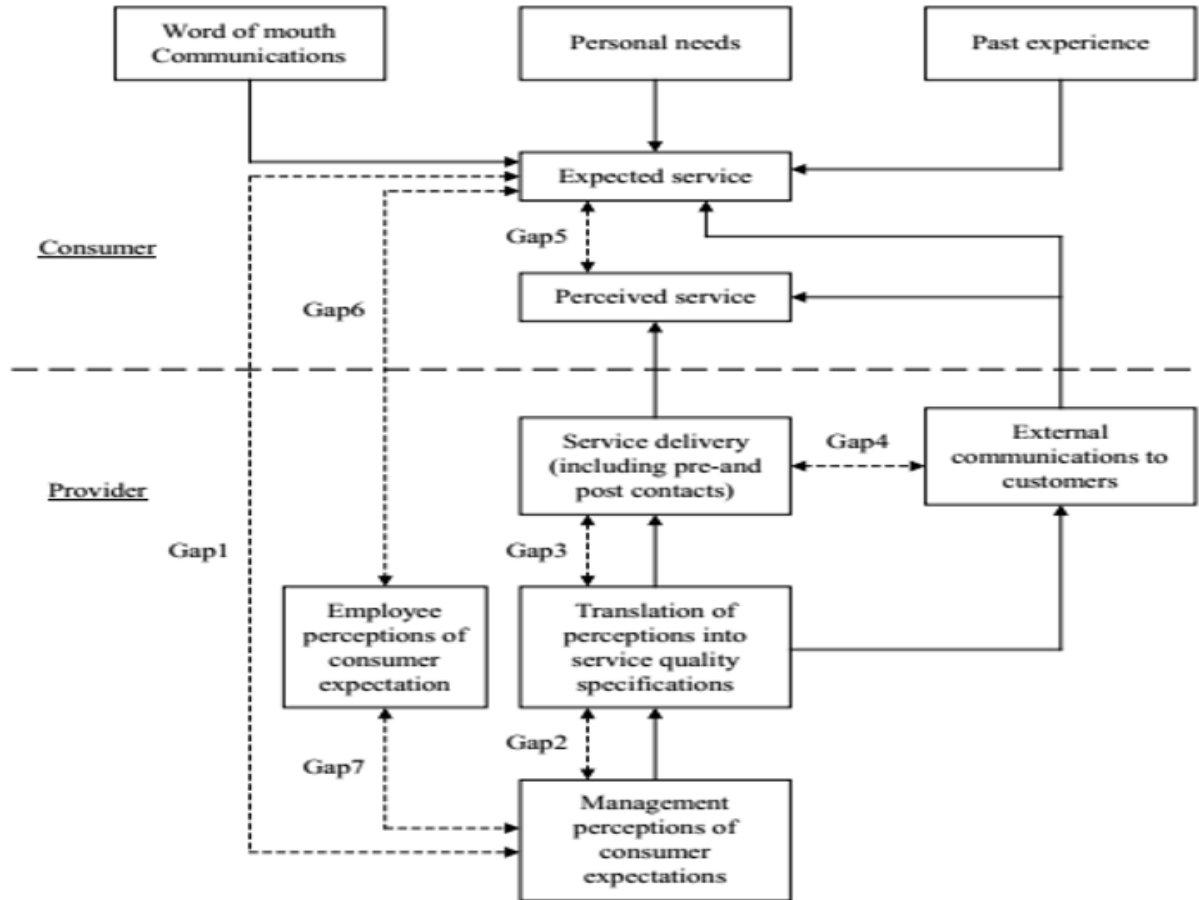


Figure 2.2.6: Model of service quality gaps (Source: Brown and Bond (1995); Curry, 1999; Luk and Layton, 2002)

4.2.1.2. Method of SERVQUAL Survey for Measuring Service Quality

According to Terzakis, Zisis, Garefalakis, & Arvanitis (2012) SERVQUAL is an instrument that constituted from three parts and operated as follows: a set of 22 items in the form of a questionnaire is applied to consumers in order to identify their perceptions and expectations. The customers are asked to rate their perceptions and expectations in a 7-point-scale from 1 strongly disagree to 7 strongly agree. The next part of SERVQUAL asks customers either to weigh the 22 items or to rate each of the five dimensions according to their importance in scale out of 100, the measure of service quality was based on responses to a 7-point semantic differential question (Buttle, 1996).

As a result, an average score is identified for each of the 5 dimensions as well as an overall satisfaction quality score is determined using the mean score of the RATER. Gathered facts on

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service quality gaps can assist managers or administrators diagnose where performance improvement can best be targeted. According to Terzakis et al. (2012), if the gap is positive, the service quality is regarded to be better than expected, if the gap is zero, service quality is good, and if the gap is negative, improvements are demanded.

$$SQ_i = \sum_{j=i}^k (P_{ij} - E_{ij})$$

where: SQ_i = perceived service quality, k = number of service attributes, P = perception of individual 'i' with respect to performance of a service firm attribute 'j', E = service quality expectation for attribute 'j' that is the relevant norm for individual 'i'.

Parasuraman et al.'s SERVQUAL were critiqued by various Scholars. Cronin and Taylor were amongst the researchers who attack the SERVQUAL scale, they suggest that SERVQUAL is inadequate in performance measure, and developed performance-based scale called SERVPERF which measure service quality only by customer perception or not include customer's expectation. It can reduce by 50% the number of items that must be measured 44 items to 22 items (Cronin Jr & Taylor, 1992). (Akdere, Top, & Tekingündüz, 2018) also, criticize the SERVQUAL scale that it entails enormous data collection task and recommended SERVPERF scale as an alternative, less tedious approaches, to avoid large the data collection task.

Conversely, other researchers maintain encouraging SERVQUAL for its superior diagnostic power to find areas for managerial intervention. The use of the weighted SERVQUAL scale is the most appropriate alternative from the point of view of the diagnostic ability of various scales (Buttle, 1996; Dan, 2016 & Jain & Gupta, 2004). Baki et al. (2009) insisted on SERVQUAL power of diagnostic and noted that the dimensionality of SERVQUAL depends on the context which is applied and cannot be generalized in any service industry, it is an applicable scale in all industry.

From the literature SERVPERF is less tedious approach where SERVQUAL is entails enormous data collection task and tedious approach. On the other hand, SERVQUAL has superior diagnostic power to find areas for managerial intervention where SERVPERF is less in diagnostic power to find the gap. Depending on Scholars augments SERVQUAL is the best tool to measure service quality in all industry because of its diagnostic power. But, SERVQUAL only measure the service quality or identify the gaps, not able to address how the gaps can be closed.

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2.4.2. Kano Model

Kano model is a theory of product development and customer satisfaction invented in the 1980s by Noriaki Kano that was a student of Kaoru Ishikawa (Coleman, 2015). In the 1980s the model is used as a means to Prioritize critical to quality characteristics and identify implicit as well as explicit customer needs. Theory of attractive quality or Kano model is an important reference in the field of quality management, as discussed by many recent research studies from this field that have exploited its findings in both product and service domains (Baki et al., 2009; Borgianni, 2018; Taifa & Desai, 2016).

Kano et al. (1984) developed a model while studying the contributing factors to customer satisfaction and customer loyalty and categorize the attributes of a product or service based on how well they are able to satisfy customer needs. The model describes five unique categories of customer requirements, three of which want to end up in customer offering, and the other two should be taken out. Coleman (2015) states that the y-axis is level of satisfaction (frustrated, Dissatisfaction, neutral, satisfied and delighted) of the requirement, the x-axis is the level of functionality or execution (none, some, basic, good and best) of the requirement as indicated in the figure below. All categories of attributes can be mapped on the axis.

- 1. The basic requirements (M):** Customers become dissatisfied when the performance of the product attribute is low. According to Noriaki Kano (1984) when the must-be attributes are not fulfilled the customer feels dissatisfied Kano originally called these “Must-be” because they are the needs that must be included and are the price of entry into a business.
- 2. The performance requirements (O):** Customer satisfaction is a linear function of the performance of the product attribute. Professor N. Kano originally called these “One-Dimensional” because the better you execute these the more satisfaction from the customer you get.
- 3. The excitement requirements (A):** Customer satisfaction increases super-linearly with increasing attribute performance. Lack of satisfactory fulfillment of this need does not lead to customer dissatisfaction (Terzakis et al., 2012). Kano originally called these “Attractive or Delighters” attributes.

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4. **Indifferent (I):** Customers don't care if they are absent or present their satisfaction remains neutral under either circumstance (Zacarias, 2016).
5. **Reverse (R):** Customers have clash requirements among these quality attributes. These are the requirements that cause dissatisfaction when present and satisfaction when absent that are rare but do happen occasionally (Borgianni, 2018).

According to Coleman (2015) & Zacarias (2016) Questionable (Q) attribute is not actual Kano categories, it is a mere artifact of the questionnaire but useful in the Kano evaluation table. It refers to debated customers' needs.

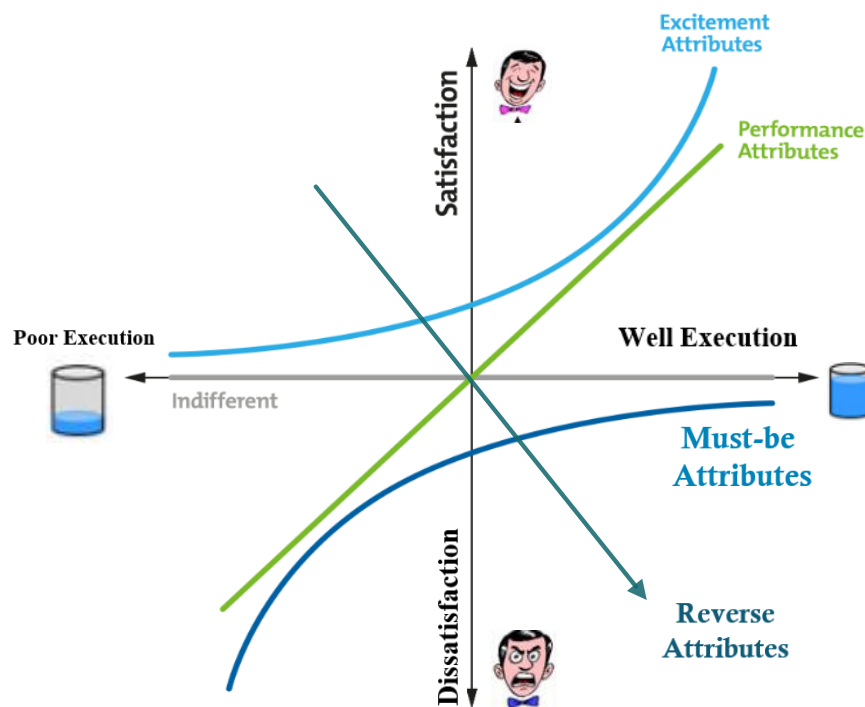


Figure 2.2.7: Kano Model Diagram (source: *The Customer-Driven Organization, Employing the Kano Model* by Coleman (2015). Modified)

According to Borgianni (2018) an appreciation for a customer requirement is initially displayed in the fashion of an attractive quality attribute, this tends to switch towards performance and subsequently to basic and basic needs transform into indifferent requirements can be somehow expected with respect to certain functions that are not valued anymore by customers. Gaileviciute (2011) states that in a certain sense, customer needs tend to decrease their capability to generate satisfaction and their fulfillment is gradually more and more devoted to avoiding harm.

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The critical process step can still be considered non-value-adding from the customer's perspective (Coleman, 2015). Coleman concludes that it must be pointed out, though, that exceeding customer expectations does not simply mean giving more. There must be value for the customer in the additional service or product provided at the time that it is presented. Otherwise, an organization is generating the waste of over processing. Based on publications of Kano's model, different scholars summarized its benefits as follows;

1. Kano's model promotes an understanding of product or service requirements. The attributes that have the maximum influence on customer satisfaction can be recognized (Gaileviciute, 2011)
2. It provides valuable guidance in the following trade-off situation. If two product attributes cannot be promoted simultaneously due to technical or financial reasons, the attribute that has a greater influence on customer satisfaction can be determined (Taifa & Desai, 2016)
3. Kano's model can lead to developing a wide range of product/ service differentiation by examining the attractive attributes (Walten, 1999). The attractive attributes are the key to beating the competition in the marketplace.

According to (Mote et al., 2016) in Kano Model, a qualitative survey for the focused group interviews should be carried and insights from this survey are gathered and based on deep understanding, a Kano questionnaire was formulated. This questionnaire is constructed through pairs of customer requirement questions functional and dysfunctional (Singgih & Ardhiyani, 2010). Answers of kano questioners may have five possibilities; I like it that way, it must be that way, I am neutral, I can live with it that way and I dislike it that way (Gaileviciute, 2011).



Figure 2.2.8: Kano methodology (Source: Kano Model application in new service development and Customer satisfaction by Mote et al., 2016)

According to Zacarias (2016), one of the great things about the Kano model is that it accounts for both having and not having some functionality. This shows the extent to which something is actually wanted, needed or indifferent for our customers. Evaluation table that combines the functional and dysfunctional answers in its rows and columns to get to one of the

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Kano categories described above. The final classification criterion is the “frequencies of single respondent categorization” (Terzakis et al., 2012).

Table 2.2-1: Kano Evaluation Table (Source: Translating the service quality gaps into strategy formulation by Terzakis et al., 2012)

Customer Requirements		Dysfunctional				
		1. like	2. must-be	3. neutral	4. live with	5. dislike
Functional	1. like	Q	A	A	A	O
	2. must-be	R	I	I	I	M
	3. neutral	R	I	I	I	M
	4. live with	R	I	I	I	M
	5. dislike	R	R	R	R	Q

Note that Letter A, O, M, I and Q denotes attractive, one-dimensional, must-be, indifferent, reverse, and question respectively

If the customer responses to a question, how would you feel if we provide free Wi-Fi? as I like it, and to question, how would you feel if we do not provide Wi-Fi? as I am neutral, then responses to both questions provide “A”. If combining the answers yields category I, Customer does not care whether the attribute is present or not. Category Q is for the questionable result. Normally, the answers do not fall into this category. Questionable scores show that the question was written incorrectly or that the person interviewed didn’t understand the question or mark out a wrong answer by mistake. The answer in the evaluation table yields category R, this product feature is not only unwanted by the customer but he even expects the reverse (Mote et al., 2016).

In case analyzing the results of close results between categories, use the following rule leftmost wins: Must-be > Performance > Attractive > Indifferent (Gupta & R. Sriavastava, 2012 & Zacarias, 2016)

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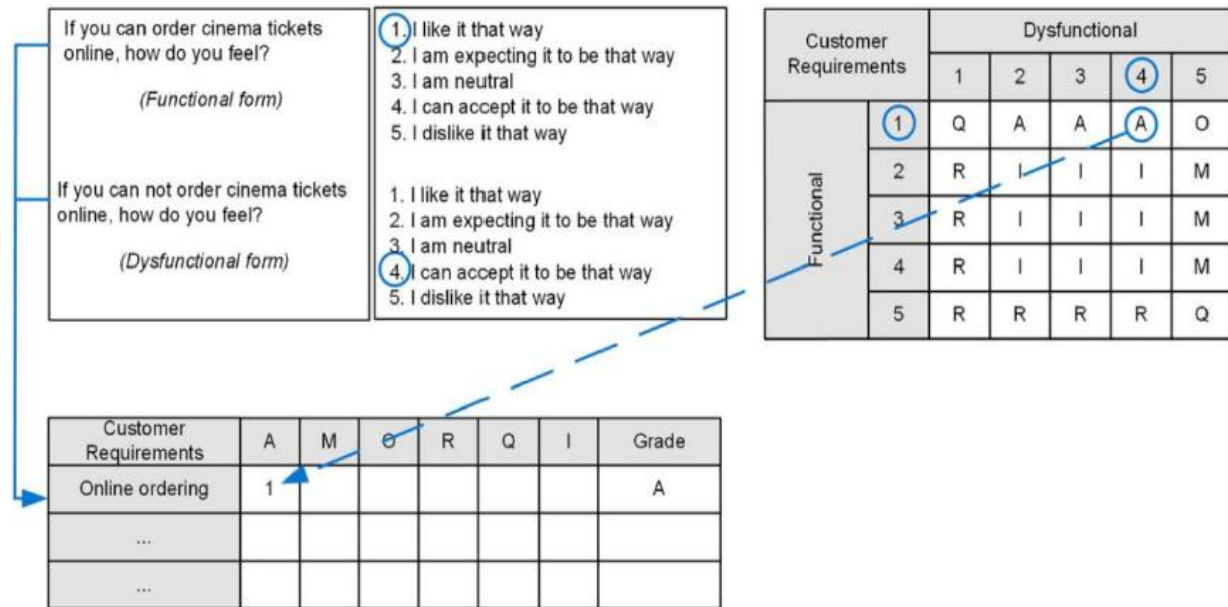


Figure 2.2.9: Kano Evaluation table (Source: Kano's Model for Understanding Customer-defined Quality by Walten, 1999).

An important addition to the Kano model methodology suggested by different researchers is to include extra important question after the functional and dysfunctional pair and the question asks customers how significant a given feature is to them (Berger,1993). The self-stated importance question is asked in the following arrangement: How important is it or would it be if <requirement>? The author states that the responses should be in the form of a scale from 1 to 9, going from Not at all important to Extremely important.

Zacarias (2016) stated that Better and Worse or Satisfaction and Dissatisfaction Coefficients scores that reflected, in numerical terms, how customers' satisfaction or dissatisfaction would change by the presence/absence of a feature. By considering the total number of answers in each category for a given feature, they're calculated using these formulas:

$$\text{Better} = \frac{A+O}{A+O+M+I} \quad \text{Worse} = -\frac{M+O}{A+O+M+I}$$

A positive customer satisfaction (CS) ranges in value from zero to one; Closer to value one, higher the influence on customer satisfaction. The negative customer satisfaction operates in a similar pattern. A value of zero shows that this feature does not cause dissatisfaction if it is not met. In this way, all the evaluated attributes can be represented in a diagram.

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Despite the above benefits, Kano's model is restricted by several limitations. Lilja & Wiklund (2006) states that Kano model classifies, but does not quantify either the numerical or the qualitative performance of the attributes, does not provide an explanation of what drives customers' perceptions, why the particular attributes are important to the customers, and what the customers' behavioral intentions are. It is helpful to know service attribute influence on customer satisfaction and dissatisfaction and planning the design for service.

2.4.3. Quality Function Deployment (QFD)

Quality Function Deployment (QFD) was created by Yoji Akao in Japan in 1966. By 1972 the power of QFD had been well demonstrated at the Mitsubishi Heavy Industries Kobe Shipyard (Temponi, Yen, & Tiao, 1999). Later QFD adopted by Toyota, Ford Motor Company and Xerox brought this concept to the United States in 1986 (Singgih & Ardhiyani, 2010). QFD developing a design quality aimed at satisfying the customer and changing their demand into design targets and main quality assurance points to be used throughout the production phase, and a vital advantage that Akao points out, QFD has demonstrated the reduction of development time by 1/2 to 1/3 (Akao, 1997)

QFD is a tool that gathers the need of the customer and inducting the expected features in the final product. In order to QFD extend importance to expectations of the customers, which in turn may fulfill overall CS for a product or service (Apornak, 2017). Prioritize spoken and the unspoken customer wants, translate these needs into technical characteristics, build and deliver a quality product or service are the main goal of QFD implementing. In the implementation of QFD, there are four major phases, in the process, each phase uses a matrix to translate customer requirements from initial planning stages through production control (Akao, 1972). These phases or stages are described as follows;

1. **Product/Service Planning:** it is also known as The House of Quality (HOQ). This stage collects customer requirements, competitive opportunities, warranty data, product measurements, and the technical ability of the organization to meet each customer requirement (Singgih & Ardhiyani, 2010 & Terzakis et al., 2012).

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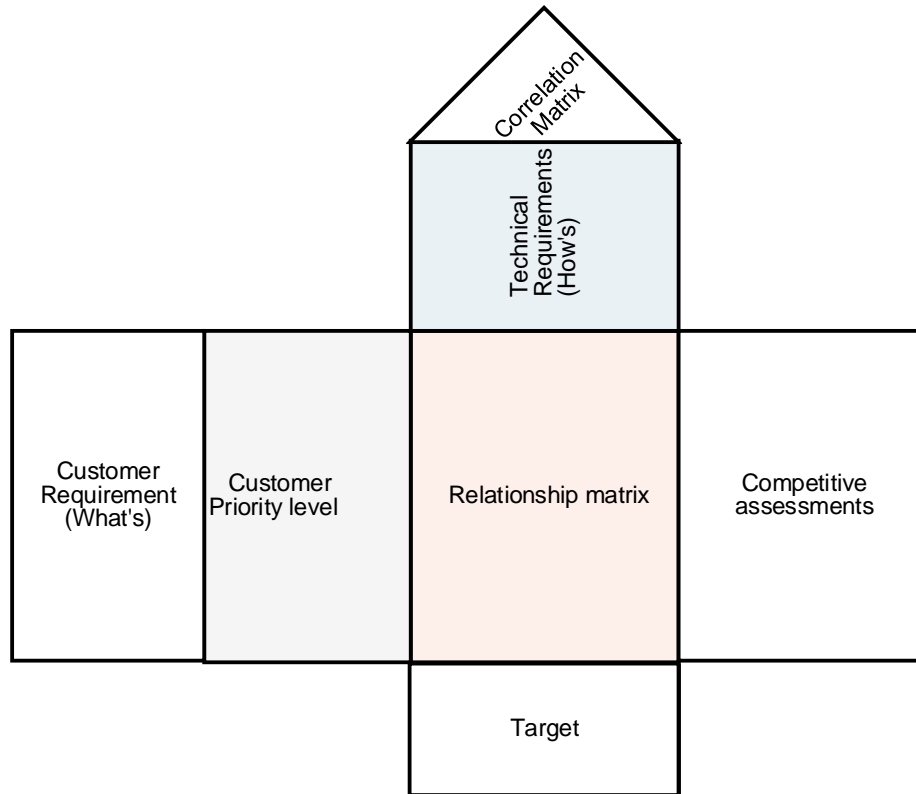


Figure 2.2.10: House of Quality (Terzakis et al., 2012)

2. **Product/Service Design:** this phase needs innovative group ideas, Product/service concepts are shaped and specifications are documented (Temponi et al., 1999).
3. **Process Planning:** During process planning, manufacturing/service processes are flowcharts and process parameters or target values are documented (Akao, 1997).
4. **Process Control:** this phase used as quality assurance, in phase 3 performance indicators are created to monitor the production/service process, schedules, and skills training for the employee. In the process, control decisions are made as to which process poses the most risk and controls are put in place to prevent failures (Terzakis et al., 2012).

The scientific publications describe QFD as a practice that leads to process improvements which enable an organization to exceed the expectations of the customer and point out its benefits (Temponi et al., 1999; Kay C. Tan & Pawitra, 2001; Rahmana et al., 2014 & Apornak, 2017). Benefits of Quality Function Deployment can be summarized as tangible and intangible in the table below;

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Table 2.2-2: Tangible and intangible benefits of Quality Function Deployment.

Tangible benefit	Intangible benefits
Significant reduction in start-up and engineering costs by 30%	Facilitates multidisciplinary teamwork
Early identification of high-risk areas	Provides a basis for improvement planning
Up-front determination of product process requirements	Creates a transferable storehouse of engineering knowledge
More efficient allocation of resources	Strengthens good relationships between customers and the company

QFD is ensuring that customer requirements are accurately translated into relevant technical descriptors throughout each stage and meeting or exceeding customer demands to maintaining or improving product/service performance. It means designing products/services that delight customers and fulfill their unarticulated desire. The relationship between customer requirements and technical requirements that are proposed by experts have a great influence on service design. The relationship matrix is determined by team or focused group. Relationships can either be weak, moderate, or strong and carry a numeric value of 1, 3 or 9 (Apornak, 2017).

Even though, QFD is ensuring to fulfill clients unarticulated desire, subjective decision that given by teams in the consideration of the company's ability to meet prioritized customer needs may not strong or consistency of relationship matrix is not checked. When decision is made, experts should consider multiple criteria concerning the attributes, unless the decision may not consistent or strong enough.

2.4.4. Analytical Hierarchy Process - AHP

Analytical Hierarchy Process is one of the multiple criteria decision-making method (MCDM) that was originally introduced by Prof. Thomas L. Saaty (1980). Wind & Saaty (1980) finds that AHP provides measures of judgment consistency, derives priorities among criteria and alternatives, simplifies preference ratings among decision criteria using pairwise comparisons. AHP helps to capture both subjective and objective aspects of a decision, and it has been applied in a wide variety of areas including planning, selecting the best alternative, resource allocation and resolving conflict (N. Jain & Singh, 2014). Analytical Hierarchy Process is applicable for group discussion environment when it is difficult to formulate criteria evaluation, i.e. it allows qualitative evaluation as well as quantitative evaluation. Steps involved in AHP are:

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Step 1: The complex problem is decomposed into smaller sub-problems with goal hierarchy at the top, followed by criteria sub criteria at lower levels and at the bottom decision variables (develop model).

Step 2: Decision matrix is constructed and the priority score is determined. Saaty gave a nine-point scale, for an equal assessment numerical value 1 is assigned and for moderately more important 3 is assigned, for strongly more 5 is assigned and 7 for very strongly, for extremely more important 9 is assigned. 2,4,6,8 are assigned for intermediate values of importance (Wind & Saaty, 1980).

Step 3: To set the relative priorities with respect to next higher level, pair wise comparison is done. The comparison matrix so formed takes the form. There are n criteria then $n(n-1)/2$ comparisons are to be done. To obtain the relative weight of the criteria Eigen value of the n normalized matrix should be calculated. A is pair wise comparison matrix; X is Eigen vector or priority vector (N. Jain & Singh, 2014).

Step 4: for checking the consistency of decision maker's judgment in consistency index or consistency ration is calculated using the equation $CI=(\lambda-n)/(n-1)$. Consistence vector (C) is calculated from pair wise matrix (A) and priority vector (X), then λ is the average of Consistency vector. Calculate the consistency ratio $CR = CI/RI$ where RI is a random index from table below. If $CR > 0.10$ the judgements are untrustworthy and the comparisons should be repeated, and If $CR \leq 0.10$ considered acceptable in practice and the rankings are consistent (Wind & Saaty, 1980).

Table 2.2-3: Random inconsistency indices for n = 10 (Source: Saaty, 1980)

n	1	2	3	4	5	6	7	8	9	10
RI	0.00	0.00	0.58	0.9	1.12	1.24	1.32	1.41	1.46	1.49

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2.5. THE SYNERGY OF CUSTOMER ORIENTED TOOLS FOR IMPROVING SERVICE QUALITY

Now a day's market competition is increasing, organizations should apply continuous improvement to maintain and enhance their competitive edge. Therefore, strategic move towards innovation like integrated approach involving SERVQUAL, Kano's model, and QFD is needed (Baki et al., 2009). This integrated approach helps companies to assess customer satisfaction, to direct improvements in strengthening their weak attributes, and to speed up the growth of innovative services through the identification of attractive attributes and setting them into upcoming services (Kay C. Tan & Pawitra, 2001)

According to Parasuraman et al. (1988), SERVQUAL used to understand the expectations and perceptions of consumers. In SERVQUAL model is the relationship between CS and SQ is linear, the implication is that the higher gap score of a service attribute, the more essential to prioritize for improvement actions (Pheng & Rui, 2016). However, with rising market pressure, continuous improvement may not be adequate in maintaining a competitive edge. SERVQUAL was not designed to address the element of innovation and not able to address how the gaps can be closed. Hence, it would be better if SERVQUAL can be integrated with other service quality tools that focused on reducing the service gaps (Kay C. Tan & Pawitra, 2001a).

Noriaki Kano developed a model to categorize the attributes of a service or product on how well they are able to fulfill customer needs as must-be, one-dimensional and attractive requirements (Kano et al., 1984). In a competitive marketplace, business groups need to adopt strategies and to create product attributes targeted specifically at exciting customers and over-satisfying them. According to Tan & Pawitra (2001) paying more attention to improving the quality of a specific service, the attribute may not always lead to greater customer satisfaction if that attribute is taken for granted. So, Kano's model cannot evaluate attribute performance.

According to (Kay C. Tan & Pawitra, 2001a) Kano's model is proposed to be integrated into SERVQUAL in to remove the linearity assumption and to provide innovative inputs. It helps SERVQUAL to prioritize the improvement of an organization's weaknesses based on the category of the requirement that leads to the highest CS and enable SERVQUAL to focus on the attractive attributes that are most preferred in the product/service innovation process. Kano model eliminates the linear assumption about the relationship between customer satisfaction and service quality and implements a nonlinear and asymmetric assumption, that different types of service attributes have

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different degrees of impact on customer satisfaction. Thus, should be allocated different weights when arranging attributes for improvement (Kay C. Tan & Pawitra, 2001a).

Pheng & Rui (2016) states that faced by all the service attributes that need improvement and their importance levels, the next stage is to close the service gap and improve service quality. But, SERVQUAL and the Kano model alone cannot address this problem. Integrating SERVQUAL and the Kano model into QFD can offer insight into solving this issue. Singgih & Ardhiyani (2010) states that applying SERVQUAL only into QFD does not tell us how to close gaps happened between customer perceived and expect. The customer needs (VOC) priorities reflect what customers require most but the real information needed in QFD is to know which customers we want to satisfy most and how to meet their requirements (Kay C. Tan & Pawitra, 2001b)

Various researchers like Kay Chuan Tan & Shen (2000); Kay C. Tan & Pawitra, (2001) & Singgih & Ardhiyani (2010) adopted the integrated approach for service quality improvement. It is the more powerful and inclusive approach for continuous service quality improvement, information on customer satisfaction and service performance is translated into particular working instructions and procedures. Rahmana et al. (2014) also used the concept of this integrated approach to improve the quality of simulation-based training on project management and recommend an integrated approach that could be applicable in manufacturing & service industries.

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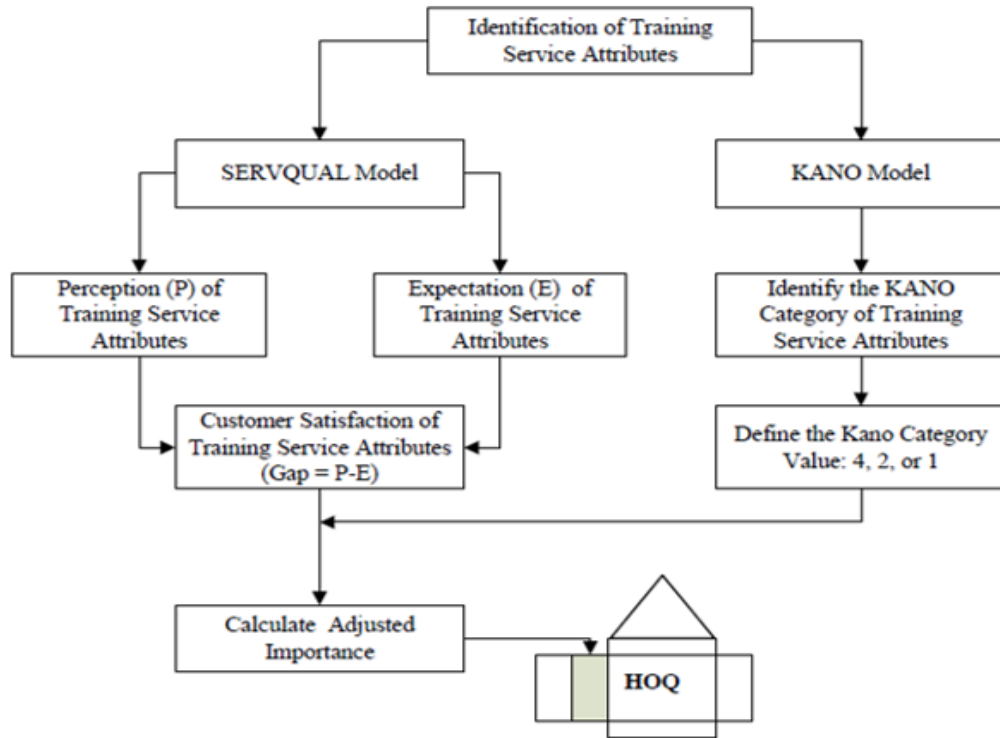


Figure 2.2.11: Framework for the integration of SERVQUAL and KANO model into QFD

(Source: Rahmana et al., 2014)

Tan & Pawitra (2001) were the first to propose the integrated use of SERVQUAL, the Kano model and QFD. They demonstrated this application by a case study focusing on Singapore's tourism sector. They start with employment of a SERVQUAL and a Kano questionnaire, then service gaps and service attributes' categories were identified, allowing attention to focus on the attributes with a negative gap score and at the same time classified under "A", "O" and "M" and finally use the output from the first phase and incorporate it into the HOQ. Note that adjusted importance score is $|P - E| \times \text{Level of importance} \times \text{Kano multiplier}$.

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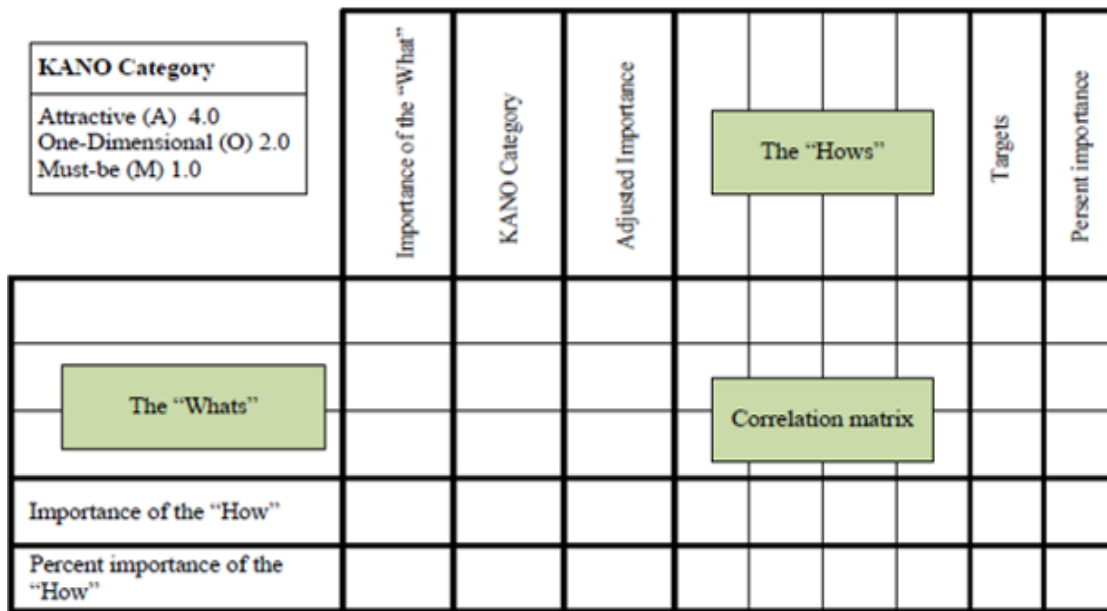


Figure 2.2.12: Structure of the house quality with integrated approach (Source: Pawitra & Tan, 2003)

According to Pheng & Rui (2016) many research proposed the approach of integrating the three tools because it can yield valuable results that cannot be obtained using either of them alone. It has been proven to be a useful tool for service quality management. The literature shows that there are no standard steps or methods for applying this integrated approach. The procedures and methods used by researchers depend on the nature and purpose of their studies. Most of the scholars ((Baki et al., 2009; Rahmana et al., 2014; Singgih & Ardhiyani, 2010; Kay C. Tan & Pawitra, 2001) agreed on three benefits for this integrated approach:

- ❖ It provides a basis for improvement planning.
- ❖ There is a prioritization of action plans as per VOC.
- ❖ There is better documentation, teamwork, and communication.

Many researchers adapted the technique MCDM AHP methodology in the integration of different customer-oriented approach models like SERVQUAL, QFD, and Kano's model. Wind & Saaty (1980) suggests applying AHP for marketing decision of determining the desired direction for the new product development, and evaluation of marketing mix strategy. Chua Chow & Luk (2005) adapting the AHP methodology for measurement of service quality in restraint industry using RATER and recommends analytic hierarchy process for service quality (AHP-SQ) to

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compute a gap analysis in a way that provides a competitive perspective in managing service quality.

Kazemi et al. (2013) used AHP with Kano's model to prioritize the factors affecting CS of the quality of services provided by the bank in order to gain more competitive advantage and found that the rules and employees skills, indicated as the most important factors in CS. Synchronizing QFD and AHP method is used to rank the customers or suppliers on the basis of criteria and how far they are impacted by each alternative N. Jain & Singh (2014). Pakizehkar et al. (2016) also illustrates Kano's model, AHP and QFD to prioritizing the bank's subtractions, they identify the competitive priorities and classify requirement through Kano's model, then prioritize them by using analytical hierarchy and finally identify technical requirement through QFD and design quality home.

From the literature the researcher recognize that using SERVQUAL alone is not effective for improvement because it is not designed to address the element of innovation and not able to address how the gaps can be closed. Kano's model also does not provide an explanation of what drives customers' perceptions and why the particular attributes are important to the customers when it is used alone. If SERVQUAL and Kano's model are integrated the linear assumption will be eliminated because kano follows nonlinear and asymmetric assumption. Using SERVQUAL and the Kano model cannot address the problem. Service quality is measured and prioritized, but problem is not addressed still. QFD is a planning/designing process, by integrating this two model into QFD problem can be addressed from root. Then, integrating of the three method is powerful and inclusive approach for continuous service quality improvement.

In this study, researcher realized that during building house of quality for integrated approach consistency of subjective decision of relationship matrix is not checked, it may not reflect strong relationship of customer needs and technical requirements. Therefore, this integrated approach relationship matrix should be supported by multiple criteria decision making-analytical hierarchy process (AHP) to strengthen subjective decision of teams.

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2.6. SERVICE QUALITY AND INSURANCE INDUSTRY

2.6.1. Principle of Insurance

There are six key principles of insurance which used as the central principles that make up any insurance contract. These principles are essential to understand to ensure that your insurance policies are covered on the correct basis (Hailu, 2007). These are insurable interest, utmost good faith, proximate cause, indemnity, subrogation, and contribution.

All risks are not insurable, the insured vehicle must be capable of financial measurement, not be against public policy, the premium needs to be reasonable, and an insurable interest for the person insuring. There must be something tangible that can be ensured such as property rights imposed by law. Utmost good faith insurance principle requires anyone looking for insurance to disclose all appropriate facts that influence the judgment of a careful underwriter in fixing the premium. The insurer has the right to void a contract when material non-disclosure can be proved (DM Sheaba & Sekata Kenea, 2017).

The proximate cause is the main source that has a contribution to the chain of events. All contracts are subject to conditions and terms that can ignore certain causes of damage or loss. It is important to determine the cause of the loss in order to decide if that cause is covered or excluded. The exact compensation to restore the policyholder to the financial position is called Indemnity rule (Birhanu, 2018). The principle of subrogation permits the insurer to pursue any rights or remedies which the policyholder may possess, always in the name of the policyholder. If insured has a claim paid by their insurer, they may also have a right to pursue funds from another party.

The contribution is the right of an insurer to call upon the other insurers to share the costs of such a claim payment. An insured party may have policies with two or more insurers covering the same risk, although not necessarily with equal degrees of liability. Therefore, in the event of a claim, all of the insurers should pay an equitable proportion of the claim payment. Hailu (2007) states that contribution is the right of an insurer to call upon the other insurers to share the costs of such a claim payment.

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2.6.2. Ethiopian Insurance Industry

Many researchers have written the vital purpose of insurance is protection against possible the economic loss, economic loss is basically defined as the unintentional and permanent loss of something which has monetary value (Dickson, 2001; DM Sheaba & Sekata Kenea, 2017). According to (Dickson, 2001) insurance is an agreement where, for a stipulated payment called the premium, one party (the insurer) agrees to pay to the other (the policyholder or his designated beneficiary) a defined amount upon the occurrence of a specific loss. An exceptional feature of the insurance industry is the peculiar rules of the game such as insurable interest, utmost good faith, indemnity, contribution and subrogation which underwriters are more conscious of what the customers (Zelalem, 2017).

From accounting point of view, insurance categorized into two, life insurance and General insurance (non-life insurance). Life insurance guarantees to pay a certain sum of money to the policyholder on reaching a certain age or on his death whichever is earlier (Hailu, 2007). General insurance provides coverage of protection from damages or losses excluded from the life insurance (Tatek, 2018). It includes all other types of insurance except life insurance as fire insurance, marine insurance, accident insurance, burglary, fidelity, third party, workmen compensation, consequential loss etc. Profitability is one of the greatest important objectives of the financial organization because one of the goals of financial management is to maximize the owner`s wealth and profitability which in turn shows better financial performance (Birhanu, 2018).

According to DM Sheaba & Sekata Kenea (2017) motor insurance is one of the main insurance services provided by insurers in Ethiopia. Development of non-life insurance gross written premium from 2010 to 2018 indicates the dominance of motor insurance policy in Ethiopia that records 4,346.5-million-birr (National Bank of Ethiopia, 2018).

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Table 2-5: Development of Ethiopian non-life insurance gross written premium from 2010 to 2018
(Source: National Bank of Ethiopia, 2018)

Class of Insurance	2010	2011	2012	2013	2014	2015	2016	2017	2018
Aviation	103.30	188.60	237.70	231.60	245.50	220.70	270.30	258.80	573.80
Eng.	233.80	190.70	243.70	733.50	432.00	430.40	421.50	507.70	754.20
Fire	108.80	136.00	197.40	229.70	163.80	309.00	372.10	487.40	580.800
Liability	33.20	50.50	99.10	117.00	163.80	189.80	167.60	221.90	293.60
Marine	284.50	390.60	577.30	531.70	536.70	490.40	472.40	532.30	470.90
Motor	770.80	1,082.00	1,861.20	2,101.70	2,421.70	2,830.60	3,489.10	3,982.20	4,346.50
Acc/H	105.10	104.00	117.10	147.10	169.60	192.00	180.90	260.54	294.10
Pecuniary	126.80	205.90	308.50	329.30	352.80	416.30	478.90	429.80	453.60
WC	49.60	57.30	65.00	53.20	58.20	69.40	144.50	160.60	180.10
Others	8.90	16.70	17.30	22.80	26.60	93.30	65.20	92.50	165.70
Non-life total	1,824.90	2,422.40	3,724.80	4,497.70	4,687.70	5,242.10	6,093.70	7,133.50	8,113.20
Growth in %	14.74	39.97	66.99	10.00	-8.56	11.83	16.20	17.10	13.70

2.6.3. Motor Insurance

According to (Carman, 1919; DM Sheaba & Sekata Kenea, 2017) motor insurance is insurance type issued to provide indemnity when the financial loss arises due to overturning, collision, stolen and fire either on insured motor vehicles or/and others /third party/ unintentionally. The motor policy provided on a yearly basis with exceptions and conditions. It is renewable insurance before the policy date of expires (Tatek, 2018).

Different reports and magazines show based on the purpose of vehicle, motor insurance policy also sub-divided into two private vehicle insurance and commercial vehicle insurance. There are different main covers and extension covers delivered under motor insurance business (Hailu, 2007; National Bank of Ethiopia, 2015). Motor insurance has two distinct sections; one relating to its physical damage, which is categorized under property insurance and the other relating to injury or death and collision of third parties' property which is part of liability insurance. Motor insurance coverage includes property coverage, liability coverage, medical coverage. there are four types of motor policies in Ethiopian market (Zelalem, 2017).

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There are four types of Motor Policies in the Ethiopian market. There are compulsory third party, third party only, third party fire and theft, and comprehensive motor insurance.

Compulsory Third Party Motor Insurance policy is the minimum cover provided by motor insurers which is sufficient to comply with the minimum insurance requirements of Ethiopia (i.e. Proclamation no. 559/2008). The cover will apply to incidents which occur on a road. The policy provides bodily injury compensation for death, compensation for disability, and medical expense up to Birr 40,000.00 per person with a minimum of 5,000 birrs. Compensation for third party property damage up to birr 100,000 per event for both private and commercial motor vehicles (DM Sheaba & Sekata Kenea, 2017). Third Party Only cover will extend the third party liability cover to any situation involving a motor vehicle within the territorial limit. Under TPO policies, the off-road cover is also provided. TPO cover on private policies has a well-known extension which enables the policyholder to drive a vehicle not belonging to them and be covered for third party risks. The policyholder may also drive a motor car or motorcycle, not belonging to him and not hired to him under a hire purchase agreement.

Third Party Fire and Theft Cover policy extends a third party cover to incorporate elements of cover that relate to the policyholder's own vehicle. Such a policy will provide indemnity for loss of or damage to the insured's vehicle and (accessories and spare parts) caused by fire or theft or attempted theft. Nowadays, most private car policies will provide fire and theft cover in relation to accessories and spare parts irrespective of whether they are fitted to the vehicle. Under the motorcycle policy, theft of such accessories or spare parts will not be covered unless the vehicle is stolen at the same time (Tatek, 2018). A comprehensive motor insurance policy provides the greatest extent of cover. The term comprehensive can be a little misleading in that such a policy does not provide blanket cover, no matter what the nature, extent, and cause of the loss. The intention is to provide cover for accidental damage to the insured vehicle and to indemnify the insured against third party liabilities. Accident caused by fire, external explosion, self-ignition, lightning theft or attempted theft, malicious act in transit (including the process of loading and unloading) and impact damage caused by falling objects.

In the countries where third-party motor insurance is compulsory, a certificate and Sticker of motor insurance is required in a prescribed form. Sticker of motor insurance is prescribed by the regulations. Certificate and Sticker of motor insurance contain Certificate number, details of

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the vehicle covered, name of the policyholder, effective date of the commencement of cover, date of expiry, classes of persons entitled to drive limitation. the commencement of cover, date of expiry, classes of persons entitled to drive limitation.

2.6.4. Motor Underwriting or pre risk assessment process

Birhanu (2018) states that underwriting is a process that permits insurers to classify risks and price them accordingly. Among the basis of successful insurance, the operation is the ability to underwrite well as poor risks selection results in significant losses and insurer failure. In the underwriting process magnitude of the risk that means a probable maximum loss (PML) should be identified before handling the risk of insured. That means pre-risk surveyors check all status like model, condition, Originality, availability of spare, familiarity, market value and extra fittings of insured property on the report including recommendation. Customers should be notified clearly about insurance policy bought (condition/exclusion) and exceptions on the pre-risk survey report.

DM Sheaba & Sekata Kenea, (2017) states that Premium problem comes from inappropriately rating a risk. Rating is the setting up of a premium to a given risk after the underwriter has decided to accept the risk. Incorrect rating may lead to disaster while appropriate rating to success. Good Rating does not mean high premium charge but rather to create a protective system to lower the cost and expenses to charge a rational premium.

2.6.5. Motor Claim or post risk assessment process

Service in insurance is fundamentally measured in claim payment. It should be settled on time or declined soonest possible by giving an acceptable explanation for the declination. What the insured need is just a fast payment with what is payable without dragging on the circumstance for months and months (DM Sheaba & Sekata Kenea, 2017).

There are four methods of providing indemnity. They are Cash Payment, Repair, Replacement and Reinstatement. According to DM Sheaba & Sekata Kenea (2017) claim is a request for compensation by the insured and addressed to the insurer. The roles of the claim department are to provide a fast, efficient and technically knowledgeable and policyholder in accordance with the cover purchased. The various stages in the claim process are the event giving rise to the claim and claims notification, claim review and response to claimant, claims investigation and claims negotiation and claims settlement and claims recoveries (Hailu, 2007).

CHAPTER THREE

3. RESEARCH METHODOLOGY

According to (Kothari, 2004) research methodology is a way to systematically and scientifically solve some difficulties or tricky raised in the statement of the problem of the research.

3.1. RESEARCH DESIGN

Research Design is developed to collect and value gathered facts in order to enhance understanding of a specific topic (Kothari, 2004; Walliman, 2011). This research focuses on the service quality improvement in pre and posts risk assessment process in the case company and process analysis focuses on motor insurance in depth. The nature of the research was descriptive and the methodological frame work was constructed as follow.

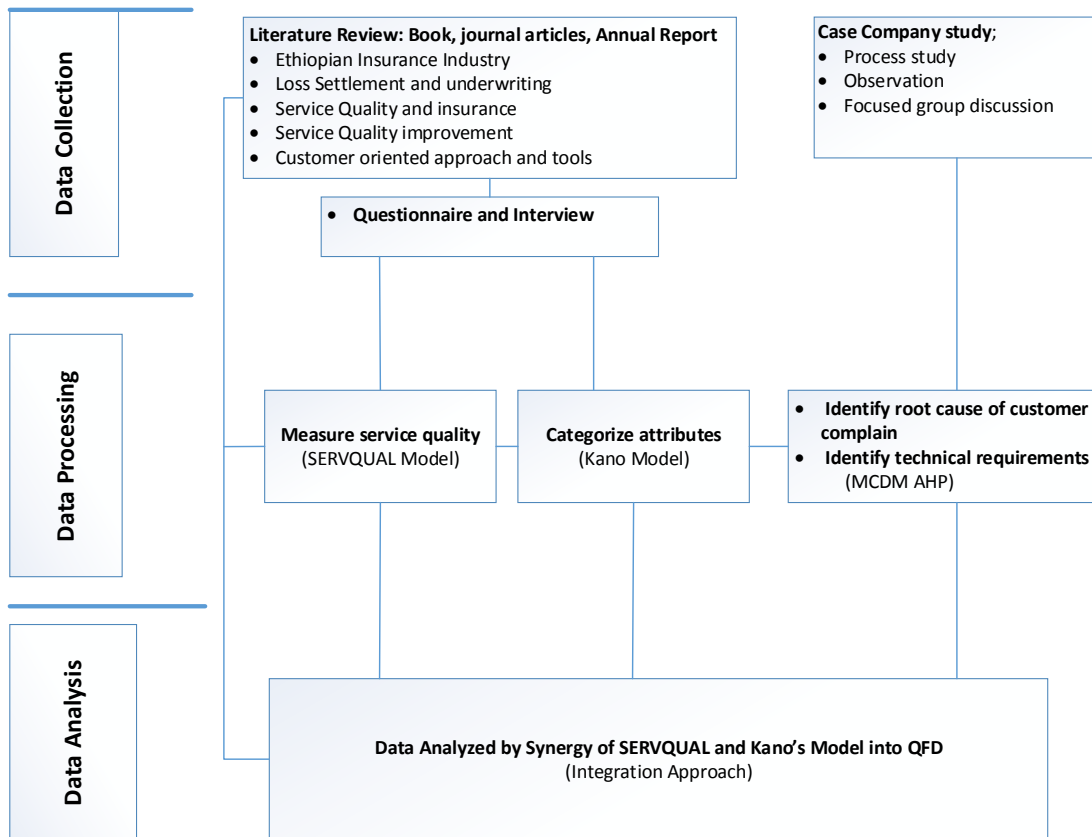


Figure 3.1 Research methodological frame work

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3.2. RESEARCH POPULATION AND SAMPLE

Kothari (2004) definite sample design as a plan for getting a sample from a given population and categorize into random sampling and non-random sampling. Probability sampling divided into Simple, Stratified, Systematic and Cluster Random Sampling where non- probability sampling includes Judgment, Convenient and Quota sampling (Walliman, 2011). In this study two segments of the population were involved that means, employees (internal customer) and customers of the case companies. The population and sample size calculation used in this paper were divided in three parts (Process study, SERVQUAL model and Kano's model).

3.2.1. Population and Sample size of Process Study

Researcher used stratified and simple random sampling for process study. For sample size calculation, the researcher used the formula with finite population correction by Daniel (1999) as follows.

$$n = \frac{NZ^2P(1 - P)}{d^2(N - 1) + Z^2P(1 - P)}$$

where n = sample size with finite population, N = Population size, Z = Statistic for a level of confidence, P = Expected proportion and d = Precision

Commonly confidence level 95% is used for academic study and expected proportion of population mostly need pilot test, if impossible it should be 0.5 (Kothari, 2004). For total opened file $N = 5070$, $p = 0.5$, Confidence level = 95% then sample error or precision (d) = 0.05 and $Z = 1.96$ from table with confidence level of 95%. The researcher took total population (N) 5070 files available in the archive that were opened in 2017 to April 30, 2019.

$$n = \frac{5070 (1.96)^2 0.5(1-0.5)}{(0.05)^2(5070-1)+(1.96)^2 0.5(1-0.5)} = 357.167 \quad \text{Sample size } (n) \sim \mathbf{357}$$

The sample size from each stratum is determined in proportion with the stratum population. To determine the size of sample items which must be selected from the stratum population.

$$n_i = \frac{nN_i}{N}, \text{ Where } n: \text{ Total Sample size, } N: \text{ Total Population size, } N_i: \text{ Stratum population}$$

size and n_i : Stratum sample size.

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3.2.2. Population and Sample Size of SERVQUAL Model

Convenience sampling method was used for SERVQUAL model questionnaire respondents. Researcher used basic formula for calculating the sampling error for sample estimate of a population parameter is formulated as follows:

$$\text{Sample error} = \frac{\text{Variability of the measurement (Values among the sampling units)}}{\sqrt{\text{Size of the sample}}}$$

The researcher did a pilot test with the standard variation in the factor of service quality measurement in Gronroos model (Gronroos, 2000) that summarized in the following table:

Table 3-1: Gronroos model standard variation in factor of service quality measurement

Service quality dimension (RATER)	Means Standard Variation
Tangibles	0.708
Reliability	0.301
Responsiveness	0.521
Assurance	0.263
Empathy	0.755

According to (Mehdi Bozorgi, 2007) who used Gronroos model variation, to choose the precise sample size, the biggest or average standard variation is the best selection and 5% sampling error is appropriate enough for an academic study. Accordingly, the sample size (n) is calculated by using the above data.

$$0.05 = \frac{(0.701+0.301+0.521+0.263+0.755)/5}{\sqrt{n}}, \text{ Sample size (n)} \approx \mathbf{104}$$

3.2.3. Population and Sample Size of Kano Model

Convenience sampling method, a non-probability sampling method was used for Kano's model respondents. The sample size is determined by commonly used formula in estimating the mean or the proportion is as follows.

$$n = \frac{Z^2 * \sigma^2}{e^2} = \frac{Z^2 * P(1-P)}{e^2}$$

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where n = sample size, Z = Statistic for a level of confidence, e = sample error and P = expected prevalence or proportion (in proportion of one; if 20%, $P = 0.2$). In many cases, we can get this estimate from previous studies. Therefore, respondent sample size for Kano questionnaire is calculated from confidence level 95 % which is most researchers used for academic study, sample error = 0.05, $Z = 1.96$ from statistical level of confidence table and expected proportion (P) is estimated from previous study $P = 0.9$. (Naing et al., 2006; Rahmana et al., 2014; Singgih & Ardhiyani, 2010).

$$n = \frac{1.96^2 * 0.9(1-0.9)}{0.05^2} = 138.29, \text{ Sample size } (n) \approx \mathbf{138}$$

CHAPTER FOUR

4. DATA COLLECTION AND ANALYSIS

The task of data collection starts after a research problem has been defined. According to Kothari (2004) determining about the method of data collection to be used for the study, the researcher should recognize two types of data primary and secondary. This study was used mixed way of data collecting techniques, qualitative and quantitative. The primary data is collected based on questionnaires, direct observation and interview from claims and underwriting department of the case company. The primary data was collected by structured questionnaire and focused group discussion and secondary data is collected from case company files, journal articles, books, company's annual report & websites and thesis papers.

In this study data was analyzed with the help of integrating SERVQUAL and Kano's model into QFD. Figure below gives an illustrative view of the phase analysis procedure to develop the service quality improvement of motor insurance by integrating SERVQUAL and KANO Models into QFD aided with process study and AHP.

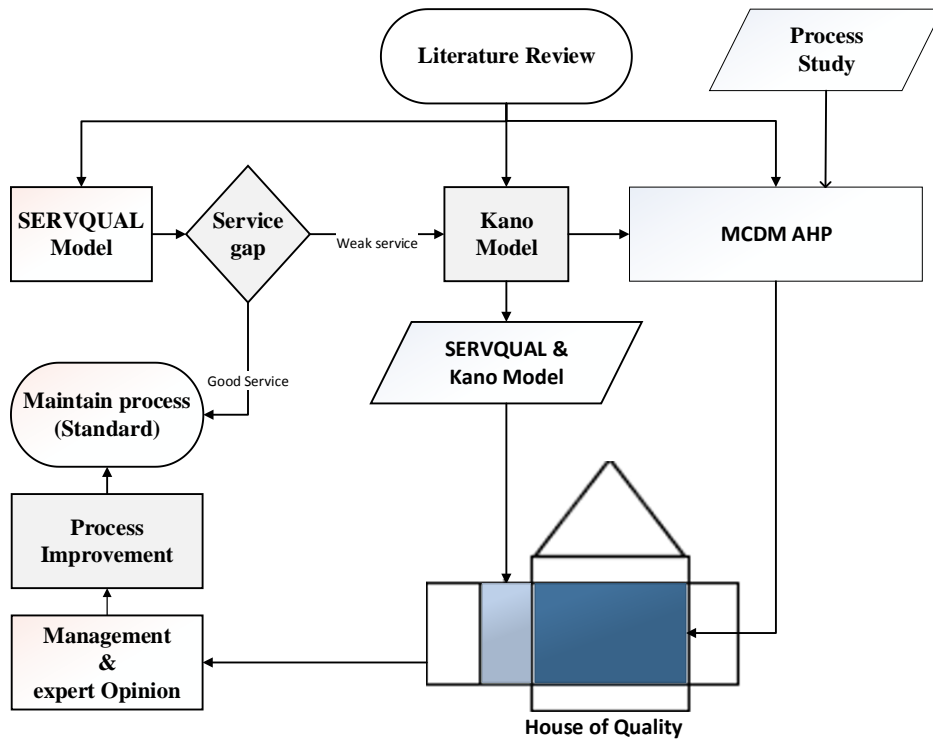


Figure 4.1: Research conceptual model

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Research conceptual model indicates that initially, literature review was started in parallel of process study, SERVQUAL model was used to measure service quality and identify good and weak services. Since the research objective was focused on process improvement, weak attributes must be addressed first. Hence, good service attributes kept as standard or maintained process while weak service attributes directed to kano's model and prioritized by using Kano category (must be, operational, Attractive and indifferent). Because there no need to invest on indifferent service category in the improvement plan.

Data from process study was used to find the problematic stages and root cause of customer's complaints in motor claims, after the root cause of customer complaints were identified, technical requirements were proposed by insurance experts or teams that was entered in HOQ and the feature that were measured as weak service quality by SERVQUAL model and service which could create value to the company prioritized by kano model inserted in HOQ. MCDM-AHP was used to measure the relationship between customer requirements and technical requirements instead of purely subjective and the level of importance of technical requirements were calculated from HOQ. Then technical requirements with high level of importance put in action depending on management decision for improvement.

4.1. PROCESS STUDY

General principles of underwriting or pre-risk survey, the accurate rating of risks can make the difference between profit and loss for an insurer. The main rating factors for motor insurance include; a vehicle to be insured, proposer, drivers, geographical area of use and/or garaging and use to which the vehicle is put cover required. An insurance premium is made up of a number of elements; the amount that is required to pay Claims, allowance for Variable costs (commission), allowance for operating costs of the company.

Factors which affect the cost of repairing accidental damage are the extent of damage, availability of parts (genuine or local), the possibility of accident, modification to cars which affect repair cost, the age of the vehicle, and value of the vehicle. Considering the above factor and pre-risk survey report insurance company's management decide to handle or reject the risk. Identifying original equipment manufacturer (OEM) and original equipment equivalent (OEE) parts,

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possibility of loss, familiarity of vehicle and other factors play great role to improve underwriting processes that has consideration in claim settlement process.

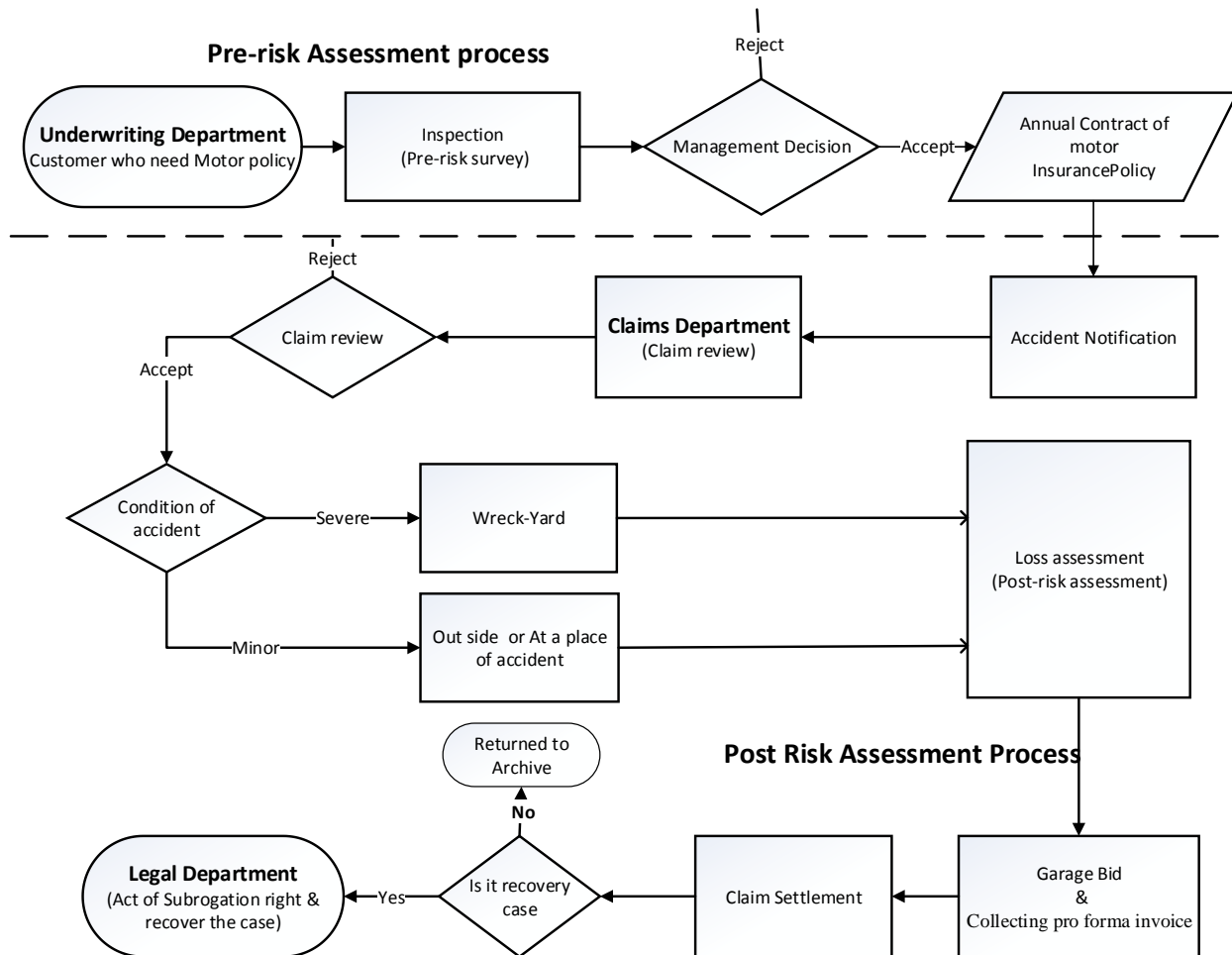


Figure 4.2: Process flow chart of motor insurance pre and post risk assessment

4.1.1. Stages of Claim Process

A. The event giving rise to the claim and Claims Notification

This is the reporting of the claim by the insured to the insurer. The purpose of this condition is to enable the insurer to take steps to investigate claims in order to minimize its exposure under the policy. It enables loss assessors and lawyers to investigate the circumstances so that detailed evidence is not lost. It also gives insurers the opportunity of investigating possible recoveries from third parties.

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B. Claim Review and Response to Claimant

This involves the analysis of the claim by the insurer. The appropriateness of the amounts claimed and the exact terms of the policy legal requirements are reviewed. The initial response from the insurer to the insured may be only an acknowledgment and a request for further information. Depending upon this further information, the insurer must then convey their Claim decision which can payment (acceptance of the claim in broad terms), negotiation (the liability is accepted by the insurer and the quantum of the claim is the only point in argument and rejection (liability is not accepted by the insurer).

C. Claims Investigation and Claims Negotiation

The insurer will not be in a position to make a claim decision before the full facts surrounding the claim are available. In order to establish such facts, it may be necessary to instruct an internal claims inspector to undertake further investigations or appoint loss assessor/loss adjusters who undertake an independent investigation into the claim and write a report of their findings for the insurer.

D. Claims Settlement and Claims Recoveries

Payment of the claims, claim settlement may be delayed for some time in the case of claims where liability is initially denied, then subsequently negotiated. Following payment of the claim, if the case is not recover case file is closed and send to archive, but if it is recovery case the insurer will be able to recover part of the outlay from other sources or third parties considered liable for the insured event by exercising their subrogation rights. If not recovery case

Generally, the maximum the insurer will pay is the market value of customer's vehicle at the time of damage or the Sum Insured, whichever is the lesser. Market value is the amount that it would cost to replace a vehicle with one of similar make, model, condition, and mileage. There are other deductions like excess (Standard excess, Young and inexperienced driver excess, Voluntary excess), Loss of use or betterment contribution (Depreciation, wear and tear, mechanical or electrical, electronic or computer failures or breakdown). There are losses which have no coverage with motor insurance policy; damage to tires from braking or by road puncture, cuts or bursts, Loss of or damage to telephone or communication equipment of any kind unless extended and loss or damage as a result of deliberate actions by the insured person.

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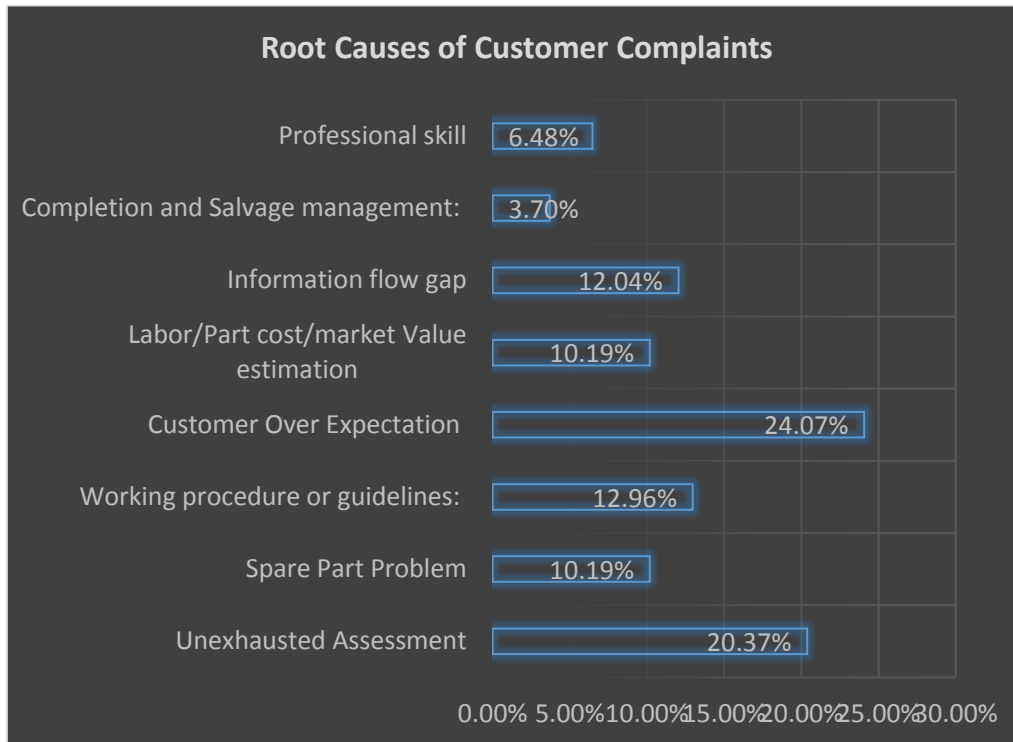
In this study data was collected from the case company. Different customer complaints were collected, from total population 5070 files available in the archive that were opened in 2017 to April 30, 2019. From the total file or population sample size taken was 357 file, and 93 files were found with customers complain. Data collected from files was conducted at head office claims directorate and two branches that were selected based on their operation. i.e. they process both underwriting (pre-risk assessment) and claims or loss settlement (post risk assessment).

Data collected from selected own damage files includes, policy claim number, type of the accidents, date of accidents, date of assessment, place of assessment, type of complains, numbers of complains, number of accepted and rejected complain and possible root cause. From 93 file that were with customers complains the researcher found 362 numbers of complains, and three types of accidents collision 72%, overturning 25.8 % and fire 2.2%.

Generally, from 362 received complaints, Researcher categorized the total received customer complaints by their root cause with focused group discussion and found 8 (eight) major root causes of customer complain/dissatisfaction on motor insurance. These 8 pillars of root cause of customer complaints are customer over expectation, unexhausted assessment, working guidelines, information flow gap, Spare part problems, labor/part cost and market value estimation, professional skill, and completion and salvage management.

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Chart 1: Root Causes of motor claims Complaints



4.1.2. Process Study Result

From total received complaint 158 complaints were accepted by the case company where and the rest were rejected. Mean that 43.65% customer complaints were accepted by the case company and having the above root causes. The researcher discussed these root cause of customer dissatisfaction in brief as follows;

1. Customer Over Expectation or Fraud

From collected data customer over expectation is the highest percent (24.07%) mean that some customers over expect from the insurer when an accident occurs. This over expectation cause insurance clients to forward complain like asking coverage for previous damage that is not related with a current accident, collecting false pro forma invoice, interfering maintenance labor cost, hiding parts, intentional property damage, and others

2. Incomplete Assessment

Some of the incomplete or unexhausted assessments are forgotten parts during the assessment, non-clear survey report assessment, carelessness, fail to remark extra fitting of the vehicles, fail to

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remark expected mechanical of claimed vehicle and it is the second root cause of customer complain (20.37%).

3. Working procedure or guidelines

Insurance companies set guidelines for good execution of duty. However, if not stated well, it increases customer complaints. Complaints coming from such guidelines were wrong procedure, unspecified limit, non-updated guidelines of workers and scores (12.98%).

4. Information flow gap

The information has a great impact on insurance activities. The data shows that 12.04% of customer complain came from information flow gap. Complaints arise from the insufficient information between officers and customers, officers and surveyors, surveyors and management, officers and management were most of causes client complain that was found by this study in the case company.

5. Spare Part Problem

Spare part is one of the main issues in insurance companies that cause different complaints. The frequent client complaints were on the unavailability of spare parts (obsolete parts), scarcity of parts, dealers delay to provide parts, non-match parts to the vehicle's body due to wrong part number and model which is 10.19% of root cause of client dissatisfaction.

6. Labor, Part cost and market Value estimation

A surveyor is a professional link between the insured and the insurer. Insurance surveyor estimates repair cost, and market value of the vehicles. According to process study 10.19% of customer complain came from Poor subjective decision on repair cost estimation and market value estimation have a great impact on customer's satisfaction in insurance companies. Not only this, fluctuation of market value that leads to under insurance and over insurance can be pointed as a root cause of customer complaints.

7. Professional skill

Professional skill is one of the major issues for any business company. If skill is not enough for what we do, it opens the door for complaint. Complaints from lack of professional skill like the

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wrong professional decision, lack of training/non updated employee and others causes the case company's clients to forward complain in 6.48%.

8. Completion and Salvage management

Completion and Salvage management were the least cause of push customers to write complain (3.7 %). Salvage collection serves as a means of cost minimization for insurance companies if managed well. The complaint raised from completion and salvage management includes unclear completion guidelines and poor salvage control and salvage collection method according to this study.

From process study the researcher recognize that pre-risk assessment and post risk assessment are interconnected activities. From the above stages of claim process the most problematic area is loss settlement stage. Customer dissatisfaction or complain highly seen in this stage than another stages of motor insurance process.

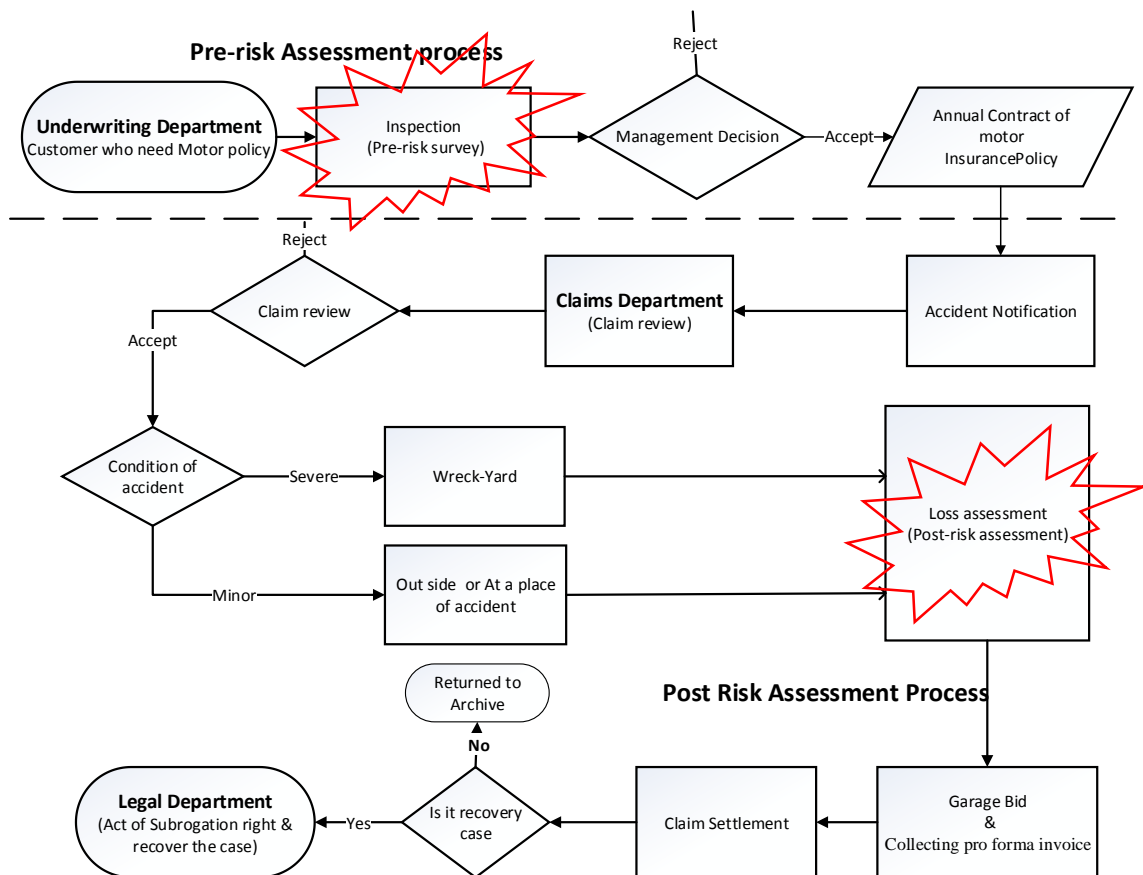


Figure 4.3: Problematic stages of motor insurance

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Pre-risk survey requires high professional skill; pre-risk surveyor or engineers should be good expert to estimate probable maximum loss, if pre-risk is not assessed well, it also affects the post risk assessment when accident occurred. Therefore, pre-risk stage is problematic area of underwriting process.

After the root causes were identified, researcher focus on how to reduce the gaps that come from these root causes of customer complaints and how to improve the insurance processes in post and pre-risk by reducing or if possible eliminating them. To find the solution of the above eight pillars of root causes of motor insurance complaints, five teams were created. Each team contains manager/branch manager, senior officer, and senior engineer who have at least seven-year insurance experience and worked in senior position for above 2 years. Each team member had full information about the study and they had got short note of collected data from files.

After having clear objective of the study, all teams proposed possible solution for each root cause of motor insurance customer dissatisfaction with group discussion. The researcher summarized experts proposed solution in the table as follows;

Table 4-1 Experts proposed solution for the root cause of customer complaints

No.	Root cause of Customer Complaints	Experts Proposals
1	Unexhausted Assessment	<ol style="list-style-type: none"> 1. Create or select suitable place of assessment and adopt efficient approval system 2. Conduct relevant training for employees 3. Encourage experience sharing habit (Brainstorming). 4. Updating working guidelines (by focusing on time, technology, inflation and customer requirement). 5. Having enough information earlier to assess damage (customer notification, inspector's information). 6. Follow systematic working schedule and work load management
2	Spare Part Problem	<ol style="list-style-type: none"> 1. Conduct efficient pre-risk survey 2. Periodical market assessment (inspectors with adequate skill). 3. Working with more (wide range) spare part dealer (not be specific). 4. Giving enough info. to customers earlier (Just in time - JIT).

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		5. Create well communication system with dealers (part name difference, working step and speed/repair time frame)
3	Working procedure or guidelines	1. Updating working guidelines (by focusing on time, technology, inflation and customer requirement). Mech., body (w/s glass and lamp), salvage, contribution etc. 2. Implement working guidelines at all branches in the same manner
4	Customer Over Expectation or Fraud	1. Encourage clear/neat surveyors/inspectors report (on time and computerized). 2. Conduct relevant training 3. Aware clients about the insurance product/policy they bought well. 4. Create responsible employees (internal customer satisfaction, follow customer oriented approach). 5. Fast response to claims/customer request
5	Labor cost/Part cost/market Value estimation	1. Encourage impartiality (free from interference) of survey report 2. Periodical market assessment and reasonable estimate 3. Conduct relevant training 4. Establish insurance garage (Own Garage). 5. Efficient garage selection system and management (wide range, geographically, quality, reliability and responsiveness)
6	Information flow gap	1. Conduct relevant training 2. Creating strong complain Handling system (Breakthrough-learning lesson). 3. Just on time information flow line (info. only from concerned person). 4. Encourage experience sharing habit (Brain storming)
7	Completion and Salvage management	1. Adopting systematic salvage control (well layout/arrangement, computerized documentation, fraud detection system/internet). 2. Dismantling necessary changed parts at wreck yard (Complete cabin, lamps) and mark important parts with non-erasable marker (follow subjective decision). 3. Adopt final checkup for all OD vehicles claims and avoid repeated completion request except exceptional.
8	Professional skill	1. Conduct relevant training top management commitment 2. Encourage experience sharing habit (Brainstorming). 3. Follow technology focused approach 4. Encourage applied research and compile documents that can improve company's service.

From the above summarized expert's proposals, the researcher discussed with focused group from the team and prioritize eight experts proposed solution. These were conduct relevant

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training, update working guidelines, create experience sharing habit, systematic salvage control, clarify policy to customer, follow JIT information flow, Breakthrough learned lesson, and efficient pre-risk survey.

From the above process study, the researcher recognized the actual root cause of customer complaints. Insurance experts who know the service delivery of motor insurance generate proposals for these root causes. However, current service delivered should be measured to recognize weak service attributes depending on customer focused approach. Therefore, current service quality of the case company was measured by SERVQUAL model in order to indemnify weak service feature that need improvement.

4.2. SERVQUAL MODEL

To measure service delivered by case company or five service quality dimensions, sixteen statements were selected from the structured SERVQUAL questionnaire format and reformed to make it short and best suitable for the insurance sector. Two sets of questionnaires were prepared; one set of questions asks the customers to indicate the extent to which the insurance's services should possess the features described by each statement. The other set asks about their views regarding the extent to which clients believe case company has the features and benefits described by the statement.

A seven-point Likert scale was used to get the level of expectation and perception associated with each service quality dimension of the insurance sector. The research sample consists of 104 respondent customers, 104 questionnaires were given to customers which 52 customers required to fill perception question and 52 customers required to answer expectation questionnaire. To make clear let's consider statement 1 from each questionnaire. The following table represents the calculation of the difference between the scores of expectation and Perception.

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Table 4-2: Questionnaire of customer expectation and Perception.

No.	Expectation Statements	Strongly DisagreeStrongly agree						
1	Insurance Company should have all the necessary modern equipment (Crane, Hydraulic Jacks, Diagnoses Machine, Computer, Security Camera.)	1	2	3	4	5	6	7
No.	Perception Statements	Strongly DisagreeStrongly agree						
1	X Insurance company has all the necessary modern equipment (Crane, Hydraulic Jacks, Diagnoses Machine, Computer, Security Camera.)	1	2	3	4	5	6	7

Difference = Perception – expectation, $5-6 = -1$, thus the gap between the perception and expectation is -1 which represents that according to the respondents the service performance could not meet the expectation. Hence, mean difference for all sixteen statement calculated and summarized as below in the table.

Table 4-3: Average gap between customer expectation and their perception regarding various service features of the case company.

Service Quality dimension	Statement	Mean Difference of statement (P-E)	Importance Weight	Mean difference for each SQ Dimension
Tangibility	Statement 1	0.403846154	6	0.028846154
	Statement 2	0.134615385	7	
	Statement 3	-0.134615385	5	
	Statement 4	-0.288461538	7	
Reliability	Statement 5	-0.384615385	7	-0.427884615
	Statement 6	-0.461538462	4	
	Statement 7	-0.076923077	6	
	Statement 8	-0.788461538	6	
Responsiveness	Statement 9	-0.153846154	6	-0.134615385
	Statement 10	-0.057692308	7	
	Statement 11	-0.192307692	7	
Assurance	Statement 12	-0.557692308	6	-0.288461538
	Statement 13	-0.019230769	7	
Empathy	Statement 14	-0.365384615	6	-0.158748115
	Statement 15	-0.211538462	7	
	Statement 16	0.100678733	6	
Total			100	

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This analysis shows that the average gap score between customer expectation and perception. The average gap score for most of the service quality dimensions of the case company was showing negative figure where the highest gap score is for reliability. Other four dimensions show the comparatively smaller gap that represents lesser customer dissatisfaction regarding the services. The researcher like to know how much each of these features is important to the customer. Total one hundred (100) points were allocated among the five features which are called SERVQUAL importance weight according to how important it is.

After service gaps were identified on each service quality dimension that delivered by the company and SERVQUAL importance weight allocated, weighted score was calculated as follow:

weighted score = | Mean difference for each SQ Dimension |* Importance Weight

Table 4-4: Weighted score of service quality dimension for case company.

Rater	Rater Gaps (P-E)	Importance Weights	Weighted Scores
Reliability	-0.428	18	7.704
Assurance	-0.289	25	7.225
Tangibility	0.0289	22	0.635
Empathy	-0.159	15	2.385
Responsiveness	-0.135	20	2.700

From the above Weighted score of service quality dimension for case company indicates that the high score were reliability and assurance followed by responsiveness, empathy and tangibility. Means that the case company should focus on these service quality dimension to improve service quality of motor insurance. However, improving all negative or service feature at once is impossible. Identifying indifferent activities those may not enhance customer satisfaction is important before investing on. So, for this research weak services were categorized using Kano's model as follows.

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4.3. KANO'S MODEL

Kano's model questionnaire is constructed through pairs of customer need questions. Each question has two parts: How do you feel if that feature is present in service (A functional form of question) and how do you feel if that feature is absent in the service (dysfunctional form of question). For example;

Functional Question: If insurance Surveyors have suitable personal protective equipment's for non-office work, how do you feel? Answers: "I like it"; "It must be there"; "Neutral"; "I can live with it"; "I dislike it".

Dysfunctional Question: How would you feel, if insurance Surveyors have not suitable personal protective equipment's for non-office work? Answers: "I like it"; "It must be there"; "Neutral"; "I can live with it"; "I dislike it".

No.	Kano's Model Questions	Answers (write (√) in the box you choose)
1a	If insurance Surveyors/inspectors have suitable personal protective equipment's (PPE) for non-office work, how do you feel?	<input checked="" type="checkbox"/> . I like it <input type="checkbox"/> . I expect it <input type="checkbox"/> . I'm neutral it <input type="checkbox"/> . I can tolerate it <input type="checkbox"/> . I dislike it
1b	How would you feel, if insurance Surveyors/inspectors have not suitable personal protective equipment's (PPE) for non-office work?	<input type="checkbox"/> . I like it <input type="checkbox"/> . I expect it <input checked="" type="checkbox"/> . I'm neutral it <input type="checkbox"/> . I can tolerate it <input type="checkbox"/> . I dislike it

If the customer answers to a Functional Question as "I like it"; Dysfunctional Question as "I am neutral", then by using Kano evaluation table both questions provide "A" i.e. Attractive Category. Indicating that service is delight customer requirement from the customer's point of view. If combining the answers falls in category I, it indicates customer is indifferent to this service feature. customer does not care whether the attribute is existing or not. Category Q is for questionable result. Usually, the answers do not fall into this category. Questionable result show that the person interviewed didn't understand the question or mark out incorrect answer. In the study, no service attribute received a Q-rate higher than 2%. If we see the answer in kano evaluation table yields category R, this service attribute is not only unwanted by the customer but, also expects the reverse.

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In this research for getting a practical understanding, a qualitative survey for the focused insurance expert interviews was carried out on 15 respondents and insights from this survey were gathered and based on good understanding, a Kano questionnaire was formulated in the structured questionnaire, there were thirty-six questions in three sections (Demographic information, pair question of Kano's model and Importance of service feature).

Determined sample size was 138 customers, the customers volunteered to participate the survey were selected by convenience sampling method, a non-probability sampling method, because of their convenient accessibility and proximity to the researcher. 138 questionnaires were distributed to customers in the case company's branches. Response rate was 61.6% i.e. 138 distributed questionnaire, 13 questionnaires were not evaluated because of some missing answers, 53 questionnaires were not returned and 72 completely answered questionnaires used for analysis. Kano Model analysis were used to analyze data collected.

Note that 72 questionnaires were answered in the survey. Among the 72 respondents, 35 % were females, 37.5 % of the respondents were ages 31- 45 years, 62.5% of the respondents were degree holders, 66.66% of the respondents have comprehensive motor insurance and 48.6% of respondents have been a customer of the case company for 1-5 years.

Customers response of Kano's model functional and dysfunctional were summarized in table 4.5. Feature's categorized by frequent response and leftmost wins' rule: Must-be > Performance > Attractive > Indifferent was used to analyze the results of close results between categories. All service features were not failed in the questionable and reverse category. Four service attributes were categorized as operational category, two service attributes were categorized in must be category and three service features grouped in indifferent category and one service categorized as attractive.

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Table 4-5: Responses of customers on Kano's model functional and dysfunctional questions

Customer Requirement Questions		A	O	M	I	R	Q	Total	Category	
1	Use personal protective Equipment	Responses	13	14	1	11	1	0	40	O
		Percentage	33%	35%	3%	28%	3%	0%	100%	
2	Convenient parking & wreck yard	Responses	9	9	11	11	0	0	40	M
		Percentage	23%	23%	28%	28%	0%	0%	100%	
3	Fast response to claims	Responses	7	15	6	8	1	0	37	O
		Percentage	19%	41%	16%	22%	3%	0%	100%	
4	Feel save in all Interaction of insurance	Responses	8	9	8	13	0	0	38	I
		Percentage	21%	24%	21%	34%	0%	0%	100%	
5	Less error working process	Responses	8	11	12	5	0	2	38	M
		Percentage	21%	29%	32%	13%	0%	5%	100%	
6	Informing when service occur	Responses	6	12	8	14	0	0	40	I
		Percentage	15%	30%	20%	35%	0%	0%	100%	
7	Fast response to request	Responses	9	14	4	11	0	2	40	O
		Percentage	23%	35%	10%	28%	0%	5%	100%	
8	Good behavior of staff	Responses	12	11	9	5	1	1	39	A
		Percentage	31%	28%	23%	13%	3%	3%	100%	
9	Care and attention	Responses	11	9	6	12	1	1	40	I
		Percentage	28%	23%	15%	30%	3%	3%	100%	
10	Employees support on taking correct action	Responses	8	16	6	4	4	0	38	O
		Percentage	21%	42%	16%	11%	11%	0%	100%	

Therefore, indifferent service attributes were identified. The organization should have focused first on must be features, second operational or one dimensional feature and next on attractive category. Hence, table 4.5 was rearranged according leftmost win rule of kano category of service feature.

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Table 4-6: Prioritized service attributes depending on Kano category

Tabulation of Questionnaire Response (Functional/Dysfunctional)										
Customer Requirement Questions			A	O	M	I	R	Q	Total	Category
1	Less error working process	Responses	8	11	12	5	0	2	38	M
		Percentage	21%	29%	32%	13%	0%	5%	100%	
2	Convenient parking & wreck yard	Responses	9	9	11	11	0	0	40	M
		Percentage	23%	23%	28%	28%	0%	0%	100%	
3	Employees support on taking correct	Responses	8	16	6	4	4	0	38	O
		Percentage	21%	42%	16%	11%	11%	0%	100%	
4	Fast response to claims	Responses	7	15	6	8	1	0	37	O
		Percentage	19%	41%	16%	22%	3%	0%	100%	
5	Use personal protective Equipment	Responses	13	14	1	11	1	0	40	O
		Percentage	33%	35%	3%	28%	3%	0%	100%	
6	Fast response to request	Responses	9	14	4	11	0	2	40	O
		Percentage	23%	35%	10%	28%	0%	5%	100%	
7	Good behavior of staff	Responses	12	11	9	5	1	1	39	A
		Percentage	31%	28%	23%	13%	3%	3%	100%	
8	Informing when service occur	Responses	6	12	8	14	0	0	40	I
		Percentage	15%	30%	20%	35%	0%	0%	100%	
9	Feel save in all Interaction of insurance	Responses	8	9	8	13	0	0	38	I
		Percentage	21%	24%	21%	34%	0%	0%	100%	
10	Care and attention	Responses	11	9	6	12	1	1	40	I
		Percentage	28%	23%	15%	30%	3%	3%	100%	

In this research five service featured were selected by focused group from created team of insurance expert. Therefore, selected customer requirement with their category;

1. Convenient parking & wreck yard, Category A
2. Fast respond to claims, Category O
3. Less error working process, Category O
4. Good behavior of staff, Category A
5. Employee support on taking correct action, Category M

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4.3.1. Customer Satisfaction Coefficient and self-stated importance

Customer Satisfaction Coefficient shows the extent to which satisfaction increases if a service requirement is met or the extent to which satisfaction decreases if a service requirement is not met. In addition to the Kano questionnaire, it is helpful to have the customer rank the individual service criteria of the present service attributes. Relative importance of the individual service criteria (self-stated-importance) was determined from customer rating that ranges from 1- 9 or from very unimportant to extremely important. Customer rates the importance of the features were summarized in table 4.7.

Table 4-7: Customer Satisfaction Coefficient and self-stated importance

No.	service requirements	$\frac{A+O}{A+O+M+I}$	$\frac{O+M}{A+O+M+I}$	Self-Statement Importance
Q01	Use personal protective Equipment	0.69	-0.38	7.3
Q02	Convenient parking & wreck yard	0.45	-0.50	7.7
Q03	Fast response to claims	0.61	-0.58	8.2
Q04	Feel save in all Interaction of insurance	0.45	-0.45	7.5
Q05	Less error working process	0.53	-0.64	7.3
Q06	Informing when service occur	0.45	-0.50	7.7
Q07	Fast response to request	0.61	-0.47	8.0
Q08	Good behavior of staff	0.62	-0.54	7.7
Q09	Care and attention	0.53	-0.39	8.1
Q10	Employees support on taking correct action	0.71	-0.65	7.8

A positive CS ranges in value from zero to one; Closer to value one, higher the influence on customer satisfaction. A value of zero shows that this service attributes does not cause dissatisfaction if it is not met. From the above table informing when service occur and feel save in all interaction of insurance scores the small customer satisfaction coefficient 0.45 and employees support on taking correct action, use personal protective equipment and fast response to claims were the feature with high customer satisfaction coefficient, 0.71, 0.96, and 0.61 respectively. In this research fast response to claims had high self-rating importance of 8.2 where use personal protective equipment for non-office work has got least self-rating importance 7.3.

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4.4. INTEGRATING SERVQUAL AND KANO'S MODEL INTO QFD

For the data analysis, the qualitative and quantitative data analyzed integrating SERVQUAL and KANO'S model into QFD. SERVQUAL Model was used to identify gaps of service quality dimension. Since objective of the study was to improve service quality, weak service of insurance activities was focused and services that were measured as good are maintain as standards. Kano model was used to prioritize customer requirements and categorize the service into categories of Kano model (must-be, operational, attractive and Indifferent) for the delivered service that were need improvement in the voice of customer. Beside SERVQUAL and Kano model processes study was conducted to identify root cause of customer complain or dissatisfaction on motor insurance service and gather possible reaction to decrease the existed root of customer complaints from insurance experts.

Measured service from SERVQUAL, prioritized and categorized service from Kano model and technical requirement from insurance experts were used as the input data of quality function deployment that used as service design/planning tool. Multiple criteria decision making approach analytical hierarchy process was used to weight the relationship between customer requirements and technical requirements instead of purely subjective correlation matrix of QFD that developed by professor Saaty and used by many scholars in the literature.

Kay C. Tan & Pawitra (2001) the first scholars who recognize the integration of SERVQUAL and Kano's model into QFD for service industry and apply the approach for tourism industry in 2003 (Kay C. Tan & Pawitra, 2003). Starting from 2003 G.C. Many researchers had done the research on different service industry by using integration approach (Baki et al., 2009; Singgih & Ardhiyani, 2010; Rahmana et al., 2014; Apornak, 2017). These Scholars used different structure house of quality and most of them follows (Kay C. Tan & Pawitra, 2003) others modify some of the feature of HOQ. The approach is the more powerful and inclusive approach for continuous service quality improvement.

To the best of the researcher's knowledge, most of scholars used normal subjective judgment for the relationship matrix of HOQ to determine importance of How's. Researcher realized that subjective decision of the experts that used to determine the importance of technical requirements in HOQ is better to Supported by multiple criteria decision-making method (MCDM) Analytical Hierarchy Process (AHP) as theoretical contribution of the study.

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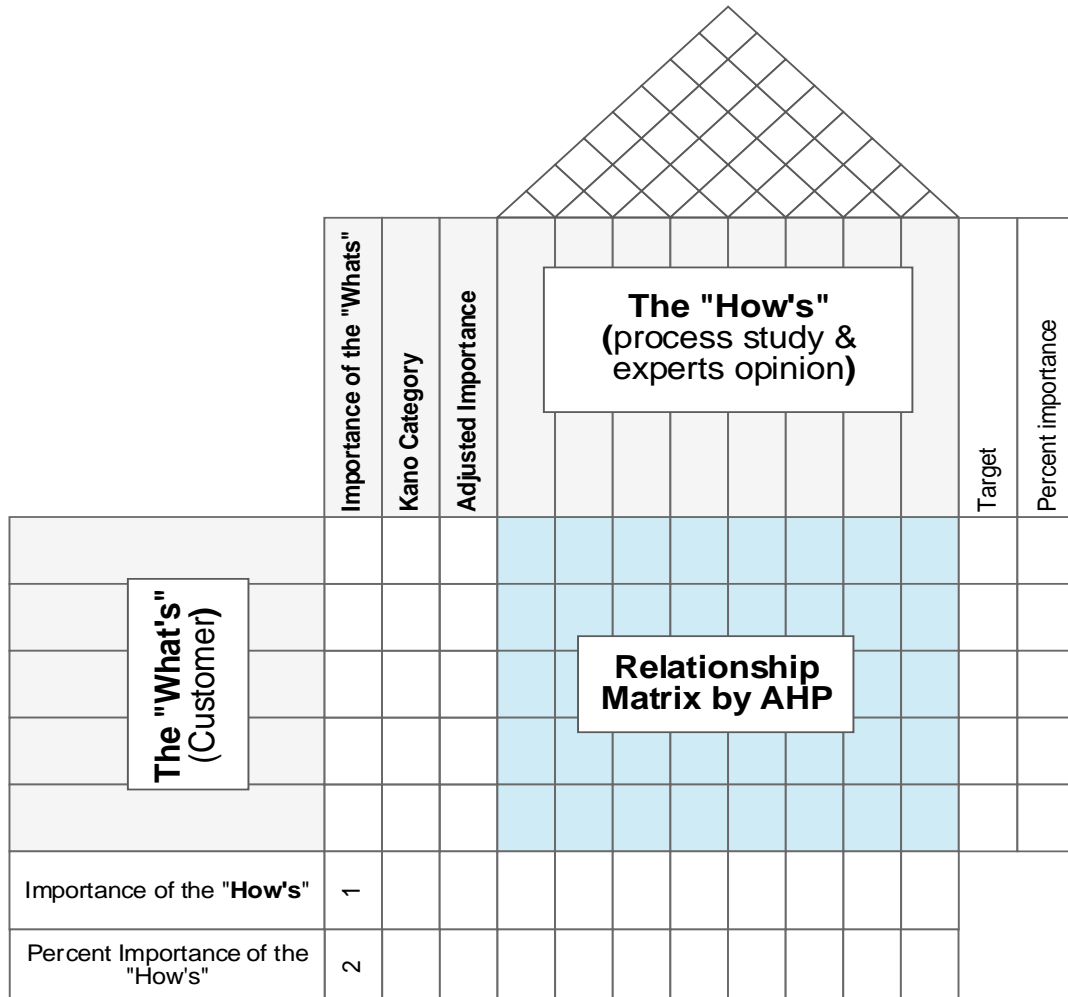


Figure 4.4: House of Quality (HOQ) for service quality design by using AHP for Relationship matrix.

AHP allows qualitative evaluation as well as quantitative evaluation and provides measures of judgment consistency, derives priorities among criteria and alternatives, simplifies preference ratings among decision criteria using pairwise comparisons (Wind & Saaty, 1980).

In process study five teams were created, each team include three experts with different working position and they proposed the ways to reduce root cause of customer complain or dissatisfaction after researcher identified root causes of customer complaints from deep study of case company files. From the expert's proposals, eight the most important were selected by focused group discussion and the researcher used these insurance expert's proposals as technical requirements that was used in HOQ. These technical requirements were conduct relevant training, update working guidelines, create experience sharing habit, adopt systematic salvage control,

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clarify policy to customer, create just on time information flow, Breakthrough learned lesson and Conduct efficient pre-risk survey.

Service quality delivered by case company was measured SERVQUAL, by distributing sixteen statements to customers as questionnaire analyzed in table 4.8. From SERVQUAL model weighted score and customer expectation were used as importance of the What's and target in house of quality respectively.

Table 4-8: Average customer expectation regarding various service features of the case company

Service Quality Dimension	No.	Expectation Average	Perception Average	Gaps (P-E)	Importance Weight	Weighted Score Gaps*Importance weight
Tangibility	T1	4.62	5.02	0.4	6	2.4
	T2	4.92	5.06	0.13	7	0.91
	T3	4.92	4.79	-0.13	5	0.65
	T4	5.29	5	-0.29	7	2.03
Reliability	R5	5.37	4.98	-0.38	7	2.66
	R6	5.19	4.73	-0.46	4	1.84
	R7	5	4.92	-0.08	6	0.48
	R8	5.5	4.71	-0.79	6	4.74
Responsiveness	Rs9	5.31	5.15	-0.15	6	0.9
	Rs10	5.42	5.37	-0.06	7	0.42
	Rs11	5.35	5.15	-0.19	7	1.33
Assurance	A12	5.71	5.15	-0.56	6	3.36
	A13	5.25	5.23	-0.02	7	0.14
Empathy	E14	5.63	5.27	-0.37	6	2.22
	E15	5.62	5.4	-0.21	7	1.47
	E16	5.76	5.87	0.1	6	0.6

Customer requirements were prioritized and categorized by Kano's model and selected customer's voice was convenient parking & wreck yard (Category A), fast respond to claims (Category O), less error working process (Category O), Good behavior of staff (Category A) and Employee support on taking correct action (Category M). these five service attributes were used as an input data in HOQ of "What's".

In this research the matrix of QFD Supported by Analytical Hierarchy process. Qualitative evaluation was done by focused group (selected expert from created teams). Five steps of

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Analytical hierarchy process were followed to find weighted relationship between customer wants and technical requirements. These steps are identifying customer requirements and technical requirements, develop pairwise comparison matrix $n \times n$, normalize the matrix, compute criteria weight/priority vector and consistency check.

A. Identify Customer Requirements and Technical Requirements

Customer voice were identified by using SERVQUAL and Kano's model, and technical requirement were identified by focused experts from created teams aided by of process study.

Customer Requirements (CR)

- a. Convenient parking & wreck yard
- b. Fast respond to claims
- c. Less error working process
- d. Good behavior of staff
- e. Employee support on taking correct action

Technical Requirements (TR)

1. Conduct relevant training
2. Update working guidelines
3. Create experience sharing habit
4. systematic salvage control
5. Clarify policy to customer
6. JIT information flow
7. Breakthrough learned lesson
8. Efficient pre-risk survey

B. Develop the AHP Matrix Representation in Pairwise Comparison.

Pairwise comparison representation was formed by 8×8 matrix, where n is number of technical requirements (CTQs).

Table 4-9: Representation of pairwise comparison.

Criteria	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8
TR1	1.00							
TR2		1.00						
TR3			1.00					
TR4				1.00				
TR5					1.00			
TR6						1.00		
TR7							1.00	
TR8								1.00

Quantitative Evaluation

Qualitative Evaluation

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Pairwise Comparison Matrix “C” of each technical requirement was filled by AHP Ranking. Note that 1 means that technical requirement A and B are equally preferred to selected criteria (Customer Requirement), 3 A is moderately preferred than B, 5 means that A is strongly preferred than B, 7 means that very strongly preferred than B and 9 means that Extremely preferred than B. Each column added up to get sum for all technical requirements.

This indicates that which technical requirements were more or less preferable for creating convenient parking and wreck yard in the case company. The preference ranking between the same technical requirements were one. As clearly indicated in table 4.10 first qualitative preference raking was given by focused groups, next quantitative preference raking was computed, i.e. the inverse of qualitative ranking.

Table 4-10: Pairwise comparison matrix for Convenient parking & wreck yard

Parking and Wreck Yard	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8
TR1	1.00	0.33	0.33	0.33	0.20	3.00	0.20	3.00
TR2	3.00	1.00	7.00	0.20	3.00	5.00	0.33	7.00
TR3	3.00	0.14	1.00	0.14	0.20	3.00	0.20	5.00
TR4	3.00	5.00	7.00	1.00	5.00	3.00	0.14	0.33
TR5	5.00	0.33	5.00	0.20	1.00	3.00	0.33	5.00
TR6	0.33	0.20	0.33	0.33	0.33	1.00	9.00	3.00
TR7	5.00	3.00	5.00	7.00	3.00	0.11	1.00	3.00
TR8	0.33	0.14	0.20	3.00	0.20	0.33	0.33	1.00
Sum	20.667	10.152	25.867	12.210	12.933	18.444	11.543	27.333

C. Normalize Pairwise Comparison Matrix and Compute Criteria Weight “W”

Normalizing the matrix means to divide each element in every column by the sum of each column. Criteria Weight calculated as average each row in the normalized matrix and it is called priority vector. Therefore, criteria weight of technical requirements (“How’s”) were computed from qualitative and quantitative preference ranking for the given criteria or creating convenient parking and wreck yard in the case company.

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Table 4-11: Normalized pairwise matrix Convenient parking & wreck yard

Parking and Wreck Yard	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8	W
TR1	0.05	0.03	0.01	0.03	0.02	0.16	0.02	0.11	0.05
TR2	0.15	0.10	0.27	0.02	0.23	0.27	0.03	0.26	0.16
TR3	0.15	0.01	0.04	0.01	0.02	0.16	0.02	0.18	0.07
TR4	0.15	0.49	0.27	0.08	0.39	0.16	0.01	0.01	0.20
TR5	0.24	0.03	0.19	0.02	0.08	0.16	0.03	0.18	0.12
TR6	0.02	0.02	0.01	0.03	0.03	0.05	0.78	0.11	0.13
TR7	0.24	0.30	0.19	0.57	0.23	0.01	0.09	0.11	0.22
TR8	0.02	0.01	0.01	0.25	0.02	0.02	0.03	0.04	0.05
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

D. Checking for Consistency.

Note that the consistency rule says;

If $CR > 0.10$ the judgements are untrustworthy and the comparisons should be repeated, and

If $CR \leq 0.10$ considered acceptable in practice and the rankings are consistent (Wind & Saaty, 1980). Therefore, procedure for checking consistency is determining a weight sums vector “ W_s ”, find consistency vector “ C_v ” by dot product and determine average of the elements of consistency vector “ C_v ” which is called λ_{max}

$$W_s = |C| \{W\} \text{ and } C_v = \{Ws\} \cdot \left\{ \frac{1}{W} \right\},$$

Where C = is Pairwise Comparison Matrix

W = Criteria Weight or priority vector

Ws = weight sums vector

C_v = consistency vector

Consistency index “CI” was determined from average of the elements of consistency vector (λ_{max}) and total number of “How’s” (n).

$$CI = \frac{\lambda_{max} - n}{n - 1}, \text{ where n is number of CTQ or technical requirements}$$

$$CI = \frac{8.86 - 8}{8 - 1} = 0.12, \text{ if CI is zero it indicates pairwise comparison would be perfectly consistent}$$

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$$CR = \frac{CI}{RI}, \text{ where RI is random index and its value is 1.41 from the table 2.2.3}$$

CR < 0.1 the ranking or criteria weight are consistent and acceptable and if CR ≥ 0.1 the ranking or criteria weight are not consistent and the comparison should be recalculated.

$$CR = \frac{0.12}{1.41} = 0.085, \text{ which is less than 0.1}$$

Therefore, pairwise matrix for convenient parking and wreck yard is consistent and acceptable. Accordingly, Comparison matrix (C), Normalized matrix, Eigen Vector (W) or priority vector, Consistence check were computed for the left four customer requirements. That means fast response to claims, less error working process, good behavior of staff and support on taking correct action and summarizez in table 4.13.

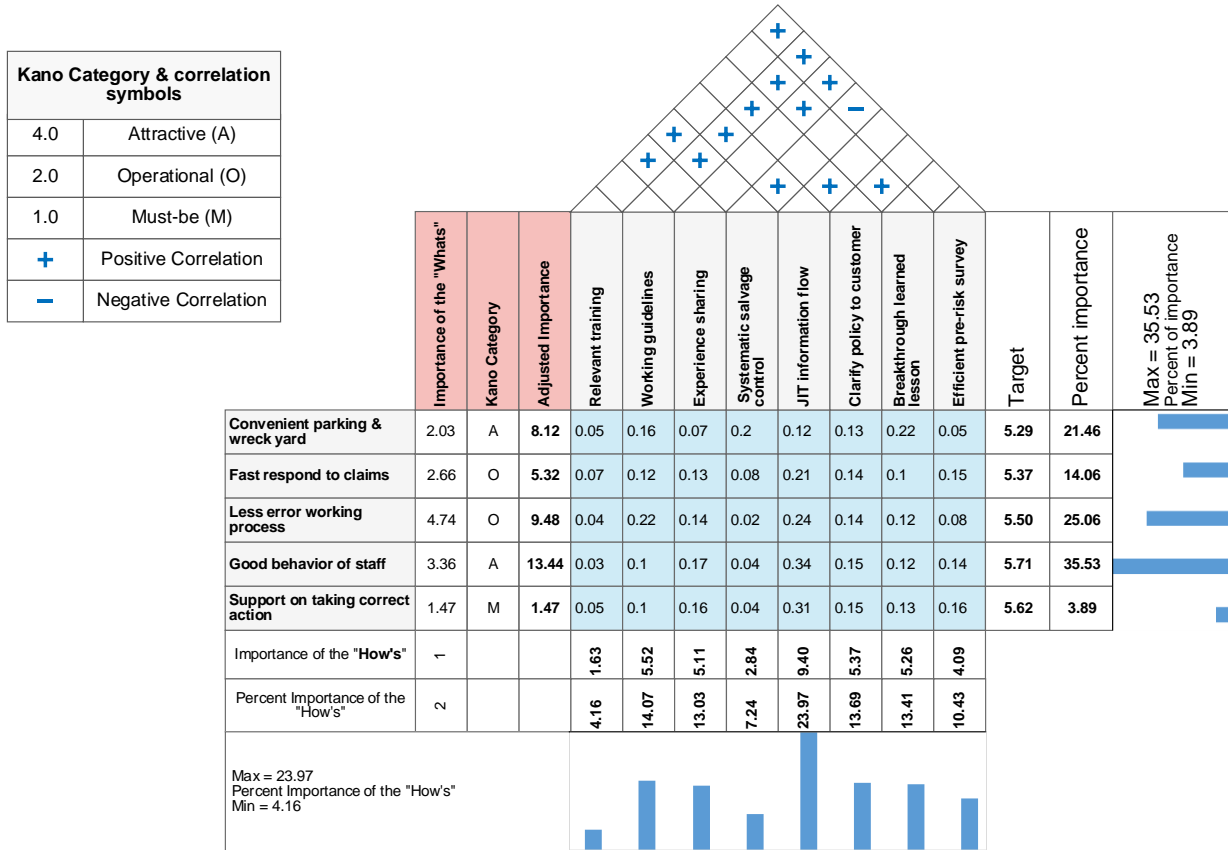
Table 4-12: Relationship matrix between customer requirements and technical requirements

Parking and Wreck Yard	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8	W
TR1	0.05	0.03	0.01	0.03	0.02	0.16	0.02	0.11	0.05
TR2	0.15	0.10	0.27	0.02	0.23	0.27	0.03	0.26	0.16
TR3	0.15	0.01	0.04	0.01	0.02	0.16	0.02	0.18	0.07
TR4	0.15	0.49	0.27	0.08	0.39	0.16	0.01	0.01	0.20
TR5	0.24	0.03	0.19	0.02	0.08	0.16	0.03	0.18	0.12
TR6	0.02	0.02	0.01	0.03	0.03	0.05	0.78	0.11	0.13
TR7	0.24	0.30	0.19	0.57	0.23	0.01	0.09	0.11	0.22
TR8	0.02	0.01	0.01	0.25	0.02	0.02	0.03	0.04	0.05
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Customer Requirements	Technical Requirements							
	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8
CR1	0.05	0.16	0.07	0.2	0.12	0.13	0.22	0.05
CR2	0.07	0.12	0.13	0.08	0.21	0.14	0.1	0.15
CR3	0.04	0.22	0.14	0.02	0.24	0.14	0.12	0.08
CR4	0.03	0.1	0.17	0.04	0.34	0.15	0.12	0.14
CR5	0.05	0.1	0.16	0.04	0.31	0.15	0.13	0.16

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This computed relationship between customer requirements and technical requirements were used as input data into QFD. These criteria weight were used in the relationship matrix of HOQ instead of using only subjective decision to compute level of importance of technical requirements (“How’s”).



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This approach helps to recognize the minimum set of technical requirements of case company to come across the various customer needs, in turn leading to a cost-effective means of improving quality as perceived by the customers by reducing poor cost of quality.

HOQ indicated that the customer requirements, technical requirements, relative weight of relationships, improvement direction and correlation among technical requirements. From the figure 4.6 of HOQ we can recognize many things. For example, there is strong relationship between conducting efficient pre-risk survey of motor insurance and updating working guidelines of the case company. There is a lower relationship between efficient pre-risk survey and adopting systematic salvage control used in organization.

When the percent of importance of “How’s” is analyzed, it is seen that just in time information flow and updating company’s working guideline has the highest weight score or percent of importance respectively; meaning that when just in time information flow and updating company’s working guideline is improved there will be almost 38.04% of improvement in the pre-risk and post risk assessment processes of motor insurance in the case company. The third highest percent of importance of technical requirement is calculated to be the clarity of motor insurance policy which states that an improvement in clarify policy to customer’s will improve the institution by 13.69%. The correlation among technical requirements indicates that well clarification of policy to customers have a positive relationship with working guideline and just in time information flow.

The importance level of technical requirements was identified; correlation between “How’s” was clearly stated and the target of case company was known. The all steps that conducted were on service quality planning stage. So, what would be the next step to apply this plan into action for service quality improvement?

The best way to forward this research is adopting process improvement implementation philosophy. Deming cycle, Juran quality trilogy, Juran’s 10 steps to quality improvements are some of the well-known quality improvement philosophy. Juran believes that management has to adopt a unified approach to quality and he focused on needs of customer or “Fitness for use”. The researcher prefers Juran’s philosophy as next step that the case company should follow. Juran contribute to quality philosophy four ways of quality improvement. They are Juran’s ten basic steps to quality improvement, Juran’s Quality trilogy, Juran’s three basic steps to progress and Pareto principles.

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Among the above quality philosophy, Juran's quality Trilogy is a universal way of thinking about quality improvement and it is suitable to this case. Quality Trilogy comprises three main steps. These steps are quality planning, quality control and quality improvements. This study falls in the planning stage of quality trilogy. That means customer requirements are identified, service that respond to customer need was developed or designed by integrated approach.

The next step that the case company should do is first, establishing quality goal at a minimum combined cost and prove the service process capability or develop methods to match the planned service as per customer needs. Second choosing quality control subjects with measurements, then measure the actual performance, interpret differences and taking remedial action if there is any discrepancy. The third steps that case company should follow is breakthrough learned lesson, provide remedies and control mechanism. Therefore, the company should build commitment and repeat these steps and follow continuous improvement to enhance service excellence and customer satisfaction.

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CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1. CONCLUSION

With the increasing progress in insurance service in Ethiopia and as general in today's global world, people experience fast and prudent delivery of insurance service. This phenomenon has enhanced customer's expectations about the insurance services. Besides this, pre- risk and post risk assessments has a great influence on customer's satisfaction and over whole insurance service delivery at the time of loss settlements. So, this paper focused on development of service quality assessment and improvement approach of motor insurance by integrating different scientific methodologies including SERVQUAL, Kano and QFD with the help of multiple criteria decision making tool AHP to strengthen subjective opinion and check consistence of expert's subjective decision. The research was conducted on service quality improvement in pre and post risk assessment process of motor insurance, which carried out at three branches and head office (Claims directorate) of the case company in Ethiopia. Process study was conducted concerning pre and post risk assessment of motor insurance in selected branches. 357 files were taken as population sample and 93 files were found with customer complain. The researcher breakthrough these complained files and found 8 major root causes of customer's complaints. The standard questionnaire of SERVQUAL and KANO model used as the main research tool. Multi-criteria decision making method Analytical Hierarchy process (AHP) was used to strengthen the subjective decision of HOQ correlation matrix.

Research process has shown that synergy of three methods with the help of AHP can create powerful solutions for transforming customer needs into customer focused service improvement in motor insurance service delivery. Sixteen questions distributed to customers to measure the current insurance service quality based on difference between customer's perception and expectation. Thirteen service features or four service quality dimensions were identified as negative difference which indicates weak service quality. Improvement was focused on the satisfaction scores which less than one and suitable category for each attribute of insurance service quality was determined by KANO Model. From selected 10 motor insurance service four service were identified as one dimensional category, three were categorized as indifferent service, two service were must be feature and one was categorized as attractive.

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Data collected by process study, SERVQUAL and Kano model were inserted into QFD. Adjusted Importance value was calculated and technical requirements were identified by experts in order to cover customers' needs. The relationships between customer expectations and technical requirements specified with the help of analytical hierarchy process steps. Through QFD method, five of the total 8 technical requirements are properly proposed to answer the customer needs as follows: adopting JIT information flow, update working guidelines, clarify policy to customers, breakthrough learned lesson and creating experience sharing habit.

Information that could found from HOQ is relationship between each technical requirement, means that improvement of one technical requirement can also affect another technical requirement in a negatively or positively way. Just in time information flow and updating company's working guideline has the highest weight score or percent of importance; meaning that when just in time information flow and updating company's working guideline is improved there will be almost 38.04% of improvement in the pre-risk and post risk assessment processes of motor insurance in the case company. The third highest percent of importance of technical requirement is calculated to be the clarity of motor insurance policy which states that an improvement in clarify policy to customer's will improve the institution by 13.69%. The correlation among technical requirements indicates that well clarification of policy to customers have a positive relationship with working guideline and just in time information flow. Creating experience sharing habit and adopting breakthrough learned lesson that have positive correlation, company will carry out the improvement in 26.44%.

In this study customer requirements are identified, weak service attributed were categorized and technical requirements were also selected by experts who knows the service delivery processes to improve the weak service delivery. On another side, actual root causes of customer complaints were identified and this was used to identify problematic stages in the motor insurance service delivery.

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5.2. RECOMMENDATION

Based on the analysis made, result obtained and conclusions drawn, the following recommendations are forwarded to the case company.

- Company should always assess customer expectation and perception, to know the quality of delivered service.
- Always collect the customer's complaints and breakthrough the learned lesson by using synergy of customer focused approach for continuous process improvement.
- Company should encourage experience sharing habit and carry out amendment on weak service deliveries with the help of MCDM.
- Encourage applied research and compile documents that can improve company's service in all aspect.

5.3. FUTURE RESEARCH AREAS

After conducting the research and analyzing the different aspects of process improvement in service delivery of motor insurance, the following research areas are recommended to be undertaken in the future.

- Future studies could use more than one case company data's in order to realizing the relationship between customers' wants and technical requirements to improve insurance service delivery.
- This study focuses on motor insurance. Future research may take into account other insurance policy like engineering insurance, life insurance, marine insurance, etc. with conceptual model integrated approach

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ANNEX A: PROCESS STUDY DATA COLLECTION

SECTION 1: Process Study to Find Root Cause of Customer Complain on Own Damage Motor Insurance During Post Risk Assessment Data Collection.

Data Collected from Case Company's Files, Customer Complaints on Motor Insurance at (Head office Claims Directorate and two Branches)								
No.	Type of Motor Policy Claim no.	Branch	Type of Accident	Date and Place of Assessment	Type of Complaints	Total No. of complain	No. Accepted Complain	Possible Root of Cause for Accepted Complain
1	888/18	BOL	Collision	KDWY	Spare	7	0	Spare part availability
2	/030/19	KOL	Collision	KDWY	Body	1	1	customer over expectation
3	082/18	KOL	Collision	KDWY	Labor & Spare	2	2	Low, Price of the parts and labor cost estimation
4	025/19	NFS	Collision	H.O	Spare price	1	1	Spare price estimation problem
5	026/19	NFS	Collision	H.O	Body	3	2	unexhausted asse.
6	026/19	NFS	Collision	H.O	Body	2	2	working rule or unwritten policy
7	035/19	GRJ	Collision	H.O	Body	1	0	Processional skill/Knowledge Gap
8	020/18	MKL	Collision	D/Dawa	Body	1	1	Information gap
9	085/17	KOL	Collision	H.O	Body	1	1	scarcity of parts
10	106/18	GFM	Collision	Out side	body and Mech.	5	4	working rule or unwritten policy
11	016/19	KOL	Collision	KDWY	Body	2	2	unexhausted asse
12	087/19	BOL	Collision	BMB	Mech.	1	1	customer over expectation
14	167/19	BOL	Collision	BMB	Mech.	3	3	customer over expectation
15	454/17	BOL	Collision	NA	Body	2	2	working rule or unwritten policy
16	169/18	BOL	Collision	Out side	Mech.	2	1	customer over expectation
17	051/19	BOL	Collision	Out side	Labor & Spare	1	1	Price estimation, LABOR
18	552/2019	BOL	Collision	BMB		2	0	After completion
19	054/2019	ADD	Collision	ADD	Body	1	1	working rule or unwritten policy
20	043/2019	ADD	Collision	ADD	Body	2	1	customer over expectation
21	001/2019	ADD	Collision	ADD	Body	1	0	customer over expectation
22	089/2018	ADD	Collision	ADD	Body	1	1	Price estimation
23	120/2018	ADD	Collision	ADD	Body	1	0	Price estimation
24	039/2018	ADD	Collision	ADD	Body	1	1	working rule or unwritten policy
25	013/2018	MRT	Collision	H.O	Body	2	2	working rule or unwritten policy

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26	092/2018	MRT	Collision	KDWY	Spare	1	1	Spare availability problem
27	041/2018	GRT	Collision	KDWY	body and Mech.	5	3	unexhausted asse.
28	001/2018	MRT	Collision	KDWY	Body	3	3	unexhausted asse.
29	017/2017	PIZ	Collision	KDWY	Body	1	0	customer over expectation
30	070/2018	ADD	Collision	ADD	Spare	5	0	Price estimation
31	140/2018	ADD	Collision	KDWY	Body	1	0	customer over expectation
32	041/2019	ADD	Collision	KDWY	Body	3	1	Customer over expectation
33	019/2019	22M	Collision	KDWY	Body	10	5	Information Gap
34	020/2018	GLL	Collision	KDWY	Mech.	3	3	working rule or unwritten policy
35	039/2019	GFM	Collision	KDWY	Body	1	0	customer over expectation
36	046/2017	GFM	Collision	KDWY	Body	10	1	information Gap
37	004/2019	WLS	Collision	KDWY	Body	2	1	working rule or unwritten policy
38	047/2018	DRD	Collision	KDWY	Body	1	0	customer over expectation
39	004/2019	KLY	Collision	KDWY	Mech.	5	0	customer over expectation
40	037/2019	22M	Collision	H.O	Body	1	1	Spare availability problem
41	021/2019	ADD	Collision	KDWY	Body	1	1	customer over expectation
42	069/2018	GRJ	Collision	H.O	Body	1	1	Spare availability problem
43	081/2018	NFS	Collision	H.O	Body	1	1	price estimation / market value
44	003/2019	DSE	Collision	Out side	Body	1	0	Processional skill/Knowledge Gap
45	019/2018	AMB	Collision	KDWY	Mech.	0	0	working rule or unwritten policy
46	011/2019	ADM	Collision	KDWY	Spare price	1	1	Spare part invoice problem
47	003/2019	NKM	Collision	KDWY	Body	5	1	unexhausted asse and info. Gap
48	023/2019	PIZ	Collision	H.O	Body	1	1	working rule or unwritten policy
49	023/2018	NFS	Collision	KDWY	Body	2	2	unexhausted asse.
50	041/2018	MRT	Collision	KDWY	Body	9	4	unexhausted asse.
51	036/2018	MRT	Collision	H.O	Spare price	0	0	Spare availability problem
52	007/2018	GLL	Collision	KDWY	Body	4	1	unexhausted asse.
53a	601/18	MT	Collision	KDWY	Body	6	4	working rule or unwritten policy
53b	601/18	MT	Collision	KDWY	Body	4	3	unexhausted asses.
54a	037/19	PIZ	Collision	KDWY	Body	1	1	customer over expectation
54b	037/19	PIZ	Collision	KDWY	Body	1	1	unexhausted asse
55a	043/19	BOL	Collision	Out side	Mech.	9	2	customer over expectation
55b	043/19	BOL	Collision	Out side	Spare price	1	1	Price estimation
56a	134/2018	ADD	Collision	ADD	Body	1	1	unexhausted asse.
56b	134/2018	ADD	Collision	ADD	Body	1	1	unexhausted asse.

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57a	004/2019	SGR	Collision	KDWY	Spare	0	0	Spare availability problem
57b	004/2019	SGR	Collision	KDWY	Body	1	0	customer over expectation
58a	081/2019	FFN	Collision	H.O	Body	2	1	customer over expectation
58b	081/2019	FFN	Collision	H.O	Body	2	1	salvage and completion
59a	015/19	ADD	Collision	Out side	Body	1	1	Information Gap
59b	015/19	ADD	Collision	Out side	Body	1		Information Gap
60	039/2019	ADD	Fire	KDWY	Body	1	0	customer over expectation
61	069/2018	GFM	Fire	Out side	Price	1	1	Spare availability problem
62	001/19	BLH	Overturning	KDWY	Body	1	0	Processional skill/Knowledge Gap
63	080/18	KOL	Overturning	KDWY	Body	2	0	unexhausted
64	115/18	ADD	Overturning	KDWY	Body	1	0	customer over expectation/fraud
65	001/19	NKT	Overturning	KDWY	Body	15	5	Information gap
66	028/17	BHD	Overturning	KDWY	Body	5	4	Unexhausted asse.
67	010/18	AMB	Overturning	KDWY	Body	7	2	Information Gap
68	003/19	AMB	Overturning	KDWY	Body	8	5	unexhausted assessment
69	001/19	WSO	Overturning	KDWY	Body	16	1	Information Gap
70	038/18	ADD	Overturning	Out side	body and Mech.	2	2	unexhausted asse
71	089/2018	LDT	Overturning	KDWY	body and Mech.	7	3	unexhausted asse
72	115/2017	ADD	Overturning	KDWY	Body	1	0	customer over expectation
73	63/2018	NFS	Overturning	KDWY	Body	1	1	scarcity of parts
74	025/2019	KZC	Overturning	KDWY	Mech.	3	0	customer over expectation
75	011/2019	NFS	Overturning	KDWY	Body	1	1	unexhausted asse
76	039/2019	ADD	Overturning	KDWY	body and Mech.	17	7	Information Gap
77	009/2019	SAB	Overturning	KDWY	Body	2	0	Information Gap
78	132/2019	22M	Overturning	KDWY	Price estimation	1	0	price estimation / market value
79a	003/18	WSO	Overturning	KDWY	Body	2	2	unexhausted asse
79b	003/18	WSO	Overturning	KDWY	Body	2	1	unexhausted asses
80a	037/18	NFS	Overturning	Out side	Body	2	1	unexhausted asse
80b	037/18	NFS	Overturning	Garage	Mech.	1	0	customer over expectation/fraud
80c	037/18	NFS	Overturning	Garage	Mech. And body	10	9	unexhausted
81a	019/18	GNB	Overturning	KDWY	Body	4	4	unexhausted asses.
82b	019/18	GNB	Overturning	Garage	completion	2	1	unexhausted asses.
83a	022/18	GMB	Overturning	Garage	body and Mech.	15	2	Information Gap
83b	022/18	GMB	Overturning	Garage	Mech.	1	1	unexhausted asse
84a	017/2018	MRT	Overturning	KDWY	body and Mech.	15	5	information Gap
84b	017/2018	MRT	Overturning	KDWY	Body	1	1	customer over expectation

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84c	017/2018	MRT	Overturning	KDWY	Spare	0	0	Processional skill/Knowledge Gap
85a	055/18	KOL	Overturning	Garage	Body	1	1	Labor cost problem
85b	055/18	KOL	Overturning	Garage	Mech.	3	3	working rule or unwritten policy
86a	001/2017	DLA	Overturning	KDWY	Body	1	1	unexhausted asse
86b	001/2017	DLA	Overturning	Garage	Body	1	0	customer over expectation
87a	001/2019	BLH	Overturning	KDWY	Body	1	1	Processional skill/Knowledge Gap
87b	001/2019	BLH	Overturning	KDWY	Market value	1	1	price estimation / market value
88a	002/2019	BLH	Overturning	KDWY	Body	2	2	unexhausted asse
88b	002/2019	BLH	Overturning	Garage	Body	1	0	customer over expectation
88c	002/2019	BLH	Overturning	Garage	Mech.	5	4	unexhausted asse
89a	074/2017	NFS	Overturning	Garage	Mech.	1	1	working rule or unwritten policy
89b	074/2017	NFS	Overturning	Garage	Mech.	1	1	unexhausted asse
90a	044/19	ADD		KDWY	Mech. & body	23	2	information gap
90b	044/19	ADD		KDWY	Mech. & body	7	0	customer over expectation/fraud
91	017/2019	22M	Overturning	KDWY	Mech. and body	10	2	Working procedure/rule/guidelines
92	037/2019	22M	Collision	KDWY	Body	1	1	Spare part Problem
93	046/2018	FFN	Collision	KDWY	Mech.	1	0	customer over expectation
					Total	362	158	

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ANNEX B: SERVQUAL QUESTIONNAIRE

SECTION 1: Customers Service Expectation Questionnaire

No.	Questionnaire	Strongly Disagree.....Strongly Agree						
		1	2	3	4	5	6	7
1	Insurance Company should have all the necessary modern equipment (Crane, Hydraulic Jacks, Diagnoses Machine, Computer, Security Camera.)	1	2	3	4	5	6	7
2	Insurance policies and Statement should be clear and well explained	1	2	3	4	5	6	7
3	Surveyors/inspectors should have suitable personal protective equipment's (PPE) for non-office work	1	2	3	4	5	6	7
4	Insurance Company should have Convenient parking, wreck yard and waiting arrangements	1	2	3	4	5	6	7
5	Insurance Company should respond for customers claims fast and deliver good service within the time frame	1	2	3	4	5	6	7
6	Customers should feel safe in all interaction with the Insurance Company or insurer	1	2	3	4	5	6	7
7	Advertising and promotion of insurance service should reflect the reality	1	2	3	4	5	6	7
8	Insurance Company should maintain less error working process	1	2	3	4	5	6	7
9	Insurance Company should inform their customer when service will occur	1	2	3	4	5	6	7
10	Whenever clients face problem employees should help them to solve the problem	1	2	3	4	5	6	7
11	Employees should respond fast to customers' requests	1	2	3	4	5	6	7
12	Behaviors of staff should instill confidence in customers	1	2	3	4	5	6	7
13	Employees should have adequate knowledge and competent to answer client request	1	2	3	4	5	6	7
14	Giving care and individual attention to customers.	1	2	3	4	5	6	7
15	Employees should always inform customers and support them on taking correct action	1	2	3	4	5	6	7

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SECTION 2: CUSTOMERS SERVICE PERCEPTION QUESTIONNAIRE

No.	Questionnaire	Strongly DisagreeStrongly Agree						
		1	2	3	4	5	6	7
1	Company X has all the necessary modern equipment (Crane, Hydraulic Jacks, Diagnoses Machine, Computer, Security Camera.)	1	2	3	4	5	6	7
2	Company X policies and Statements are clear and well explained to you	1	2	3	4	5	6	7
3	Company X Surveyors/inspectors have suitable personal protective equipment's (PPE) for non-office work	1	2	3	4	5	6	7
4	Company X has Convenient parking, wreck yard and waiting arrangements	1	2	3	4	5	6	7
5	Company X respond for your claims fast and deliver service within the time frame	1	2	3	4	5	6	7
6	You feel safe in all interaction with the Company X	1	2	3	4	5	6	7
7	Company X advertising and promotion you heard or seen reflect the reality	1	2	3	4	5	6	7
8	Company X follows less error working process	1	2	3	4	5	6	7
9	Company X employees inform you when any service occur	1	2	3	4	5	6	7
10	Whenever you face problem Company X employees help you to solve it	1	2	3	4	5	6	7
11	Company X Employees respond fast to your requests	1	2	3	4	5	6	7
12	Behaviors of Company X staff instill confidence in you	1	2	3	4	5	6	7
13	Company X Employees have enough knowledge and competent to answer your request	1	2	3	4	5	6	7
14	Company X employees give care and attention to you.	1	2	3	4	5	6	7
15	Company X employees inform you and support you on taking correct action	1	2	3	4	5	6	7
16	Company X have convenient working hours and days	1	2	3	4	5	6	7

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SECTION 3: IMPORTANCE OF SERVQUAL MODEL

		1	2	3	4	5	6	7
		Very unimportant			very important			
Answer	No.	Statements						
.....	1	Using modern equipment (Crane, Hydraulic Jacks, Diagnoses Machine, Computer, Security Camera.)						
.....	2	Clear and well explained insurance policies and Statements						
.....	3	Suitable personal protective equipment's for non-office work						
.....	4	Convenient parking, wreck yard and waiting arrangements						
.....	5	Respond claims fast and deliver service within the time frame						
.....	6	customers should feel safe in all interaction with the Insurance company						
.....	7	Advertising and promotion should reflect the reality						
.....	8	Follows less error working process						
.....	9	Inform customers when any service occur						
.....	10	Whenever customers face problem employees should help them to solve it						
.....	11	Respond fast to customer requests						
.....	12	Instill confidence in customers from good behaviors of staff						
.....	13	Enough knowledge and competent to answer customers request						
.....	14	Give care and attention to customers.						
.....	15	Inform customers and support them on taking correct action						
.....	16	Convenient working hours and days						

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ANNEX C: KANO'S MODEL (VOC) – QUESTIONNAIRE

SECTION 1: Demographic Information of Respondents and Overall Activities.

Demographic information of respondents and Overall activities.	
No.	Question
1	What is your gender? <input type="checkbox"/> Male <input type="checkbox"/> Female
2	What is your age? <input type="checkbox"/> 18-30 years <input type="checkbox"/> 31-45 years <input type="checkbox"/> 46-60 years <input type="checkbox"/> above 60 years
3	What is your education Level? <input type="checkbox"/> High school Complete <input type="checkbox"/> Diploma <input type="checkbox"/> Degree <input type="checkbox"/> Master <input type="checkbox"/> Other
4	What is your occupation? <input type="checkbox"/> Doing own business <input type="checkbox"/> Private organization employed <input type="checkbox"/> Government employee <input type="checkbox"/> NGO's employee <input type="checkbox"/> Others
5	How long are you a customer of the Company? <input type="checkbox"/> More than 10 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> 1-5 years <input type="checkbox"/> Less than 1 year
6	What type of motor insurance cover do you have in the company? <input type="checkbox"/> Compulsory Third Party <input type="checkbox"/> Third Party Only <input type="checkbox"/> Third Party Fire and Theft <input type="checkbox"/> Comprehensive Motor Insurance

SECTION 2: Kano's Model Functional and Dysfunctional Question.

No.	Question	Answers (write (v) in the box you choose)
1a	If insurance Surveyors/inspectors have suitable personal protective equipment's (PPE) for non-office work, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
1b	How would you feel, if insurance Surveyors/inspectors have not suitable personal protective equipment's (PPE) for non-office work?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
2a		<input type="checkbox"/> . I like it

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	How would you feel, if you have Convenient parking, wreck yard and waiting arrangements?	<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
2b	If you are not able to get Convenient parking, wreck yard and waiting arrangements, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
3a	How do you feel, if insurance respond to your claims fast and deliver good service within the time frame?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
3b	If you are not able to have good service and fast respond to your claims within the time frame, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
4a	How would you feel, if you have feel safe in all interaction with the Insurance Company or insurer?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
4b	If you don't have feel safe in all interaction with the Insurance Company or insurer, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
5a	If insurance company maintain less error working process, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
5b	How would do you feel, if insurance company have error working process?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
6a	How do you feel, if insurance employees inform you when any service occur?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it

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		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
6b	If you are not able to have information when service occur, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
7a	If you are able to have fast respond to your requests from insurer workers, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
7b	How would you feel, if you are not able to have fast respond to your requests?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
8a	How would you feel, if you have good behaviors of staff that instill confidence in you?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
8b	If you are not able to have good behaviors of staff, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
9a	If you have care and individual attention from insurance employees, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
9b	How do you feel, if you are not able to have care and individual attention from insurer.	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
10a	How would you feel, if insurance workers inform and support you on taking correct action?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it

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		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it
10b	If you are not able to have enough information and support from employees on taking correct action, how do you feel?	<input type="checkbox"/> . I like it
		<input type="checkbox"/> . I expect it
		<input type="checkbox"/> . I'm neutral it
		<input type="checkbox"/> . I can tolerate it
		<input type="checkbox"/> . I dislike it

SECTION 3: IMPORTANCE OF KANO'S MODEL

		1	2	3	4	5	6	7	8	9	
		Very unimportant					Extremely important				
Answer	No.	Statements									
.....	1	How important is using modern equipment (Crane, Hydraulic Jacks, Diagnoses Machine, Computer, Security Camera.)?									
.....	2	How important is having clear and well explained insurance policies and Statements?									
.....	3	How important is having suitable personal protective equipment's for non-office work?									
.....	4	How important is having convenient parking, wreck yard and waiting arrangements									
.....	5	How important is having fast claims respond and deliver service within the time frame?									
.....	6	How important is having feel safe in all interaction with the Insurance company?									
.....	7	How important is having advertisement and promotion that reflect the reality?									
.....	8	How important is having less error working process?									
.....	9	How important is informing customers when any service occur?									
.....	10	How important is having employees that strive to solve customers' problem?									
.....	11	How important is having fast respond to customer requests?									
.....	12	How important is having a good behaviors of staff that instill confidence in customers from?									
.....	13	How important is having enough knowledge and competent to answer customers request?									
.....	14	How important is having care and attention to customers?									
.....	15	How important is having fast claims respond and deliver service within the time frame?									
.....	16	How important is having convenient working hours and days									

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ANNEX D: MULTIPLE CRITERIA DECISION MAKING, ANALYTICAL HIERARCHY PROCESS FOR HOQ RELATIONSHIP MATRIX

1. Parking and Wreck Yard

Parking and Wreck Yard	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8	W
TR1	0.05	0.03	0.01	0.03	0.02	0.16	0.02	0.11	0.05
TR2	0.15	0.10	0.27	0.02	0.23	0.27	0.03	0.26	0.16
TR3	0.15	0.01	0.04	0.01	0.02	0.16	0.02	0.18	0.07
TR4	0.15	0.49	0.27	0.08	0.39	0.16	0.01	0.01	0.20
TR5	0.24	0.03	0.19	0.02	0.08	0.16	0.03	0.18	0.12
TR6	0.02	0.02	0.01	0.03	0.03	0.05	0.78	0.11	0.13
TR7	0.24	0.30	0.19	0.57	0.23	0.01	0.09	0.11	0.22
TR8	0.02	0.01	0.01	0.25	0.02	0.02	0.03	0.04	0.05
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

2. Fast response to claims

Fast respond to claims	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8	W
TR1	0.04	0.02	0.28	0.12	0.01	0.03	0.02	0.01	0.07
TR2	0.13	0.07	0.17	0.20	0.01	0.03	0.35	0.02	0.12
TR3	0.01	0.02	0.06	0.29	0.02	0.02	0.15	0.47	0.13
TR4	0.01	0.01	0.01	0.04	0.36	0.02	0.02	0.20	0.08
TR5	0.31	0.47	0.17	0.01	0.07	0.40	0.25	0.01	0.21
TR6	0.13	0.20	0.28	0.20	0.01	0.08	0.01	0.20	0.14
TR7	0.13	0.01	0.02	0.12	0.01	0.40	0.05	0.02	0.10
TR8	0.22	0.20	0.01	0.01	0.50	0.03	0.15	0.07	0.15
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

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3. Less error working process

Less error working process	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8	W
TR1	0.03	0.01	0.01	0.20	0.00	0.01	0.03	0.01	0.04
TR2	0.20	0.08	0.56	0.16	0.00	0.03	0.02	0.02	0.22
TR3	0.14	0.01	0.06	0.16	0.00	0.30	0.23	0.37	0.14
TR4	0.00	0.01	0.01	0.02	0.00	0.02	0.03	0.01	0.02
TR5	0.20	0.02	0.31	0.16	0.00	0.49	0.38	0.01	0.24
TR6	0.20	0.24	0.02	0.11	0.00	0.10	0.23	0.37	0.14
TR7	0.09	0.40	0.02	0.07	0.00	0.03	0.08	0.16	0.12
TR8	0.14	0.24	0.01	0.11	0.01	0.01	0.03	0.05	0.08
	1.00	1.00	1.00	1.00	0.01	1.00	1.00	1.00	1.00

4. Good behavior of staff

Good behavior of staff	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8	W
TR1	0.03	0.02	0.02	0.10	0.05	0.01	0.03	0.00	0.03
TR2	0.08	0.05	0.37	0.17	0.06	0.03	0.02	0.01	0.10
TR3	0.14	0.02	0.12	0.24	0.14	0.30	0.23	0.19	0.17
TR4	0.01	0.01	0.02	0.03	0.09	0.02	0.03	0.08	0.04
TR5	0.25	0.35	0.37	0.17	0.43	0.49	0.39	0.25	0.34
TR6	0.20	0.15	0.04	0.17	0.09	0.10	0.23	0.19	0.15
TR7	0.08	0.25	0.04	0.10	0.09	0.03	0.08	0.25	0.12
TR8	0.20	0.15	0.02	0.01	0.05	0.01	0.01	0.03	0.14
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

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5. Support on taking correct action

Support on taking correct action	TR1	TR2	TR3	TR4	TR5	TR6	TR7	TR8	W
TR1	0.04	0.02	0.02	0.12	0.13	0.02	0.03	0.01	0.05
TR2	0.13	0.06	0.36	0.12	0.08	0.03	0.02	0.01	0.10
TR3	0.21	0.02	0.12	0.20	0.13	0.29	0.23	0.10	0.16
TR4	0.01	0.02	0.02	0.04	0.08	0.02	0.03	0.10	0.04
TR5	0.13	0.28	0.36	0.20	0.39	0.49	0.39	0.29	0.31
TR6	0.21	0.17	0.04	0.20	0.08	0.10	0.23	0.16	0.15
TR7	0.13	0.28	0.04	0.12	0.08	0.03	0.08	0.29	0.13
TR8	0.13	0.17	0.04	0.01	0.04	0.02	0.01	0.03	0.16
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00