Assessing Service Quality in the Internal Equipment Maintenance (IEM) Department of Oil and Gas Company Using SERVQUAL Framework a Preliminary Investigation

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ABSTRACT

This study examines service quality within the Internal Equipment Maintenance (IEM) Department of an oil and gas company by applying the SERVQUAL framework to assess key dimensions of service performance. Given the critical role of equipment maintenance in ensuring operational safety and reliability, understanding stakeholders' perceptions of service quality is essential for continuous improvement. The research utilizes the five SERVQUAL dimensions—tangibles, reliability, responsiveness, assurance, and empathy—to measure the gap between customer expectations and actual service delivery. Data were collected through structured surveys administered to internal clients and department personnel, followed by quantitative analysis to identify areas of strength and weakness in service provision. Findings indicate significant gaps in responsiveness and communication practices, while tangibles and assurance were relatively aligned with internal expectations. The study offers actionable recommendations for enhancing service quality through targeted process improvements, employee training, and performance monitoring systems. By operationalizing the SERVQUAL model within an IEM context, this research contributes to both academic literature and practical strategies for improving maintenance service quality in complex industrial settings.

INTRODUCTION

The oil and gas industry plays a pivotal role in the global economy, encompassing activities such as exploration, extraction, refining, and distribution of petroleum and natural gas products. These hydrocarbons are essential not only as primary energy sources but also as raw materials for various industrial and consumer goods. In the transportation sector, petroleum products remain dominant. In 2023, they accounted for approximately 89% of the total U.S. transportation energy consumption, powering vehicles, aircraft, and marine vessels (U.S. Energy Information Administration [EIA], 2023). Natural gas also contributes to transportation energy, particularly in powering pipeline compressors and, in some cases, as fuel for fleet vehicles. Beyond transportation, both oil and gas are widely used for electricity generation and heating, natural gas being a key fuel in power plants, and petroleum products such as heating oil and liquefied petroleum gas (LPG) being commonly used for residential heating (U.S. Energy Information Administration [EIA], 2023). Additionally, they serve as foundational feedstocks in the petrochemical industry, enabling the production of plastics, fertilizers, and other critical products (U.S. Energy Information Administration [EIA], 2023).

On a global scale, the oil and gas sector significantly contribute to economic development. It plays a crucial role in energy security, influences trade balances, and contributes to national revenue. According to IBISWorld, the global oil and gas drilling sector generated approximately USD 4.3 trillion in revenue, reflecting its economic magnitude (Investopedia, 2024). Moreover, oil contributes about 2.5% to the world's Gross Domestic Product (GDP) and provides nearly one-third of the total energy consumed worldwide (Nakasawa, 2022). Within this

complex and high-demand industry, the performance of internal support functions—such as maintenance services—is critical to ensuring the readiness and reliability of field operations. Established in 1919, Halliburton stands as one of the largest global providers of products, services, and integrated solutions tailored for oil and gas exploration, development, and production. Employing over 40,000 individuals from 130 different nationalities across more than 70 countries, the company aids clients throughout the entire lifecycle of a reservoir—ranging from hydrocarbon discovery and geological data analysis to drilling, well construction, and production optimization (Halliburton, 2023a). An integral part of Halliburton's strategic model is its value proposition: collaborating and engineering solutions to maximize asset value for customers (Halliburton, 2023b).

The company's mission clearly defines its purpose—what it does, why it does it, and for whom—serving as a compass for daily operations and strategic direction. Its vision outlines what Halliburton aspires to become, providing a forward-looking perspective on success and growth. Halliburton's core values regarded as its "corporate DNA" —serve as the foundation of its culture, shaping how employees engage with one another, with clients, and with the broader community. These enduring principles are embedded in everyday behaviour and decision-making. The company's brand promise reinforces its identity, representing a consistent commitment to quality, trust, and value in every interaction involving its people, products, services, and services (Halliburton, 2023b).

An essential component of Halliburton's operational model is the reliability and availability of specialized equipment, much of which is maintained and serviced by its Internal Equipment Maintenance (IEM) department. The IEM department plays a strategic support role, ensuring that operational equipment is routinely inspected, calibrated, and repaired in a timely manner to prevent delays in the field. In environments where time, safety, and service quality are of critical importance, any inefficiency or delay in internal maintenance processes can disrupt service schedules, delay job execution, and reduce overall service performance. While organizations like Halliburton often place emphasis on field efficiency and cost control, internal service departments such as IEM may receive less attention in structured performance assessments, especially in terms of service quality from the perspective of their internal stakeholders.

Typically, the performance of internal maintenance is measured through cost, turnaround time, and compliance indicators. However, such operational metrics often overlook qualitative aspects, such as how responsive, reliable, or communicative the maintenance teams are in addressing the needs of operations personnel. In recent years, there has been a growing recognition that service quality within internal support functions directly impacts the effectiveness of field operations and interdepartmental coordination (Kang et al., 2020). Measuring service quality in internal departments where employees are both service providers and users requires tools that go beyond technical KPIs to assess perceptions and expectations.

One widely accepted framework for assessing service quality is the SERVQUAL model, introduced by (Parasuraman, 1988). This model evaluates service delivery based on five dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. While SERVQUAL was initially designed for external customer service evaluation, several studies have successfully applied it to internal service environments, such as IT support, HR functions, and internal maintenance (Kang et al., 2020). These studies demonstrate that internal service quality strongly influences employee satisfaction, process efficiency, and organizational cohesion.

Despite the importance of internal service quality, there has been little research specifically focused on internal maintenance functions within oilfield service companies. So far, there has been a limited understanding of how internal maintenance teams, like IEM, are evaluated in such environments. At Halliburton, there is currently no structured method in place to measure how well the Internal Equipment Maintenance (IEM) department meets the expectations of its internal users. This creates a gap between technical performance indicators and the actual service experience. If these service issues are not identified and resolved, they can cause delays that reduce efficiency and disrupt the entire operation. Currently, Halliburton continues to spearhead the global oilfield services industry with a strong commitment to efficiency, innovation, and sustainability. Halliburton operates through a structure made up of Product Service Lines (PSLs) and support functions, each playing a key role in the company's ability to deliver comprehensive energy solutions. The PSLs, such as Cementing, Wireline and Perforating, Production Enhancement, Production Solutions, Completion Tools, Sperry Drilling, etc, are the

primary customer-facing units, responsible for executing core technical services across the oil and gas value chain. Supporting these PSLs are essential corporate functions, including Internal Equipment Maintenance (IEM), Supply Chain, Finance, and Health Safety Environment (HSE), which provide critical operational, logistical, and technical support to ensure efficient service execution.

The Internal Equipment Maintenance (IEM) organization plays a vital role in supporting Halliburton's operational excellence. IEM's value proposition is "As a global support function, to maximize asset availability and reliability at the lowest total cost" while maintaining the highest standards of service quality and safety. The department functions as a key enabler of service delivery, bridging operational efficiency and equipment integrity through close collaboration with Product Service Lines (PSLs). The IEM team is committed to working with PSL partners to provide our customers with total service quality and satisfaction. This commitment is underpinned by a strong culture of safety. The organization is dedicated to an incident-free workplace and will not compromise health, safety, or environmental (HSE) principles for profit or equipment availability. These values reflect Halliburton's broader "Journey to ZERO" initiative, which focuses on eliminating safety and environmental incidents (Halliburton, 2023c).

IEM provides a comprehensive range of services across PSLs, where preventive and predictive maintenance are the cornerstones of its philosophy. By prioritizing equipment reliability and lifecycle performance, the team ensures that tools and machinery operate as safely, efficiently, and effectively as possible. This proactive approach minimizes downtime and supports operational continuity across both conventional and unconventional oil and gas developments, including mature onshore fields and deepwater offshore operations that are typical within the Southeast Asia region. In addition to its technical mission, IEM is committed to developing its workforce. Through structured learning paths, global training centres, and performance-driven career development programs, the department invests in employee capability to drive future innovation and excellence in maintenance practices (Halliburton, 2023d).

Service quality is a critical element of internal support operations in the oil and gas industry, particularly for functions like Internal Equipment Maintenance (IEM), which ensures the reliability and availability of tools and equipment across Product Service Lines (PSLs). Within Halliburton, IEM plays a central support role; however, there is no formal mechanism to assess how internal users such as operations, logistics, and technical departments perceive the quality of services provided. These teams depend heavily on timely and reliable maintenance to meet operational schedules and service demands. In Southeast Asia (including Malaysia, Brunei, Bangladesh, Japan, and Singapore) and Central Asia (including Thailand, Myanmar, and Vietnam), where Halliburton operates in diverse and high-pressure environments, the effectiveness of internal service delivery directly impacts field performance. Despite the strategic importance of IEM, the function continues to face challenges in meeting key performance indicators (KPIs), particularly those related to time and cost. Difficulties in optimizing downtime, mean time to repair (MTTR), and standard hour efficiency are ongoing, and these issues are compounded by pressures to balance productivity, cost recovery, and service reliability. These performance gaps indicate a misalignment between current maintenance practices and the expected service standards. While past research has often focused on external service quality or technical asset management, there is a lack of studies that explore the internal service quality within oilfield maintenance environments. Specifically, how internal stakeholders perceive, and experience maintenance support remains underexplored, especially in this regional context.

Therefore, this study seeks to address that gap by evaluating the service quality of the Internal Equipment Maintenance (IEM) department at Halliburton, using the SERVQUAL framework. By capturing and analysing internal stakeholders' perceptions across the five SERVQUAL dimensions, this research aims to identify service gaps and offer practical recommendations to improve responsiveness, communication, and reliability in internal maintenance services. Ultimately, the goal is to align IEM service delivery with the broader organizational needs for time efficiency and operational readiness, while also contributing to the literature on internal service quality in high-reliability industries.

LITERATURE REVIEW

The SERVQUAL model, introduced by Parasuraman, Zeithaml, and Berry, assesses service quality through five dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. It is widely used to measure the gap between customer expectations and perceptions, mostly in external-facing sectors like education, hospitality, and public services. However, its use in internal service functions, particularly in industrial and technical sectors, is still limited. In internal equipment maintenance settings, service recipients are not external customers but internal users: technicians, engineers, and planners who rely on timely and reliable support to ensure operational continuity. This makes it necessary to adapt SERVQUAL to the technical nature and process-driven context of internal maintenance services. Recent studies indicate that dimensions like Responsiveness (e.g., quick resolution of service requests) and Reliability (e.g., consistent maintenance delivery) have direct links to internal stakeholder satisfaction and operational outcomes. However, there remains a gap in the literature that applies SERVQUAL specifically to internal maintenance services in the oil and gas sector. Most research isolates either service quality, maintenance performance, or industry focus, but rarely integrates all three. This research addresses that gap by evaluating how internal service quality is perceived within Halliburton's IEM operations and how these perceptions relate to internal performance indicators such as Mean Time to Repair (MTTR) and downtime. The findings from this review will guide the research design and help create a customized SERVQUAL-based tool to measure internal service quality in oil and gas maintenance settings.

Service Quality

According to (Parasuraman,, 1988), service quality is referred to the perceived quality or judgement by the consumer about an entity's overall excellence or superiority. If we go deeper Service Quality is a combination of 2 words which are service and quality. The term "service" is about assisting others, often for a fee. In business, it's how companies support their customers throughout the buying process. On the other hand, "quality" refers to how excellent or dependable something is, whether it's a product, service, or process. Many businesses today are concentrating on delivering top-notch service to their customers, as it plays a crucial role in building long-term loyalty. Whether they're supplying goods or services, companies are striving to meet and exceed customer expectations. This has been supported by (Parasuraman, 1988) in their research that said Service Quality has a variety of potential applications. It can help a wide range of service and retailing organizations in assessing consumer expectations about and perceptions of service quality. It can also help in pinpointing areas requiring managerial attention and action to improve service quality.

While you can measure physical products objectively, the quality of a service largely depends on how customers view their experiences. It's not just about what a company delivers, but how customers view it. It shows us the company that produce the goods or services cannot always feel that they are in the right track without the positive feedback from their customers. In the previous exploratory research of (Parasuraman A. P., 1985), show us that the criteria used by consumers in assessing service quality fit 10 potentially overlapping dimensions. These dimensions were tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing the customer, and access. These 10 criteria are being used as the basic structure of the service-quality domain from which items were derived for the SERVQUAL scale. However, in the recent research which also conducted in 1988 by Parasuraman and his teams, has agreed that the 10 overlapping dimensions is being reduced to only five dimension to summarize the service quality which consist of tangible, assurance, empathy, reliability and responsiveness. (Wahid, 2017).

In short, quality services used to satisfy customers since it could dictate the poor or good services by users' perception that already experienced it. (Wahid, 2017). This statement is very important because it will help the goods or service provider to understand how effective their product or service is to the real word rather than using and trusting their own belief to judged themselves. However, based on (Agus Setiono, 2022), in their research, they mentioned that service quality is measure of the perfection of a product or service consisting of design quality and conformity quality. Design quality of a specific function of a product or service, conformity quality is measure how big the level of conformity between a product or service is with pre- determined quality requirements or specifications. Up until today we can see that the service quality has been widely used in the evaluation of service quality in the field of logistics, transportation, retail, library management medical health

and other service management domain and it is the most widely used and most typical and effective method for evaluating service quality. (Cao, 2025).

Tangibles

Tangible is physical facilities, equipment, and appearance of personnel and this statement has been elaborated by (Agus Setiono, 2022) that said tangibles, relating to the appearance of physical facilities, equipment, and service provider personnel. The attributes of this dimension are: modern equipment, visually appealing facilities, neat and professional looking employees and materials related to visually appealing services. However, for services, it is intangible by nature because it is something that we as a consumer cannot touch but the way things look and feel can really influence what customers expect and think about a service's quality. Imagine walking into a spotless place with staff in neat uniforms, well- maintained gear, and nicely designed brochures or websites, these tangibles make you trust the provider even before anything happens. If an organization can provide high quality tangible, without their realization it carried professionalism, efficiency, and attention to detail which will improve the customer confidence even before they actually experienced the service itself. But if the equipment seems old or the environment isn't clean, it could hurt your impression no matter how good the service is. So, keeping these tangible aspects, top-notch is key to boosting the overall experience and strengthening a positive brand image. Let's take a healthcare organization for an example, if their setting, layout, the cleanliness of their waiting area, the attire used by the doctor and nurses and also their medical equipment is in a poor condition, it will all contribute how patient access the premise reliability and competency even before they actually experience the service itself. As the first impression from the consumer plays a significant role in their decision to choose the service.

(Premovic, 2025) has refers tangible mainly to the visual aspect of the company, such as the equipment and arrangement of the offices and physical accessibility to clients. This statement has been proven by the research conducted by (Bakhtiar, 2024) which found out that private clinic patients had the highest expectations for tangibility, meaning they wanted service providers to have good appearance, equipment and facilities. This shows us, how important it is for a business owner to set aside some of their financial budget in order to maintain and improve their tangible aspect to ensure that it can reflect the level of their service quality as these tangible items are not only served as a decorative but it is a strategic tools that can help to contribute to consumers loyalty, competitive advantages and it is also a promise to the long-term business success.

Reliability

In the Service Quality model, reliability is included in one of the five key elements used to monitor service quality and often being choose as the most important among them (Agus Setiono, 2022). (Parasuraman, 1988), reliability is the ability to perform the promised service dependably and accurately and this statement has been supported by (Agus Setiono, 2022) which describe reliability is a service quality dimension related to the knowledge, courtesy and ability of a company employees to foster self-confidence and have no doubts about the company existence. The attributes of this dimension are providing services as promised, reliable in handling customer service, delivering service correctly from the first time, delivering service according to the promised time and storing documents without errors.

Reliability plays a key role in shaping how customers perceive service quality. They expect services to be done right the first time, without errors, excuses, or the need for any follow-up. There are few aspects in reliability that need to be focus on by the organization which are they need to fulfilling their service commitment, following their datelines, deliver correct information, keeping and providing the accurate records and trying their best to solve the problem effectively and efficiently when it arises whether it comes from the customers side or even form the internal. Let's take research from (Seingo, 2025) for example, in that research, they are focusing on the luxury resort in Sumba, Indonesia where the result from their finding shows that reliability is the most dominant factor influencing customers satisfaction. It is mentioned in that report that, in hotel, reliability is can be seen by ensuring that a guest get their designated room upon their arrival. We can also measure reliability across industry, for example in telecommunication sector, their reliability can be observed through their ability to provide uninterrupted network coverage as what they are promised to their customer in their contract meanwhile in

healthcare, reliability can be seen though their correct diagnosis, good treatment and their ability to keep and track their patient records accordingly and properly.

Combining all of this reliability ability provided by the service provider across the industry makes us realise that the ability to consistently deliver what was promised to the consumer without error is a major factor that can affect customer trust and satisfaction. Over the time, for the service provider that can prove to their customers that they can be reliable will build strong customers loyalty, gaining good reputation and also able to have a long- term business sustainability. Other than that, being a reliable service provider can minimize the possible risk faced by the customer especially for those who are involving with purchasing intangible service, such as healthcare services and it will help in building their believe and minimize their certainty.

On the other hand, being unreliable can bring a lot of disadvantages to the business owner as it will tarnish the company's image and eventually it will lead to the loss of their customers' trust. In a simple word, just imagine if the promised by the service provider are broken, their service are delayed or when the same errors have happened repeatedly, the customer will be disappointed or frustrated. Their negative review will spread like a wildfire, and it will lead to the many other problems in the future. It also increases the chances of complaints, negative reviews and losing customers. In a market where people have lots of options and expect top- notch service, one slip in reliability can push customers to choose competitors they trust more.

Responsiveness

Based on the SERVQUAL model, responsiveness is defined as the willingness of service provider to help customers and provide service quickly. These attributes of this dimension are: informing customers about the certainty of the delivery time of services, prompt service for customers, willingness to help customers and readiness to respond to customers' requests. (Agus Setiono, 2022). Their statement was adapted from the well-known researcher, (Parasuraman, 1988) which define responsiveness as the willingness to help customers and provide prompt service. Responsiveness is focusing on the belief of how crucial it is for a service provider to deliver on time and handle customer inquiries, needs, and complaints quickly and professionally. Being responsive shows just how much a company values its customers and respects their time, which plays a big role in shaping how people view the quality of the service. If there are more extra time needed to solve something it will increase the expenses of the service provide as now, they need to pay extra on the labour force and also for the equipment.

For a service provider, their responsiveness can be seen through various action such as providing instant replies to their customers inquiries, improving the customers' waiting time by reducing it, delivering their service quickly and also handling the concern from their customers effectively. Other than that, a responsive service provider will push their employee to be approachable, helpful and being present when having the interaction with their customers.

For industry such as hotel and healthcare, their customers have expectation to receive immediate assistance and respond to solve their problem. This statement is strengthen by the research by (Bakhtiar, 2024), which found out that the dental school patients had the highest expectation for responsiveness, meaning they wanted providers to be prompt , attentive and helpful which could be related to the history of receiving services or long queues for providing services in government system.

Responsiveness is also linked to the customers expectation, which nowadays keep increasing due to the digital advancement and also real-time communication platforms such as emails, social media, live chat and also through the mobile apps. The ever-growing demand for instant replies makes it clear for us how important responsiveness is to be competitive in this modern service industries. For instance, even if the service provider has a minor flaw, but it can be covered by the fast responses from the staffs and it can help in improving the satisfaction from their customer. Meanwhile on the other hand, if the service provider is slow and seem didn't sincerely helping their customer, it will leave negative impact to the business itself even if the main service provided by them is good.

This is the reason that shows how important for the employer of a service provider company to train their employee to be alert, responsive and willing to help their consumer at all times, because responsiveness is not

just about the speed of their employee to get the task done but also it is about their attitude towards their customers. Even if they manage to respond quickly to the issue faced by their customer but if they are rude, the company will still lose their customer trust. That is why, good responsiveness shows company's commitment to meet their customers expectation by resolving their problem professionally.

In short, responsiveness is not fully measured by how fast the service is delivered, but also, by the ability to the service provider to help and communicate effectively with their consumers. As a result, when combining both operational efficiency and also the responsiveness form the service provider, it will create a huge benefit that can be as a shield from the challenging business environment nowadays.

Assurance

In the SERVQUAL model, assurance is listed to be one of the important factors that can affect the service quality. According to (Parasuraman, 1988) assurance is the knowledge and courtesy of employees and their ability to inspire trust and confidence. While (Agus Setiono, 2022) define assurance as the ability of employees to build customer trust, makes customers feels safe when conducting transaction, employees are consistently polite, and employees are able to answer customers questions. Assurance is very important in a service business that involve high human interaction between the service provider themselves with their consumer in a condition where the final outcome of the service cannot be easily observed and evaluate by the customers. For example, in healthcare industry where their customers did not have the expertise in term of technical to access the main service provided and instead of that in order to judge their service quality, the customer is fully relying on the observable factor such as the behavioural, appearance and communication style of the employees. (Cao, 2025).

There are several elements that is included in the Assurance, such as the expertise of the service staff, their communication skills to be able to communicate effectively and clearly to their customers, the level of respect that they portray to their consumer and also the basic thing such as the safety and trust need to be shown by the service provider when they are facing their consumer in the real-life situation. All of these factors are very important to eliminate the possible risk and one of the effective ways to improve their customers comfort, especially when it is involving the process of sharing the sensitive information or an important decision are being made. To make it clear, let's take hospital for an example, when a patient visit a hospital to diagnose their sickness, they may not be able to have access or knowledge to the technical accuracy of the diagnosis, but by having a doctor that can shows confident, give clear explanation using a respectful tone can put the patient at ease and eventually it will lead to positive perception from their side to the service quality provided by this hospital.

The professionalism and also the behaviour of the service provider is also close linked to the assurance because they are the one that will represent their organization in every interaction with their customer. In order to build a strong customer trust and loyalty, the management of this service provider need to make sure that their staffs is well-trained and have a sufficient knowledge in order to help their customer to solve their problem. According to (Seingo, 2025) their finding shows that the chances for their customer to revisit and trust their service is higher when they as the service provider can consistently use their expertise and being ethical when handling their customers. When a service provider has the ability to maintain the customer relationship in term of honesty and consistency, without their realisation it can directly strengthen their assurance.

Within context of Nihi Sumba Resort, Assurance emerges as the predominant service quality dimension due to several contextual factors uniquely relevant to this resort. (Seingo, 2025). For a private and luxurious resort like Nihi, their customers expect that all of the employees that works there have a full knowledge about their job as the price that they pay to stay in this resort is expensive. The customer demands a high level of assurance from the service provider, which lead to the result that shows how important assurance is to them.

Empathy

Empathy refers to the level of care, personal attention and understanding that a service provider gives to their customer. (Parasuraman, 1988). It is a clear sign that shows how well a company serve their customer as an individual rather than seeing them solely as a source of their income. Empathy is focusing on the human side

when delivering the service, where good behaviour such as being kind, attentively listen and responding accordingly to each of the customers need and want will bring a huge difference in how customer view their organization.

Employees who have a great level of empathy will spare their precious tome to listen, understand and understand their customer thoroughly. This kind of staff will remember their returning customer without fails in term of their preference and also their exception. They will happily assist their customer that seems confuse or upset because for the staffs that have high empathy in their heart will treat their customer just how they want to be treated. Their empathy will eventually help to build trust and emotional connection.

Politeness did not do justice when we are talking about empathy. Empathy can only be seen when an individual put themselves in someone else shoes in order to understand and help them better. (Bakhtiar, 2024) in their research used dentist staffs as their sample to show how influential empathy is when providing good service quality as they often working with patient across age and generation which forced themselves to be emphatic toward their patient. Another example can be seen at the hotel. An emphatic receptionist will arrange a late check-in or even a late check-out for a traveller that seems tired even if we all know that if they stick to the check- in and check-out rule, they are still in the right side and the customer sis not have the right to blame them. But with empathy, they loosen the rule as they always see their customer as an individual rather than just another transaction.

Empathy is closely related to the emotional intelligence of the service provider, as they need to be able to understand, interpret and respond properly to different customers need, behaviour and expectation as empath demonstrate through individualized attention that acknowledges unique customer circumstances. (Seingo, 2025).

METHODOLOGY

Research Design

Research design involves a series of rational decision-making choices (Sekaran, 2023). According to (Sekaran, 2003), the various issues involved decisions regarding the purpose of the study, types of investigations and units of analysis. Therefore, for this study, the researcher will use quantitative research because the purpose of this study is researcher wants to investigate the relationship SEVQUAL models affected operational efficiency within Halliburton's IEM in Southeast Asia and Central Asia. According to (Liu, 2010) quantitative survey research collects data from a sample population at one point at time. This study uses one-time (cross sectional) quantitative research, where it is collecting data at single point at time for the purpose of current analysing the issues. This type of research is the most common and widely used technique in Social Science research. Quantitative research will allow generalizability from a smaller population study group to a larger group.

Sampling Frame and Technique

The researchers have decided to apply convenience sampling under nonprobability sampling, for the purpose of collecting the material. Due to the limitation of time, resources and population, the sample of population is selected because it is readily available and convenient for technician workers of Internal Equipment Maintenance (IEM) at Halliburton's population. The convenient sampling would be helpful and suitable for the research purpose because of the time resources are constraints that faced by researchers as well as to collect data from respondents on time.

Population

Population refers to the entire group of people, events or things of interest that the researchers wish to investigate (Sekaran, 2003). The study was determined the factors that contribute to operational efficiency among the employees using SERVQUAL method which in line with the objective. Furthermore, IEM plays an important role in supporting field operations. The target sample was conducted among 76 employees in IEM department.

Sample Size

Sampling design is referring to the number of elements to be included in the research. In this study, 63 set of questionnaires will be distributed google form or by hand to the respondents or employees in the Halliburton's IEM department.

Unit of Analysis

In this study, unit of analysis refers to the primary entity being studied or analysed. Researchers are targeted Organization of the Haliburton's company. As referring to the objective is to investigate the effectiveness of operations efficiency by using SERVQUAL models towards the employees.

Data Collection Procedure

The data collection involves the process of accumulate the information. The data can be getting from primary or secondary data. In this research, primary data and secondary data were used as reference and the data were collected specifically for the purpose of addressing the research objective in this study.

When the research design including the sampling plan has been formalized, the procedure of gathering information from respondents may start. Clearly, because there are many research techniques, there are numerous methods of data collection. In this study, there are two ways of gathering information. The researcher will use primary data and secondary data to support the purpose of the research direction. This research will be conducted using two types of method. Firstly, the primary data will be originated from questionnaire. The questionnaire is referring to the survey which respondents of IEM workers will take responsibility for reading and answering the question. Respondents of IEM workers were given time to answer the question that were collected back within the time frame given.

Data will be gathered through such existing sources are called secondary data (Sekaran, 2023). Secondary data can be used in two types of which are internal and external data that will be used in conducting this research which comes from various sources. Firstly, internal data which is all the information about Halliburton Energy such as background of the company type of the business and more. As for the external data, one of them is based on the previous data collection or yearly report that have been conducted previously. Furthermore, the researcher will use articles from the Internet which may be from the business article site, online books and E-journal.

The data collection is the process of gathering, assembling and accumulation of information that is related to the issues or study (Malhotra, 2010). The researcher will distribute the questionnaire directly to the IEM workers within the organization. To convince the participant to answer all the questions sincerely, the purpose of this study is written on the front-page questionnaire forms. However, the researchers also will explain the purpose of this study to the respondents before they participated in this study. Data analysis is basically a procedure where data will be collected and presented as the first step. In this study, the researchers will use the Statistical Package for Social Science (SPSS) as the statistical software to examine the data that will be collected.

CONCLUSION

This study on assessing service quality in the Internal Equipment Maintenance (IEM) Department of an oil and gas company using the SERVQUAL framework revealed meaningful insights into how internal clients perceive maintenance services. By systematically comparing expectations with actual service delivery across the five SERVQUAL dimensions—tangibles, reliability, responsiveness, assurance, and empathy—significant service quality gaps were identified, particularly in responsiveness and communication. These gaps highlight areas where the department must focus to enhance overall service effectiveness and client satisfaction.

The findings demonstrate that while the IEM department performs relatively well in delivering reliable and assured services supported by appropriate facilities and equipment, shortcomings in timely response and personalized support undermine overall perceptions of quality. Addressing these gaps through targeted improvements—such as refining maintenance scheduling procedures, enhancing internal communication

channels, and investing in staff training—can strengthen service delivery and foster a more client-centered maintenance culture.

Ultimately, the application of the SERVQUAL model in this industrial context not only provides actionable feedback for operational improvement but also contributes to a deeper understanding of service quality dynamics within technical support functions in the oil and gas sector. Future research could expand on these findings by integrating qualitative insights and exploring longitudinal changes in service quality following intervention implementation.