

**MEASUREMENT OF SERVICE QUALITY GAP IN
PETRO RETAIL IN INDIA: A BILATERAL APPROACH
TO BRIDGE EXPECTATION & EXPERIENCE**

A thesis submitted to the
UPES

For the Award of
Doctor in Philosophy
in
Management

BY
Santanu Purohit
August 2024

SUPERVISOR
Dr. Arvind Kumar Jain



School of Business
UPES
Dehradun 248007, Uttarakhand

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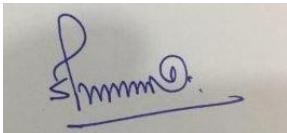


School of Business
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DECLARATION

I declare that the thesis entitled Measurement of Service Quality Gap in Petro Retail in India: A Bilateral Approach to Bridge Expectation & Experience has been prepared by me under the guidance of Dr. Arvind Kumar Jain, Sr. Associate Professor, SoB, UPES. No part of this thesis has previously formed the basis for any degree or fellowship award.

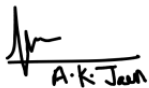


Santanu Purohit
Date : 27.08.2024

Certificate

I certify that Santanu Purohit prepared his entire thesis, entitled “Measurement of Service Quality Gap in Petro Retail in India: A Bilateral Approach to Bridge Expectation & Experience,” under my guidance for the award of PhD degree of the University of Petroleum & Energy Studies. He carried out the work at the School of Business, University of Petroleum & Energy Studies.

Internal Supervisor(s)

A handwritten signature in black ink, appearing to read 'A.K. Jain', with a horizontal line drawn underneath the signature.

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ABSTRACT

Service is a value-creation process where providers and seekers play integral roles in co-creating value. As per the service framework, providers offer vital resources like knowledge and skills, which are accessible to users. Service seekers integrate these resources with other environmental factors, collectively leveraging them to create value through utilisation. The value generated from these interactions is co-created and can vary significantly among users, underscoring the need for a robust metric to assess service value. Recently, metrics emphasising customer-centric quality have been implemented to gauge this value, highlighting the difference between user expectations and their perception of experiences (referred to as the service gap). These metrics capture the dynamic interplay between service providers and seekers in co-creation.

Prior experiences, word-of-mouth recommendations, and individual requirements influence customer expectations. With these expectations, a petro retail customer starts their fueling journey, interacting with various resources, both tangible and intangible, including service providers. Every interaction throughout this journey generates experiences that collectively shape the customer's perception of quality. This perception is unique, experiential, and meaningful. The diversity in customers' perceptions of quality underscores the need for a collective understanding and consensus on service quality evaluation. Even though there have been advancements in customer-focused quality measurement tools in various service sectors, these tools often fail to consider the crucial role of service providers as facilitators of resources.

In services like petro retail, service providers have a significant influence. The primary resources—the provider's knowledge and skills—significantly impact what is available to customers during their fueling experience. Petro retail is characterised by a significant imbalance of information, where providers possess crucial technical knowledge that seekers do not have. Service seekers are often passive recipients, perceived as laymen unable to evaluate technical aspects. Thus, service quality evaluation in the provider-dominant petro retail sector necessitates a different approach.

Historically, this dominance resulted in quality assessments in petro retail being centred around the provider's perspective. Fueling processes and service quality audits were primarily conducted by peers for regulatory and compliance purposes. With the introduction of targeted development programs by governments and oil marketing firms, these outcomes were included in petro retail service quality assessments. Consumerism further drove the inclusion of petro retail service users

in these evaluations.

Petro retail providers have value expectations, which may or may not align with service seekers (knowledge gap). Likewise, the perceived value provided by providers may not align with the experiences of service seekers, resulting in a perception gap. The predominant focus of research in the petro retail sector is on evaluating service quality primarily from the customer's viewpoint. Few studies consider providers' perspectives, indicating a gap in the literature. A comprehensive evaluation of petro retail service quality requires an integrated approach that considers the perspectives of both service seekers and providers. This evaluation entails identifying gaps in service delivery, knowledge, and perception between these stakeholders.

This study utilises a mixed-method research methodology to evaluate service quality at fuel stations in India. It aims to identify service, knowledge, perception and Design gaps to inform managerial decision-making processes. Initially, the study identifies service quality attributes from the perspectives of petro retail seekers and providers. Interviews with stakeholders yielded a collection of items indicative of dimensions related to the quality of petro retail services. These statements were subjected to collective judgment using the Delphi method to determine their appropriateness in measuring petro retail service quality.

The statements' validity and reliability were evaluated using the Pivotal-Core-Peripheral (PCP) Model of Service Quality. A Bilateral Instrument of Service Quality Evaluation (BISQUE) with fifty-five items was developed. This instrument measures the conventional service gap from petro retail seekers' and providers' perspectives. The novel bilateral approach proposed by BISQUE also measures knowledge, perception and Design gaps, offering new managerial insights for improving petro retail service quality.

In summary, this study underscores the necessity of a holistic assessment of petro retail service quality, incorporating both customer and provider perspectives. This research provides a comprehensive framework for enhancing service quality in the petro retail sector by identifying and addressing service, knowledge, and perception gaps.

Dedicated to

my wife Sujoita

and

my sons – Shreyas & Shreyan

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Appendix H: Schema of Complete Research Process

1. CHAPTER 1: INTRODUCTION

1.1. Oil & Gas Sector in India

In 2021 and 2022, India ranked third globally in terms of energy consumption, behind the United States and China. In 2022, renewable energy sources accounted for 40% of India's total energy capacity. India is the third-biggest renewable energy producer and the fourth-largest power consumer worldwide. According to Enerdata 2023, India is ranked fourth globally for installed renewable energy capacity, including major hydropower, as of 2022. It also ranks fourth for the installed capacity of wind and solar power.

In the oil energy sector, the consumption of domestic fuel (diesel) is projected to rise from 1.8 million barrels per day (mbd) in 2023 to 2.3 mbd by 2030, indicating an annual growth rate of 4.5% (India Oil Market Outlook, International Energy Agency (IEA), 2023). Conversely, petrol demand is anticipated to grow at a slower rate of 0.7% per year, increasing from 0.9 mbd in 2023 to 1 mbd in 2030. Historically, diesel usage has grown slower than petrol, largely due to the increasing popularity of petrol vehicles following the deregulation that reduced diesel's cost advantage. According to the International Energy Agency (IEA), while India's diesel demand is set to increase considerably in the coming years, petrol sales are expected to experience only minimal growth. This is attributed to the rising adoption of electric vehicles (EVs), biofuels, and improved fuel efficiency measures, which are having a more substantial impact on petrol demand (ET Bureau, 2024).

The oil industry comprises three distinct streams: Upstream, Middle, and Downstream. Upstream deals with exploration, middle stream deals with processing, storing, and logistics of crude oil, and downstream deals with refining and marketing petro products.

In the downstream side of the oil and gas industry, retailing (Petro retail) is an integral marketing process through multiple distribution channels to create economic, societal, and psychological benefits. Petro retail is the face of OMCs (Oil Marketing Companies) before the customers. In India, petroleum products such as petrol and diesel are distributed through company-operated petrol pumps or franchised outlets managed by dealers and distributors. A petrol station, also referred to

as a petrol pump, is a business that sells fuel and engine lubricants specifically for motor vehicles. In recent years, the main fuels that have been marketed include gasoline (referred to as petrol or gas in the US and Canada, and often called petroleum internationally), diesel, and compressed natural gas (Sharma et al., 2017).

The US IEA's short-term energy outlook (STEO) predicts that global consumption of liquid fuels will rise by 1.8 million barrels per day (mb/d) in 2023 and 1.3 mb/d in 2024. Most of this demand growth is expected in non-OECD (Organization for Economic Cooperation and Development) Asia, with China and India at the forefront. The IEA's forecast for 2023-2030 suggests that India will account for over a third of the worldwide increase in oil demand. India's consumption is projected to grow from 5.5 mb/d in 2023 to 6.6 mb/d by 2030.

As reported by Worldometer, India is the third-largest oil consumer globally, responsible for approximately 4.6% of the world's daily consumption of 97,103,871 barrels. The Paris-based agency's "Indian Oil Market Outlook to 2030," released during India Energy Week 2024, forecasts that India's oil demand will grow from 5.48 million barrels per day in 2023 to 6.64 million barrels per day by 2030. While China leads in oil demand growth, India holds the second position.

1.2. Retail in The Global Context

The last few decades have seen a dramatic change in the retail industry worldwide due to new developments in technology, changing consumer behaviour, and rising expectations. This has also led to notable changes in customer service. Technology and the digital realm have greatly influenced consumer decision-making (Thaichon et al., 2023). Customers are more evolved and demanding more preferred digital technology-led solutions (Mishra & Verma, 2022). Social media, riding in technological advancement, has become pivotal in marketing by utilising social media content to enhance user interaction, highlighting the moderating impact of content quality (Shahbaznezhad et al., 2021).

1.3. Petro Retail Globally

Globally, Petro retail has undergone considerable changes concerning customers' expectations and delivery. Certain factors, such as price and quality, maintain their historical significance, while

others have arisen due to heightened competition or technological progress. Additionally, Petro Retail has noted a significant change from a commoditised to a service-based market globally due to changing customer buying behaviour with the requirement of additional services, equally applicable to the Indian Context (Thaichon et al., 2023). In Africa, marketing initiatives and supplementary services play crucial roles in affecting fuel consumption. Studies have shown that petrol stations' overall image, service quality, and strategic location are strongly linked to consumer preferences (Musa et al., 2020). Hence, the petro retail industry is evolving from an "undifferentiated commodity" to a "branded product" (Dugar, A. 2007).

Price transparency continues to significantly influence consumer purchasing decisions in the United States, as highlighted by Chandra and Tappata (2011). Globally, the price of petro products is being de-regularised by respective governments. In a deregulated environment, diesel fuel prices are lower in competitive local markets (Jens et al., 2018). Determination of fuel pricing depends on demand-supply balance, pump location, brand recognition, etc. (Haucap et al., 2017). Geographically isolated markets are significantly more susceptible to demand-led price shocks (Tappata & Yan, 2019). During the decision-making process for fuel purchase, factors beyond just introductory offers, such as fuel quality and proximity to the fuel station, significantly influence customers' choice of where to purchase fuel (Petra et al., 2017). The location of fuel stations and consumers' views on convenience are crucial factors influencing purchasing decisions (Marc et al., 2012).

1.4. Retail & Petro Retail Trends in Asia and India

Considering the substantial economic and technological advancements brought about by the advent of Virtual Reality (VR) and Artificial Intelligence (AI), the proliferation of digital payment methods in prominent Asian Countries' retail sectors has witnessed substantial technological progress in recent decades. Customers now expect innovative customer experiences as a means of brand differentiation, enabling successful companies to gain a competitive edge (Tivasuradej & Nam Pham, 2019). Customer satisfaction, brand trust, and brand image significantly impact customer loyalty, emphasising the importance of prioritising customer expectations to foster and augment customer loyalty (Azizan & Yusr, 2019).

The Petro retail industry has experienced a significant adoption of advanced technology. In addition

to the fundamental necessities for purchasing fuel, incorporating technology, payment solutions, amenities, and integrated convenience stores at fuel stations have contributed to customer loyalty towards hybrid fuel convenience retail outlets (Sari et al., 2017).

India's organised retail market has experienced significant transformation, with new forms replacing old stores and providing a wide range of goods, entertainment, and services under one roof (Fonna et al., 2022). This development is fueled by elements like exposure to foreign markets, product accessibility, and brand marketing, all of which support the nation's organised retail industry's expansion (Wongrukmit & Thawesaengskulthai, 2014). Because of this, Indian consumers increasingly shopped at organised retail stores due to demographics, double income, urbanisation, and the Internet revolution (Sinha & Uniyal, 2013).

In the Indian petro retail sector, fuel has traditionally been viewed as a basic commodity before and after independence. The government regulated the price of petrol and diesel, and because state-run oil corporations (PSUs) controlled most of the market, Petro retail was restricted and regulated (World Economic Forum, 2017). India's market structure changed from mainly being controlled by the state OMC (Oil Marketing Companies) run to becoming oligopolistic due to the introduction of private companies, which enhanced competition (Sharma et al., 2013; Bello et al., 2009). The Petro retail landscape has been substantially disrupted due to the deregulation of fuel prices and the advent of private businesses like Shell, BP-Jio, and Nayara. In Petro marketing, heightened competition is observed as private enterprises introduce value-added services leveraging innovative technologies to enhance consumer experience (Sharma et al., 2017). A number of causes, which reflect broader shifts in the retail industry, have sparked Petro Retail's transformation in India from a commodity-centric strategy to a service-oriented model (Dugar, 2007).

The possibility of deregulation in India's Petro retail business is seen as a catalyst, which might lead to greater competition among OMCs and the creation of more competitive retail outlets. Motivated by incentives such as discounts and services, dealers may participate in a competitive marketplace, competing for a larger portion of the market. Deregulation offers significant opportunities for Indian standalone refineries, allowing them to enter the market as independent retailers (Atkinson et al., 2019).

The presence of private oil marketing companies is pushing state-run OMCs to move beyond simply selling fuel to focusing more on customer satisfaction through marketing and promotional efforts. Over the last two decades, the Indian government's gradual deregulation of petrol and diesel prices has created a fairer market environment, allowing private firms like Shell, BP-Jio, and Nayara to compete. These companies have introduced innovative technology-driven services to improve consumer interactions, significantly impacting purchasing decisions. Increased competition among petroleum marketing firms necessitates adapting and improving customer service strategies (Sharma et al., 2017).

The strategic objectives in the oil and gas industry demonstrate a harmonious focus on both product and service aspects, including expanding networks, improving payment systems, migrating to convenience stores, and investigating alternative fuel options. Although alignment exists, implementation inconsistencies exist, and specialists have proposed several methods to meet customer expectations. It is essential to address this imbalance, especially when offering the prompt payment solutions that customers want, particularly at petrol pumps (Panduru & Scarlat, 2022).

At the same time, Information and Communication Technology (ICT) fosters business benefits, enhancing customer relations and product leadership (Sari et al., 2021). Employing enterprise architectural management processes facilitates operational excellence and strategic intelligence. However, perceived job autonomy correlates negatively with employees' feelings of privacy invasion due to ICT use (Seppanen et al., 2015). Well-managed ICT ensures lower costs, improved customer satisfaction, and process efficiency, addressing structural and governance concerns (Farah et al., 2020). IT standardises productivity and customises consumer services, strategically promoting success (Santos & Silva, 2021).

Eight steps were proposed by Gilbert and Churchill (1979) for measuring marketing constructs. After completing procedures such as defining the domain construct, creating a sample of things, gathering data, and refining the measure, the data gathered from each use of the measuring device can increasingly offer insights into the preceding processes. Marketing researchers are already gathering data related to data collection, validity assessment, reliability assessment, and norm development. More thorough data collection and analysis planning is needed to support better

marketing strategies. The literature has emphasised the significance of monitoring marketing constructs and evaluating service quality gaps in the Indian Petro retail company (Kinderis et al., 2023). The industry's adoption of information and communication technology (ICT) has improved customer proximity, product leadership, and operational effectiveness, which correlate favourably with business benefits (Sari et al., 2021).

1.5. Customer Experience in Petro Retail

Customer experience (CX) is a customer's comprehensive perception and interaction with a brand throughout their journey, encompassing all touchpoints and engagements. It reflects the quality of individual interactions, the emotional response, and the overall satisfaction derived from those experiences (Lemon & Verhoef, 2016). CX is fundamentally customer-centric, focusing on meeting customer needs and expectations to build long-lasting relationships and drive business success. It spans the entire customer lifecycle, from initial awareness and consideration stages to post-purchase support and beyond. Consistency across interactions is vital, as customers expect seamless experiences regardless of the channel or platform (Chatterjee, 2020).

The operational efficiency of fuel stations' forecourt operations holds considerable importance in shaping customer perceptions and satisfaction. Factors such as inadequate staffing, inefficient fuel pumps, and queues at fuel stations are commonly cited as contributors to suboptimal service delivery. (Ajayi, 2017). Simultaneously, the petro retail sector has seen significant technological progress, enhanced forecourt operations, increased customer satisfaction and enhanced experiences. Introducing fully automated service stations and eliminating the need for cashiers has reduced costs and improved customer benefits. Likewise, adopting self-service pumps in Western nations has notably reduced the reliance on attendants at fuel stations by transferring many tasks directly to customers. This has facilitated the enhancement of the customer purchasing journey and the attainment of increased productivity (Emek et al., 2017).

In recent decades, loyalty programs have become a major trend. Customers have noted the implementation of loyalty programs by fuel supply organisations aimed at fostering customer loyalty and encouraging repeat purchases. The effectiveness of the loyalty program influences

customer perception, satisfaction, and repurchase decisions (Mgiba & Madela, 2020).

Notwithstanding these developments, the Petro retail sector still has issues with customer loyalty, brand awareness, and the requirement for strategic response to shifting consumer behaviour (Attri et al., 2012). To satisfy changing customer expectations, oil marketing companies (OMCs) need to strategically align their retail mix with customer preferences when there is a mismatch (Yadav et al., 2012). When switching is easy, consumers have little incentive to stick with a single company fuel station.

Additionally, consumers use petrol stations because they are conveniently located close to their homes or on their route to work. The rapport between dealers' employees and consumers determines customer satisfaction (Attri et al., 2011). In response to intense market competition, consumer behaviour in the petro retail sector has shifted from focusing solely on commodities to emphasising service quality. OMCs now offer various value-added services such as designated play areas for children, well-maintained restrooms, complimentary air for vehicle tires, car wash services, rapid vehicle inspections and maintenance, convenience stores, and fast-food options (Musa et al., 2020).

The market environment and consumer behaviour have also evolved since the OMCs began experimenting with non-fuel retail. Consumer buying behaviour refers to the actions and decision-making processes of those who purchase and utilise goods. Over the past 20 years, the Indian retail petrol business has evolved from a commodity to a service-based sector (Dugar, 2007). To correct past errors and get ready for the present, OMCs must update their strategy (www. Accenture.com, 2021). The significance of location, extra services, and the relationship between price and quality in shaping consumer preferences emphasises Petro retail businesses need to plan appropriately (Pilelienė & Bakanauskas, 2016). Oil Marketing Companies (OMCs) are becoming increasingly competitive, introducing various programs to attract customers and fulfil fuel-related needs. Moreover, the government's easing of regulations allowing private petroleum companies to set up retail outlets has heightened competition among OMCs (IBEF, 2024).

The concept of receiving value-added services like complimentary air or oil changes has transformed consumer purchasing patterns, shifting the industry from commodity-focused to

service-oriented. Due to technological advancements and customers' increasing technological savvy, OMCs are compelled to construct larger fuel stations and offer an extensive array of value-added services. This has heightened customers' expectations of receiving multiple services conveniently at one location (World Economic Forum, 2017), thereby boosting margins for dealers and distributors.

The Petro retail business requires adapting and developing to suit evolving customer expectations and behaviours, as technology is crucial in defining customer experiences (Chaluhi et al., 2022). To ensure corporate sustainability and generate new value pools, a reassessment of service offerings is needed in light of the emergence of digital technologies, electric vehicles, alternative fuels, and new mobility models (Chaluhi et al., 2022). Key drivers that greatly influence the customer experience in Petro retail are staff behaviour, speed of service, fuel station appearance, payment process, and queue management. Four major product level determinants, basic (quality and quantity), augmented (additional features and advantages), potential (quality and quantity), and expected (allied services), have been found to impact customers' choices when choosing fuel stations in large, multicultural cities (Gahler et al., 2023).

In order to keep their customers, Petro retail firms need to plan and provide services that fit their needs. Although the quality and amount of fuel are the main concerns of customers, they also have high demands for other related services, including air pressure checks, windscreen cleaning, mechanic services and refreshment centers (Tapatta & Jing, 2019) (IBEF, 2024).

Amidst the ever-changing environment of the petroleum industry, corporations are shifting their focus from selling traditional fuels to diversifying their revenue streams through non-fuel retailing (Balaguer & Ripolles, 2018). Nevertheless, forecasting consumer behaviour in this complex setting continues to be daunting. A study utilising Artificial Neural Networks (ANN) aims to predict consumer behaviour in non-fuel retailing at filling stations, providing a more efficient alternative to traditional approaches. Implementing such an approach could result in the development of automated systems, which would decrease marketing expenses and produce more accurate outcomes (Srivastava & Bag, 2021).

The interaction between a store's image perception, customer happiness, and customer loyalty is crucial in the functioning of retail businesses (Ali & Fatima, 2023). Corporate image is crucial in strengthening the link between store image and customer satisfaction, particularly when it originates from major petrol merchants. A positive corporate image improves customer satisfaction, impacting customer loyalty (Saad & Wahid, 2017).

To comprehend customer happiness at fuel stations, it is necessary to investigate elements such as service quality, convenience, and advertising (Xavier et al., 2022). The image, emotional worth, and perceived quality of retail services substantially impact consumer happiness and loyalty at petrol stations (Fonna et al., 2022). Satisfaction partially mediates the relationship between perceived retail service quality, emotional value, image and customer loyalty. Marketing initiatives and supplementary services are identified as crucial elements that impact the use of retail petrol. The overall image, service quality, and location of petrol stations are critical factors that influence consumer preference. The results emphasise the need for solid marketing tactics, creative services, and excellent service quality to improve consumer satisfaction in the retail petrol industry (Musa et al., 2020).

Hence, the Petro retail industry in India is going through a significant transition that is in line with more general retail sector changes. The industry faces both opportunities and problems, including shifting consumer tastes, changing market structures, and the effects of technology. Petro retail businesses must comprehend consumer behaviour dynamics, technology's function, and how to match service offerings with customer expectations to prosper in this changing environment. The quality and quantity, customer interaction at the forecourt, cleanliness, and adoption of technology are meaningful to the customer experience. Filling in the current research gaps on provider views and service quality characteristics will help the industry's strategic planning and development.

1.6. Government Outlook and Policies

The Government of India has undertaken various strategic initiatives to fortify the oil and gas sector, signalling its commitment to sustainable growth. Beginning with significant policy adjustments announced in May 2022, such as reducing excise duty on petrol and diesel, the

government aimed to ease the burden on consumers. Concurrently, amendments to the Biofuel Policy accelerated the target for ethanol blending with petroleum, demonstrating a proactive approach towards renewable energy integration by 2025-26. Moreover, in the 2022-23 Union Budget, modifications in tariffs imposed by customs on essential compounds vital for petroleum refining were introduced, further streamlining industry operations. Ambitious plans were articulated to expand exploration areas, with targets set to double them by 2025 and further by 2030, stimulating domestic output. The launch of the ninth bid round under the OALP (Open Acreage Licensing Policy) in 2022 underscored the government's dedication to fostering investment and exploration opportunities. Strategic decisions such as releasing crude oil reserves in November 2021 highlighted India's proactive stance amidst global market dynamics. Committees were convened to ensure stable natural gas prices for power plants. At the same time, approvals for significant projects in Northeast India and collaborations with the US on emerging fuels demonstrated strategic foresight. The recent green signal for 100% foreign direct investment in oil and gas PSUs and plans to establish numerous compressed biogas plants by 2023 underscored the government's multifaceted approach towards enhancing the sector's growth and sustainability.

Meanwhile, between April 2000 and September 2023, India's petroleum and natural gas sector witnessed substantial foreign direct investment, totalling US\$ 8.18 billion, according to the Department for Promotion of Industry and Internal Trade (DPIIT). This influx of investment coincided with notable advancements within the sector. By November, 2023, India had established a robust crude pipeline network spanning 10,938 kilometres, with a capacity of 153.1 MMTPA, showcasing significant infrastructural development. According to predictions, crude oil production in FY24 reached 17.17 MMT by October 2023, peaking between 2023 and 2032., primarily driven by projects in the KG-Basin. Notably, Indian Oil Corporation Limited (IOCL) emerged as a leader in the refined products pipeline segment, with 12,235 kilometers under its purview, capturing 53.17% of the market share. The proliferation of retail outlets to 88,248 by November 2023 underscored the sector's expansionary trajectory. Joint ventures and initiatives like Jio-bp's innovative pricing strategy for diesel and collaborative projects such as the green hydrogen venture between Indian Oil Corporation Limited, Larsen & Toubro, and Renew Power exemplify the sector's proactive approach towards innovation and sustainability. Policy reforms, including the PNGRB's Unified Tariff regulations and strategic investments by major players like ONGC and

IOCL, indicate a concerted effort to drive growth and sustainability within India's oil and gas sector, poised to navigate both domestic demand and global energy transitions effectively.

1.7. Service Quality in Petro Retail

Services are activities, processes, and accomplishments, according to Zeithaml & Bitner (1996). According to Kotler et al. (2013, p. 338), services are intangible goods that can be purchased and deliver benefits, activity, or satisfaction without granting ownership. "An action or performance that brings about the desired change for the recipient, resulting in customer benefit" is how Lovelock & Wright (1999, p. 2) defined services. The classification of services is based on their intrinsic characteristics, defined as "an intangible offering for sale that provides an activity, benefit, or satisfaction without resulting in ownership of any physical object", as stated by "Kotler & Armstrong, 2018". Human activity seems to be the primary cause of the situation's fundamental nature.

Booms & Bitner (1980) added people, process, and tangible evidence to McCarthy's original Four P's (1960s) list of factors: product, price, place, and promotion. The availability of publicly supplied goods and services, including water and electricity, and industries like banking, education, travel, and hospitality demonstrate how ubiquitous services are in our daily lives. Many globally operating privately held services impact our personal and professional lives.

Petroleum retailing is classified as a service industry, although it differs from other businesses in this industry in a few key ways. Fuel retail is often seen as a uniform good, and customers may find it difficult to assess the service they receive after it has been rendered (Saad & Wahid, 2017). The customer's assessment of the quality of the services pertains to their judgement of the degree to which the services fulfil the specified needs and their assessment of how the service delivery process is executed. When it comes to the services they will use, customers usually have preconceived notions. Perceived service quality is the difference between a customer's expectations and their evaluation of the level of care after it has been provided (Grönroos, 1984).

Accordingly, the precise definition of service quality is the discrepancy between the consumers' expectations and their views of the organisation that provides the services (Bolton & Drew, 1991;

Parasuraman et al., 1988). The difference between customers' expectations and impressions of the services they receive from fuel stations is known as service quality in Petro Retail (Karim et al., 2021).

The word "quality" has various meanings from the perspectives of both service providers and service seekers. According to Philip Crosby and Juran, "conformance to requirements" and "fitness for purpose" are two definitions of service quality from a product-specific standpoint. The expected "degree of consistency" and "dependability", attained inexpensively and customised to satisfy the market demand (Edward Fleming), is defined as the market-based view of quality. The word "quality" was enlarged by well-known Japanese management theorist Ishikawa Karou, who claimed that it now included management, after-sales care, product quality, and the general well-being of the company.

According to Brown & Swartz (1989), assessing service quality typically involves comparing it to predetermined standards or benchmarks and considering the client's expectations and their actual service experiences. The service industry places a premium on customer satisfaction, and providing excellent customer service is a daily necessity to give clients the best possible value. In the past, public sector undertaking corporations dominated the Indian retail petroleum market, and consumers would visit petrol stations to refuel. After fuel prices were deregulated, many private companies entered the market. When consumers' main priorities were vehicle refuelling, they had few other options (Das, 2019). Choosing a petrol station is primarily affected by price, location, currency exchange services, promotional offers, customer loyalty, and payment choices (Musa et al., 2020). However, according to Kakunu (2012), service quality is also essential.

The current ruling body's subjective knowledge assessment might vary between countries and people. Additionally, customers in the petroleum retailing sector could feel physically, psychologically, or both uncomfortable, which could impact how accurately they assign a grade to the caliber of the services they get.

As stated by Ransom et al. (2005), customers who experience poor quality may feel a variety of negative emotions, such as frustration, hopelessness, anxiety about the expenses and complexity of

services, and tension from having to deal with the inconvenience of getting what they need from fuel stations that don't have enough time to understand and satisfy their needs. Andaleeb (2001) asserts that high service quality has advantages and disadvantages. When a service is purposefully neglected or underutilised, it may result in inadequate quality.

The availability of state-of-the-art equipment at petrol stations, a visually appealing appearance, consistent promise fulfilment, timely issue resolution, accurate fuel quantity, timely services, politeness, and customer-focused attention are just a few of the attributes that have been identified by research focused specifically on the quality of petrol stations. Gronroos (1984) and Sriram (2019) distinguish between two categories of service quality: functional and technological. It is thought that relevant quality cannot be attained without technical quality.

While historically perceived as a commodity, Petro retail is increasingly recognised as a service industry with unique characteristics and challenges (Dugar, 2007). Distinguishing itself from traditional service sectors, Petro retail presents a distinct scenario where customers often find it challenging to objectively assess service quality after completing the fueling process.

Customers' assessment of service quality is inherently subjective, representing their evaluation of how specific criteria are met during service delivery (Fobba et al., 2022). According to Grönroos (1984), this evaluation compares customers' pre-service expectations and their post-service perceptions, defining the perceived service quality. In Petro retail, service quality refers explicitly to the disparity between customers' expectations of fuel station services and the perceptions formed after experiencing the fueling service (Musa et al., 2020).

Service quality is defined as the difference between customers' impressions of a service and their initial expectations, a concept extensively explored in service marketing (Bolton & Drew, 1991; Parasuraman et al., 1988). This perspective emphasises that service quality is a dynamic construct influenced by the alignment or misalignment between what customers anticipate and perceive during the service encounter.

Understanding the intricacies of service quality in Petro retail is pivotal, given its evolving status

from a commodity-centric model to a service-oriented paradigm (Mgiba & Madela, 2020). As customer expectations evolve, influenced by technological advancements and changing market dynamics, service quality evaluation becomes critical to ensuring customer loyalty and satisfaction in Petro retail (Karim et al., 2021). Exploring these dimensions and their implications can provide valuable insights for Petro retail providers seeking to enhance service quality and meet their customers' evolving expectations.

1.8. Evaluation of Service Quality in Petro Retail

Until the final decade of the 20th century, Petro retail in India was predominantly served by state-run companies, treating fuel as a commodity rather than a service (World Economic Forum, 2017). However, A transformative shift occurred with the phased de-regularization of fuel prices and the subsequent approval for private players to establish new fuel stations. This marked the evolution of Petro retail from a commodity-centric approach to a more service-oriented paradigm (Andaleeb, 2001).

Considering this significant transformation, comprehending the intricacies of service quality and their evaluation and identifying gaps in service quality have become imperative. The emergence of private players and the evolving dynamics of Petro retail necessitate an in-depth understanding of customer expectations, experiences, and the existing gaps in service quality (Sharma et al., 2017). Understanding these aspects is foundational for developing and implementing newer or upgraded service protocols in Petro retail. As the sector transitions from a commodity-based model to a service-centric approach, focusing on service quality becomes a strategic imperative for Petro Retail's sustained growth and success in the evolving Indian market (Saad & Wahid, 2017).

1.9. Customer's Perspective of Service Quality in Petro Retail

Petro retail customers, often deemed laymen, may encounter challenges assessing service quality, primarily due to the psychological discomfort associated with fuelling experiences (Karim et al., 2021). This concept is reinforced by the perception that Petro retail customers are regarded as laypersons, presumed to lack the ability to evaluate technical aspects of quality. Consequently, they are expected to emphasise the functional aspects of service delivery (Gronroos, 1984). This

underscores the significance of understanding the nuanced service quality dimensions that influence customer satisfaction in Petro retail.

Dagger et al. (2007) emphasise that individual touchpoints influence customer satisfaction in Petro retail during the fuelling journey and by the cumulative impact of these touchpoints on the overall customer experience. This holistic perspective highlights the need for Petro retail providers to meticulously address and enhance each touchpoint to elevate their customers' overall satisfaction.

Despite the growing emphasis on customer-centric approaches in Petro retail, the shift in measuring providers' perspectives on service quality is not yet evident. The conventional understanding of service quality in Petro retail has been anchored in the theory of five dimensions (Kinderis et al., 2023). This theory posits that providers in the Petro retail sector need to prioritise dimensions such as responsiveness, assurance, tangibility, empathy, and reliability to deliver a service that aligns with customer expectations.

As the Petro retail landscape evolves, understanding and bridging the gap between customer perceptions and provider perspectives on service quality becomes essential (Xavier et al., 2022). Exploring and addressing these challenges can pave the way for a more comprehensive and customer-centric approach to Petro retail service quality management. This is particularly crucial in the context of technological advancements, which have significantly shaped customer expectations in the broader retail sector (Karim et al., 2021).

1.10. Providers' (OMCs) Perspective on Petro Retail Service Quality

The Petro retail operation system assessment necessitates a comprehensive understanding of providers' experiences and perceptions of service. In the service delivery process, providers are also stakeholders (Patel & Yadav, 2020).

As architects of service design and delivery, service providers are an important link in shaping the overall customer experience. This sentiment aligns with the perspective that receivers evaluate services based on their holistic perception of service consumption (Brown & Swartz, 1989).

Several influential factors have emerged, significantly impacting the quality of service delivery in the Petro retail sector. These factors include technology adoption, fuel station management, fuel prices, and overall service quality (Musa et al., 2020). The dynamic nature of customer lifestyles, habits, preferences, and requirements, driven by technological advancements, has resulted in a shift in customer behaviour and expectations. Despite recent technological strides in Petro retail, a discernible gap persists between customer experiences and expectations (Mgiba & Madela, 2020).

Service providers emphasise the necessity of specific skills for effective Petro retail service delivery. Professionals in this field should possess domain-specific knowledge and technical proficiency in operating equipment and associated accessories. Acquiring these skills through adequate training and education significantly influences the quality of service provided (Haddad et al., 1998), (Ramsaran & Fowdar, 2008). Hence, any evaluation of Petro retail service quality should inherently incorporate the assessment of 'professional knowledge and skills' as a determinant.

Hence, the Petro retail operation system's success is intricately tied to the perceptions and experiences of service providers, who contribute significantly to shaping the overall customer experience. Recognising and addressing the factors influencing service delivery, alongside prioritising the development of essential professional skills, will be instrumental in bridging the existing gap between customer requirements and actual experiences in the Petro retail (Xavier et al., 2022), (Panduru and Scarlat, 2022)

1.11. Impact of Service Quality in Petro Retail

The relationship between service quality and its impact on behavioural and financial consequences has been extensively explored in academic literature. The SERVQUAL model was first presented in a key paper by Parasuraman, Zeithaml, and Berry (1985), highlighting the critical role that service quality plays in shaping consumer perceptions and behaviours. The authors argued that service quality directly influences customer satisfaction, loyalty, and financial outcomes. Anderson, Fornell, and Lehmann (1994) conducted a study in Sweden, revealing a positive

correlation between customer satisfaction and financial performance. This implies that businesses maintaining higher service quality are more likely to achieve superior financial results.

Reichheld & Sasser (1990) asserted in "Zero defections: Quality comes to services" that high service quality fosters customer loyalty, reducing defection rates and enhancing customer retention, thus directly impacting a company's financial success. Rust & Zahorik's (1993) research highlighted the interconnectedness of market share, customer retention, and satisfaction, demonstrating that improved service quality positively influences customer satisfaction, increasing retention and leading to elevated market share and financial gains.

In their work on service quality measurement, Cronin and Taylor (1992) contributed to understanding its effects on customer perceptions. They emphasised the significance of meeting or exceeding customer expectations in influencing customer behaviour and financial outcomes. In summary, the collective body of literature consistently supports the notion that quality of service plays a pivotal role in shaping customer behaviour and, consequently, significantly affects the financial performance of businesses. These studies provide a robust foundation for comprehending the intricate connections between customer happiness, service quality, and financial consequences (Anderson et al., 1994; Reichheld & Sasser, 1990; Rust & Zahorik, 1993; Cronin & Taylor, 1992).

1.12. Service Quality: Satisfaction and Behavioral Intentions in Petro Retail

Consumer-centric service quality measures have become essential tools for quality improvement, especially when grounded in actual customer experiences (Raleigh et al., 2015). In the fuel retail sector, characterised by significant global changes, understanding and responding to customer feedback are crucial for staying competitive and adapting to evolving market dynamics.

Customer experience feedback is a valuable source of business improvement, offering a direct and unfiltered perspective on service strengths and weaknesses (Raleigh et al., 2015). Customer experiences encompass various touchpoints, such as staff interactions, service delivery efficiency, facility cleanliness, and the overall ambience of the retail environment. In fuel retail, understanding customer experiences is crucial for identifying pain points, areas of excellence, and patterns in consumer behaviour. Feedback related to service quality serves as a roadmap for improvement initiatives, guiding businesses in allocating resources for enhanced customer satisfaction. As the fuel retail landscape undergoes significant global changes, traditional factors like price and quality

remain pivotal, but new elements have emerged due to increased competition and technological advancements (Chandra & Tappata, 2011). Information availability, especially regarding pricing, has become a critical influencer in the customer decision-making process.

Price continues to be a cornerstone in the customer decision journey within the petro retail industry. Businesses that effectively manage and communicate pricing strategies gain a competitive edge. Price transparency fosters customer trust and satisfaction, impacting their overall experience (Chandra & Tappata, 2011). In response to the changing dynamics, fuel retail businesses must be adaptable, addressing longstanding factors like price and quality while responding to emerging elements influencing consumer decisions. Leveraging consumer-centric measures, including feedback mechanisms, becomes a strategic imperative for staying attuned to evolving customer preferences and expectations.

Hence, consumer-centric actions assures, particularly feedback derived from customer experiences, play a pivotal role in the quality improvement efforts of petro retail businesses. As the industry undergoes substantial changes, businesses must recognise the evolving factors influencing consumer decisions. While traditional elements like price and quality remain critical, adapting and responding to new dynamics, guided by consumer feedback, is essential for sustained success in a competitive and dynamic market. Fuel retail businesses prioritising and acting upon consumer-centric insights are better positioned to enhance service quality, foster customer loyalty, and thrive in the evolving global landscape (Raleigh et al., 2015; Chandra & Tappata, 2011).

1.13. Impact Of Service Quality on Behaviour And Financials

The existing body of literature consistently emphasises a crucial correlation between service quality and its ramifications on both behavioural and financial aspects, forming the foundation for understanding the multifaceted impact that service quality can have on businesses and consumers (Parasuraman et al.,1985; Anderson et al.,1994).

Service quality is intricately tied to customer behaviour and perceptions, with high service quality often resulting in positive behavioural outcomes. This includes increased customer satisfaction, loyalty, and favourable rumours, as satisfied customers are likelier to remain loyal to a brand, leading to repeated patronage and decreased inclination to switch to competitors. Positive service

experiences contribute to a favourable brand image, fostering a sense of trust and credibility among customers (Parasuraman et al., 1985).

Conversely, low service quality can have adverse behavioural consequences. Dissatisfied customers may express dissatisfaction, leading to negative reviews, complaints, and potential disengagement from the brand. Adverse experiences may prompt customers to share grievances, amplifying the impact on the brand's reputation and customer perception (Parasuraman et al., 1985).

The correlation between service quality and financial outcomes is pivotal for businesses. High service quality is often associated with improved financial performance, as satisfied customers are more likely to make repeat purchases and willing to pay premium prices for superior service, contributing to increased revenue and profitability. Positive word-of-mouth generated by satisfied customers can attract new clientele, further bolstering financial success (Anderson et al., 1994).

Conversely, poor service quality can have detrimental financial consequences, leading to a decline in sales as dissatisfied customers are less likely to make repeat purchases or recommend the business to others. Negative reviews and unfavourable word-of-mouth can result in losing potential customers and revenue. Addressing complaints, managing reputational damage, and regaining customer trust can also strain financial resources (Anderson et al., 1994).

Thus, the literature consistently supports the idea that service quality is not only a determinant of customer satisfaction but also a significant driver of behavioural and financial outcomes. Recognising and prioritising service quality is not merely a customer-centric approach but a strategic imperative for businesses aiming to thrive in competitive markets. The link between service quality, positive customer behaviour, and financial success underscores the need for businesses to continually invest in enhancing service delivery to secure long-term viability and profitability (Parasuraman et al., 1985; Anderson et al., 1994).

Zeithaml (2000) introduced a comprehensive model delineating service quality's behavioural and financial repercussions, as depicted in Figure 1.1 below. According to this model, positive behavioural outcomes resulting from high service quality foster customer loyalty when coupled

with favourable behavioural intentions. This, in turn, has a cascading effect on revenue generation, increased consumer spending, the ability for service providers to command price premiums, and a rise in customer referrals. Conversely, unfavourable behavioural intentions can lead to customer defection, resulting in reduced spending by the customer, loss of clientele, and heightened costs incurred by the service provider in efforts to attract new customers. This model offers a nuanced comprehension of the intricate correlation between customer behaviour, service quality, and the ensuing financial implications in the service industry (Zeithaml, 2000).

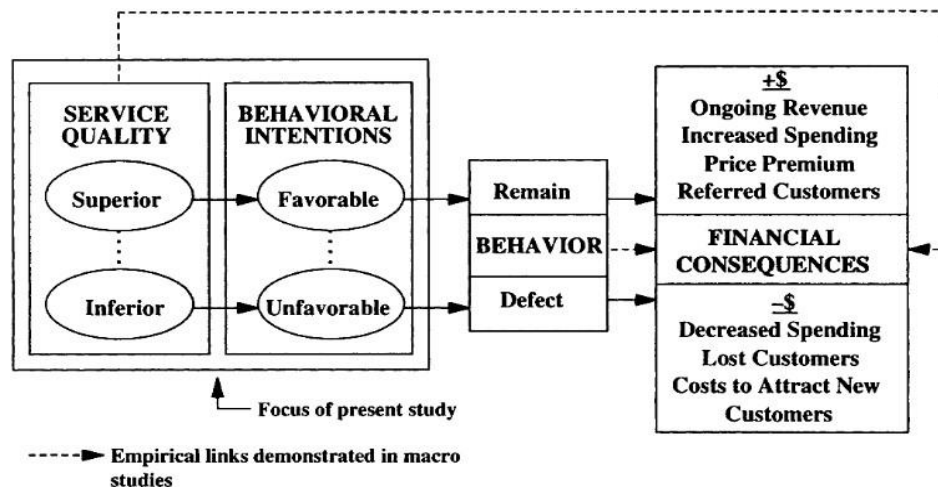


Figure 1.1 Zeithaml, V. A., Berry, L.L., Parasuraman, A., (1996). *The Behavioral Consequences of Service Quality*, *Journal of Marketing*, Vol60, No. 2, pp. 31-46

Service quality is a strategic, offensive and defensive tool with tangible impacts on business performance. Employing service quality as an offensive strategy has been shown to enhance market proportion (Phillips, Chang, & Buzzell, 1983), surpassing expected market proportion levels (Rust & Zahorik, 1993) and enabling firms to command prices of approximately 8% higher than their competitors (Gale, 1992). On the defensive front, some organisations opt for service quality as it saves about 20% of expenses by serving current clients rather than bringing on new ones (Peters, 1988). The significance of retaining customers is underscored by research indicating that it can result in profit increases ranging from 25% to 85% (Reichheld & Sasser, 1990). Furthermore, high service quality enhances customer loyalty, reducing price elasticity and lowering overall customer service costs (Fornell, 1992; Hallowell, 1996). This dual approach to utilising service quality

underscores its pivotal role in shaping offensive and defensive strategies within the business landscape.

1.14. Service Quality, Satisfaction and Profitability

Zeithaml's (2000) study, a cornerstone in the field, consistently emphasises the strong correlation between service quality and customer retention. This connection, it proposes, is crucial for sales revenue, margin, and overall profitability. The study's findings underscore the pivotal role of service quality in fostering customer loyalty and its consequential impact on critical financial metrics within a business.

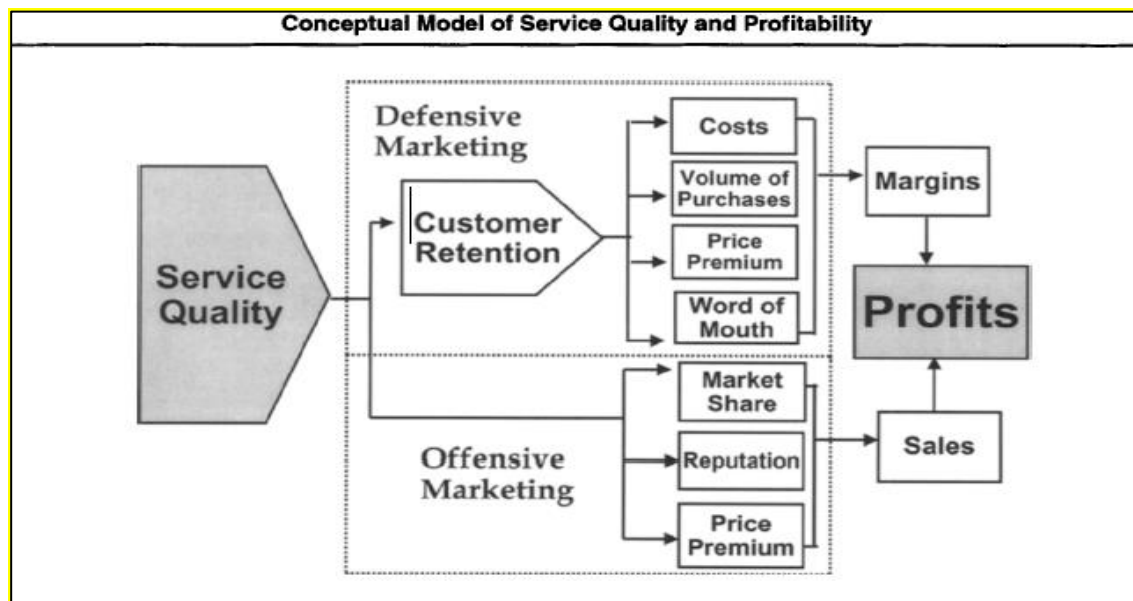


Figure 1.2: Service Quality & Profitability linkage: *Valarie A. Zeithaml (2000), Service Quality, Profitability and the Economic Worth of Customers: What we know and What We Need to Learn, Journal of Academic in Marketing Science, Vol. 28, No. 1, pp. 67-85*

The study confirmed the connection between service quality and customer satisfaction levels, which affect revenue growth and profitability. This linkage underscores the pivotal role of service quality in raising client satisfaction, which has subsequent positive implications for the business's financial performance.

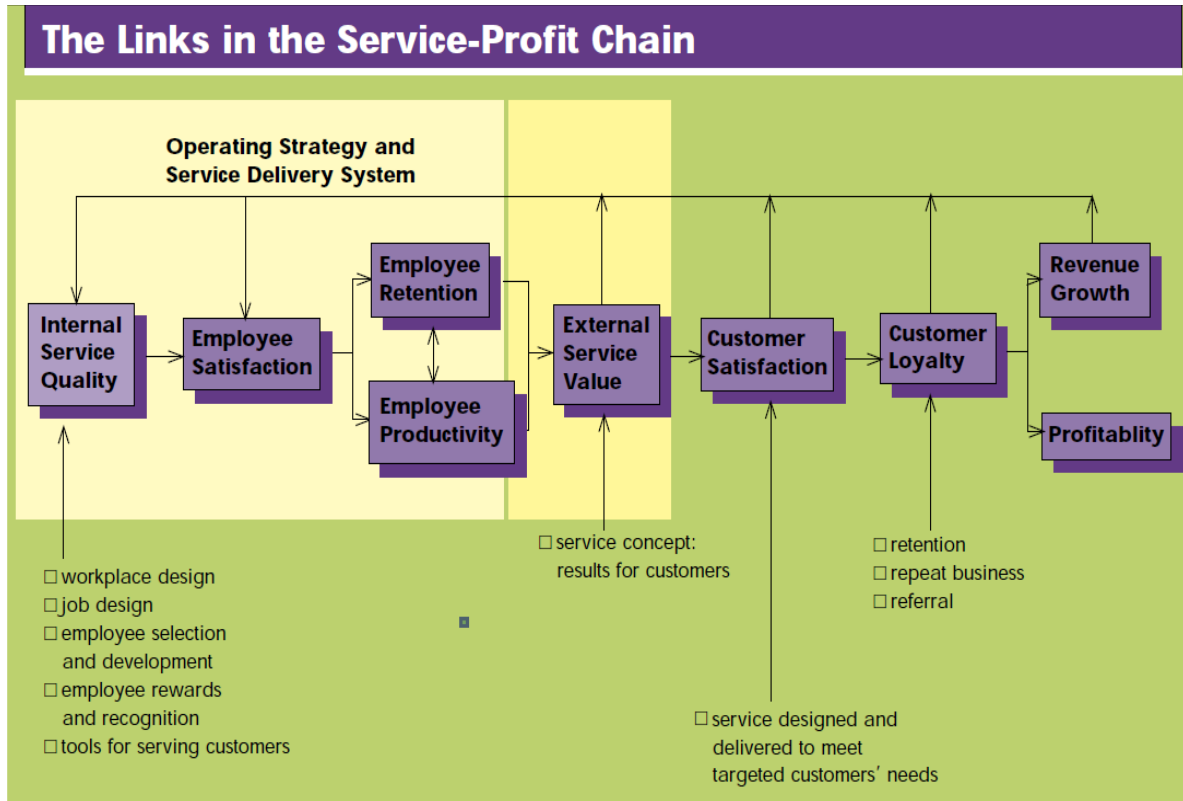


Figure 1.3: Heskett, J. L., Jones, T.O., Loveman, G.W., Sasser, W.E. Jr., Schlesinger, L. A. (1994). *Putting the service-profit chain to work*. *Harvard Business Review*, 72(2), 164-174.

1.15. State Of Service Quality And Satisfaction In Petro Retail

With the increasing number of vehicles plying on the road yearly, fuel prices skyrocket, and petrol station fraud is increasing daily (*One India Staff Writer, 2017*). Many frauds were reported from 2014 to 2017, and Maharashtra led the table with 1560 cases, followed by Uttar Pradesh and Delhi with 913 and 785 cases, respectively. This could be the tip of the iceberg because most cases go unreported. (*The Economic Times-News, July 8, 2018*). Many tricks have been reported as used in fraud to customers (*How Petrol Pump Attendants Cheat You – Quick Pointers, May 22, 2020, <https://bikeadvice.in/petrol-pump-attendants-cheat/>*). Attendants engage customers in small talk while appearing to set the meter to zero, and the starting point of fueling is not ensured. Tweaking fuel-dispensing machines using integrated chips results in manipulated fuel delivery to customers'

vehicle fuel tanks, resetting the Meter to your final amount in between (<https://www.jagoinvestor.com/>, Sept16, 2020).

Given the expanding trends in India's digital payment ecosystem, customers are quickly adopting non-cash payment methods that offer easy and efficient ways to transfer money between bank accounts. However, this also increases the risk of fraud (<https://www.paragon-id.com>, 2020).

Consumers today are progressing towards economic value, looking for differentiation and ready to pay a premium. Customers now have expectations for the Fuel station-based services provided by the Retail and petrol retail industries. The fuel station must design services that adopt the latest technology and deliver them to meet the targeted customers' needs. Service differentiators influence memorable experiences offered through quality service delivery in fuel stations. Customer services improved in several European and American countries to meet customer choices and preferences. Using technology, customers are better served to meet their expectations via adequate staffing and efficiency (Srivastava & Bag, 2021), (Patel & Yadav, 2020).

Given the above Context, Petro retail is evolving from a commoditised product to a service-based sector. Therefore, it is crucial to recognise the significant Petro retail service quality attributes from customers' and OMCs' viewpoints. Also, identification and measurement of the gap, if any, towards customer service delivery. In recent years, the surge in vehicular traffic, accompanied by a rise in petrol station fraud, a concerning trend reported as early as January 24, 2017 (One India Staff Writer). Between 2014 and 2017, numerous fraud cases were reported, with Maharashtra topping the list at 1560 cases, followed by Uttar Pradesh and Delhi with 913 and 785 cases, respectively (The Economic Times-News, July 8, 2018). The number of fraud cases may be significantly higher as many incidents go unreported. Various deceptive techniques employed by petrol pump attendants, such as engaging customers in conversation while potentially manipulating fuel dispensing machines, have been highlighted as contributing to fraud occurrences (Quick Pointers, 2020).

With the escalating trends in India's digital payment ecosystem, consumers increasingly adopt non-cash payment methods, exposing themselves to potential fraud risks (<https://www.paragon-id.com>,

2020). As consumers gravitate towards economic value, they seek differentiation in services and prefer paying a premium. Expectations for services provided by fuel stations in the retail and petrol industries have heightened, prompting these stations to incorporate the latest technology to meet customer needs (<https://www.jagoinvestor.com>).

In light of this context, the petrol retail sector is transforming from a commoditised product to a service-based industry. Recognising this shift, it becomes crucial to determine the important characteristics of high-quality services in petro retail from the perspectives of both customers and oil marketing companies (OMCs). Additionally, identifying and measuring gaps in customer service delivery must be identified to ensure the industry meets evolving customer expectations and remains resilient to fraud challenges (Badlani & Singhal, 2017).

7 types of Petrol Pump frauds (its a nation wide scam)

(<https://www.jagoinvestor.com/2020/09/petrol-pump-frauds.html>)

POSTED BY JAGOINVESTOR ON SEPTEMBER 16, 2020 COMMENTS (65)

I got cheated at a Petrol Pump yesterday for ₹ 400.

Yesterday I went to a BPCL petrol pump to fill petrol in my car, where it all happened.

I asked the attendant for a "Full Tank". I generally get out of my car and stand near the person filling it, but I was in a conversation with my friend and trusted the petrol pump as I have been there quite a number of times. However, this time I made a mistake.

NEWS ([HTTPS://TIMESOFINDIA.INDIATIMES.COM/](https://timesofindia.indiatimes.com/)) / CITY NEWS ([HTTPS://TIMESOFINDIA.INDIATIMES.COM/CITY-NEWS](https://timesofindia.indiatimes.com/city-news))

THIS STORY IS FROM JUNE 21, 2004

23 petrol-pumps fined for malpractice

English | Epaper (<https://epaper.timesgroup.com/>) | GadgetsNow (<https://www.gadgetsnow.com/>)

Debashis Konar (<https://timesofindia.indiatimes.com/tolreporter/author/Debashis-Konar-2911.cms>) | TNN | Jun 21, 2004, 04:28 IST



Daily Che



150 Petrol Pumps Across India Terminated For Malpractices

By NDTV Auto Team | Updated: 28-Jul-15 01:37 PM IST



News » India

REVEALED: How petrol pumps cheat you

By Oneindia Staff Writer | Published: Tuesday, January 24, 2017, 10:23 [IST]

2

With the number of vehicles plying on the road increasing every year, fuel prices are sky-rocketing. Many petrol bunk owners are cheating customers and pocketing the money. How petrol pumps cheat your money. Here's how customers are being hoodwinked at petrol bunks.

You may want to pay extra attention to service station staff who are in the habit of holding the tip of the fuel pipe attached to the nozzle while filling up fuel tanks. They may try to obstruct the flow of fuel multiple times while dispensing fuel. Their constant obstruction will result in less petrol making its way to the tank while the fuel dispenser screen will display the intended quantity and you end up paying more for less fuel.

AUTO / CAR-NEWS

Maharashtra has the highest number of fuel adulteration complaints: New malpractice prevention rules in place now

While the conviction rate of these complaints has been low, with the new rules in place, there is a lower possibility of fuel adulteration or pilferage.

By **Express Drive Desk**
Updated: Nov 26, 2019 10:28 AM

BHOPAL NEWS

Bhopal: Malpractices at petrol pumps leave consumers fuming

Consumers in Bhopal suspect that they are being repeatedly cheated at the petrol pumps and that several fuel retail outlets across the city indulge in malpractices to deceive them.

By **Shruuti Tomar** | Hindustan Times, Bhopal
UPDATED ON JAN 09, 2015 06:47 PM IST

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Business News ▾ News ▾ ET Explains ▾ You are probably getting conned at petrol pumps but there's a way to find out

You are probably getting conned at petrol pumps but there's a way to find out

By Devansh Sharma, ET Online Last Updated: Jul 08, 2018, 02:28 PM IST

SHARE FONT SIZE SAVE PRINT COMMENT

Synopsis

In February, Union oil minister Dharmendra Pradhan shared that ranked Delhi third among states for petrol pump frauds.

Upon comparing with global standards for Petro retail, it becomes evident that there are noticeable gaps in various aspects, as illustrated in Figure 1.4. A substantial gap is reported in market intelligence, fuel pricing, and non-fuel activities. Additionally, a moderate gap is observed in the focus on customer experience, automation, network planning, and the delivery of services through frontline teams. These identified gaps underscore the need for enhancements and improvements in these specific areas to align with global benchmarks in the Petro retail sector.

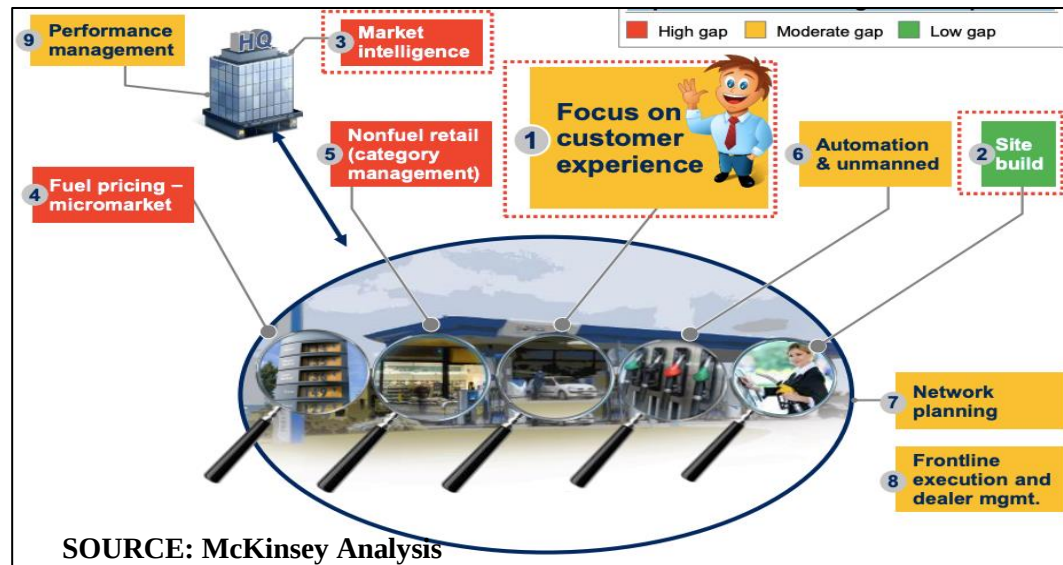


Figure 1.4: Gaps in Petro Retail

There is a noticeable shift in consumer behaviour, particularly evident in the Petro Retail sector, as briefly summarised in Figure 1.5.

		From...	To
Real-time relevance		Broad-scale, one size fits all messaging and interactions	Hyper-targeted consumer journeys grounded in rich data & insights
Next-gen digital experiences		Ongoing step-change improvements to the consumer experience	Rapid testing of radical, next-generation experiences leveraging the latest technologies
Mobile-first		Basic mobile functionality (i.e., mobile-optimized site, smartphone/tablet apps)	Value-add mobile functionality designed with the "mobile-first" consumer in mind
Omni-channel adaptation		Basic level of cross-channel messaging and coordination	Truly seamless journeys that encourage "simultaneous" (vs. sequential) omnichannel behaviors
You-inspired		Basic presence on all major social platforms	Effectively leveraging social platforms and data to drive desired business outcomes

Figure 1.5: Shift in consumer behaviour

1.16. Business Problem

Amidst the ever-evolving global and Indian technological landscape, the retail sector has strategically embraced technology as a fundamental element for customer acquisition, retention, and enhanced customer experience. This pervasive shift towards technology is evident across diverse retail domains, with Petro retail being no exception. Consumers now expect sophisticated technological experiences in their retail interactions, significantly influencing their expectations, perceived experiences, and overall satisfaction within the retail industry.

In contrast, adopting technology in Petro retail within the Indian context has been relatively limited, creating a substantial gap between customer expectations, shaped by heightened technological experiences in other retail sectors, and the prevailing Petro retail landscape. This disparity is further exacerbated by the apparent disconnect between customer experiences and Oil Marketing Companies' (OMCs) perceptions. To address this situation, understanding the perspectives of OMCs regarding customer expectations becomes crucial. Such insights are pivotal for designing services that align with customer needs, ultimately leading to an enhanced customer experience and satisfaction.

In light of this context, the encapsulated business problem can be outlined as follows:

The gap between customer expectation vs Experience in Petro Retail in India impacts customer satisfaction and, thereby, business growth.

The business problem also highlights emerging themes, including:

- (i) Customer satisfaction among Indian fuel customers,
- (ii) Unfulfilled fuel retail customer expectations,
- (iii) Improving customer experience to increase loyalty,
- (iv) Matching customer service elements with business goals,
- (v) Technology adoption.

1.17. Research Problem

In the realm of Petro retail services, there exists a notable gap in exploring providers' perspectives concerning the evaluation of service quality dimensions. Customers at Petro Retail have expectations, which they measure against their sense of performance (Parasuraman, et.al.,1988). However, there may still be a critical information gap between the customer's expectations and the provider's assessment of these expectations. This discrepancy makes it difficult to fully comprehend and improve service quality in the Petro retail industry. Furthermore, a perception discrepancy could exist between how the provider and the client view the same provider's performance.

The conventional approach to measurement of service quality predominantly focuses on evaluating gaps solely in terms of customer expectations and their perception of the provider's performance. However, limited literature exists on systematically measuring knowledge and perception gaps in Petro retail services. Furthermore, inadequately published approaches in Petro retail services regarding both customer and provider perspectives on measuring service quality gaps pose a considerable gap in existing research. The Customer Experience in Petro Retail is another aspect that lacks comprehensive exploration, and there is insufficient published work on technological advancements and their applications to match customer requirements with their real experiences in India's Petro Retail.

The thematic research reflected that where Customer Service + Customer Experience + Customer

Engagement have significant research coverage, there is very little research on experience analytics, HR analytics, quantification of the insights, etc. Subsequently, the analysis was carried out on the geographic concentration of the study carried out so far. It was observed that a good number of research has been covered in the USA, UK, Eastern Europe, and Eastern Asia region. However, very few studies have been carried out in India. The research coverage assessment helped to identify the gaps in the global context.

In light of these gaps, this thesis aims to address the overarching research problem: *What are the significant attributes of Petro retail service quality among customers and oil marketing companies (OMCs), and how can the service quality gap be measured to provide quality services?* By delving into customer and provider perspectives, examining service quality gaps, and exploring technological advancements, the thesis seeks to contribute valuable insights to the Petro retail service domain, fostering a more holistic understanding and improving service quality in this sector.

1.18. Research Questions

Identifying managerial challenges is a crucial aspect of the research, and the following research questions succinctly encapsulate these challenges arising from the premise above. By formulating specific queries, the research aims to delve into the intricacies of managerial responsibilities and potential hurdles organisations may encounter in the context under consideration.

1. What are the factors affecting customer expectation and experience?
2. Is there any gap between Customer experience front and servicing OMC experience front?
3. Is there any gap between customer expectations and the OMC's understanding of customers' expectations?
4. Is there any gap between the service design and the Customers' expectations?
5. How can customer and OMC perspectives of measuring service quality gaps be bridged in Petro Retail in India?
6. How can technology adoption help to bridge the gaps?

These research questions serve as a roadmap for exploring managerial challenges, providing a comprehensive framework for analysing and understanding, and offering insights into the complex dynamics faced in Petro retail settings.

1.19. Research Objectives

In alignment with the research questions, the following research objectives are proposed.

1. To explore the significant attributes for evaluating service quality by customers and OMCs of Petro retail services.
2. To identify the gap in customer expectation and understanding of OMCs, including design & standard for the same by OMCs.
3. To explore & propose a Bilateral approach to measure customers' and OMC's perspectives on petro retail service quality Gap

1.20. Petro Retail Service Quality Gap in the Study

Gap 1: Service Quality Gap

Petro Retail Seekers' Expectations – Petro Retail Seekers' Perception of Their Own Experiences

Gap 2: Knowledge Gap

Petro Retail Providers' Perception of Service Seekers' Expectations – Petro Retail Seekers' Expectations

Gap 3: Perception Gap

Petro Retail Seekers' Perception of Their Own Experiences – Petro Retail Providers' Perception of Service Delivery

Gap 4: Design and Standard Gap

Service Quality Design & Standard – Provider Perception of Customer's Expectation

2. CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

The inherent intangibility of services presents significant challenges for providers in effectively conveying quality to clients. For fuel retailers, this intangibility complicates efforts to advertise their services in advance, as service delivery relies heavily on human interaction. Additionally, the inability to evaluate or assess services beforehand further complicates consumer decision-making during the pre-purchase stage of service selection. The intangible nature of the service experience becomes apparent only as service seekers navigate various touchpoints in their purchasing journey. Petro retail customers often experience anxiety during the purchasing phase, contributing to the mental intangibility encountered by service seekers when assessing complex processes and deliverables of petro retail services. The chapter also discusses the challenge of differing expectations and perceptions of experiences between petro retail service seekers and providers. Additionally, this chapter delves into the intricate nature of petro retail. An extensive review of existing literature elucidates the abstract concept of petro retail service quality, covering themes such as service quality drivers, dimensions, measurement methods, and models documented over time. It also explores the correlation between customer satisfaction and organisational profitability, customer expectations in petro retail, and the impact of technology on service management. The following sections of this chapter investigate the dimensions of petro retail service quality and its significance in measurement. Finally, a bilateral approach to measure petro retail service quality is proposed, aiming to evaluate perspectives on service quality assessment from service seekers and providers.

2.2. Service Quality Concepts

Zeithaml and Bitner (1996) define services as actions, procedures, and accomplishments. Services can be defined as "actions, advantages, or satisfactions that are offered for sale and are primarily intangible, not resulting in ownership of any physical object" (Kotler et al. (2013, p. 338)). Lovelock and Wright (1999) defined services as "an action or performance that brings about the desired change for the recipient, resulting in customer benefits." Hence, services are intricately connected to quality and are evaluated based on multiple aspects. Services are

categorised based on their inherent features and described as "an intangible offering for sale that provides an activity, benefit, or satisfaction without resulting in ownership of any physical object" (Kotler & Armstrong, 2018). The situation's fundamental nature appears to be driven by human endeavour.

The traditional Four P's, namely product, price, place, and promotion, initially proposed by McCarthy in the 1960s, were later expanded by Booms and Bitner in the 1980s to include people, process, and physical proof. The universal presence of services in our daily lives is evident in providing essential commodities such as electricity and water and banking, education, transportation, and hospitality sectors. Numerous privately owned services have a global reach, influencing our personal and professional spheres.

Even though it falls under the service category, petrol retail has unique qualities that make it stand out from other service-related businesses. Petro retail is often seen as a standardised commodity, and customers may find it difficult to evaluate the kind of service they received—even after it has been rendered (Dugar, 2007). The customer's subjective judgement of how effectively the services meet the set standards and how the service delivery process is executed is known as the customer's service quality assessment. Consumers usually have preconceived notions about the services they will soon be using. Grönroos (1984) defined perceived service quality as the discrepancy or gap between a customer's expectations prior to getting a service and their perception of the service following receipt. According to Bolton and Drew (1991) and Parasuraman et al. (1988), the difference between a customer's perception of a service and their expectations of the company delivering it is known as service quality. Petro retail service quality, like other service industries, is defined as the discrepancy between customers' perceptions of services and their expectations for services provided by fuel stations (Patel & Yadav, 2020).

Service Quality = Customer view of service – Customer Expectation

(Petro Retail Service Quality)

The term "quality" encompasses several interpretations from the standpoint of both service providers and service seekers. According to Philip Crosby, Service quality can be defined as "conformance to requirements" and "fitness for purpose".

According to Edward Fleming, the market-based view of quality is characterised as a consistent and reliable level of performance that is cost-effective and tailored to meet the market's demands. Ishikawa Karou, a prominent Japanese management theorist, expanded the term by asserting that " quality " refers to a product's quality and includes aspects like managerial quality, after-sales care, the company overall, and people's well-being.

Service quality can be assessed by comparing it to predetermined standards or benchmarks and considering consumers' expectations and their actual service experiences (Brown & Swartz, 1989). Customer happiness is crucial in the service sector, and ensuring high service quality has become routine to deliver optimal value to the customer. In the past, the petro retailing industry in India was predominantly controlled by public sector undertaking corporations.

Following the deregulation of fuel pricing, numerous private enterprises seized the opportunity to enter the market, capitalising on the limited options accessible to customers primarily focused on refuelling their vehicles (Atkinson et al., 2019). Various criteria, such as location, loyalty programs, promotions, payment options, currency exchange services, and pricing, influence the selection of a fuel station (Maharsi et al., 2021). However, service quality also plays a crucial role in this decision (Kakunu, 2012).

The existing expert knowledge is a subjective evaluation that can differ among nations and individuals. Moreover, Petro retail customers experience physical or psychological discomfort, as Kakunu (2012) and Mgiba and Madela (2020) stated. Consequently, their input on assessing the quality of Petro Retail service may be unreliable.

In conducting a thorough assessment of Petro Retail Service Quality (PRSQ), a comprehensive thematic literature review was undertaken to identify the dimensions and measurements inherent in this domain. To ensure a robust understanding, the researcher employed a meticulous approach, utilising the resources of prominent databases such as EBSCO and Google Scholar to the best of his ability. The search focused on identifying full-text articles in English, thereby ensuring the inclusion of relevant and scholarly contributions to the field. This process yielded 107 articles, subsequently categorised under six overarching themes, each shedding light on distinct aspects of Petro Retail Service Quality.

The themes extracted from the literature encompass a diverse range of perspectives, offering valuable insights into the multifaceted nature of PRSQ. The synthesis of these themes enriches the understanding of service quality within the Petro retail sector. It lays the foundation for exploring its various dimensions and associated measurements. This comprehensive literature review serves as a robust starting point for the subsequent phases of the research, providing a solid groundwork upon which the study can build to unravel the complexities of Petro Retail Service Quality. (Table 2-1 and Annexure I).

Table 2-1: List themes and Articles Reviewed

Sr no	Themes	No of the Article reviewed
1	Service Quality drivers in service management and related to Petro retail	22
2	Service Quality Dimensions	23
3	Service Quality Measurement	34
4	Linkage of Customer Satisfaction and Organization's Profitability	16
5	Technology impact on service management & Petro retail	28
6	Customer Expectations in Petro Retail	21
Total Article reviewed (including common across the themes)		107

Source: Author's literature review

The literature review played a pivotal role in developing Petro retail themes. Subsequently, these themes were juxtaposed against those emerging from the business problem, and the commonalities among the preliminary themes were systematically and thoroughly analysed.

Table 2.2: Emerging themes and commonalities of themes

Emerging Themes from Business Problems	Emerging Themes from Literature Review	Commonality in Preliminary Themes
Customer Satisfaction among Indian Fuel Customers	Customer experience	Customer experience
Unfulfilled fuel retail customer expectations	Forecourt efficiency	Customer satisfaction
Improving customer experience to increase loyalty	Customer service	Customer service
Matching customer service element with business goals	Payment Process	Loyalty
Technology adoption	Customer satisfaction	Cloud /IoT/ Technology adoption
	Customer expectations	
	Loyalty	
	Cloud. IoT	

Building on the findings, the study conducted a detailed examination to identify specific tags within the identified themes, ensuring a more precise understanding of the underlying pattern. Drawing insights from existing research, it became evident that certain tags, including but not limited to customer experience, customer service, payment process, technology, and customer satisfaction, exhibited a higher frequency.

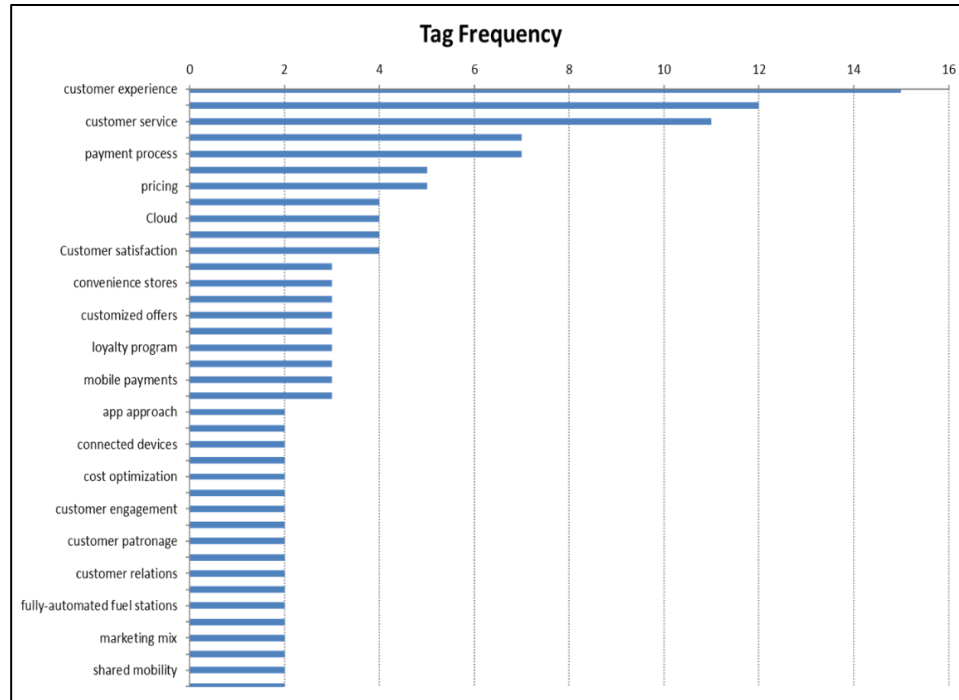


Figure 2.1: Tag frequency of reviewed themes

The thematic research analysis focuses on Customer Service, Customer Experience, and Customer Engagement. In contrast, areas such as experience analytics, HR analytics, and the quantification of insights are relatively underexplored. Following this observation, a geographic concentration analysis was conducted to assess the distribution of existing studies. Many research endeavours have been undertaken in regions such as the USA, the UK, Eastern Europe, and Eastern Asia. However, the research landscape in India remains comparatively limited.

This comprehensive assessment of research coverage highlights the prevalent themes and underscores geographical disparities in scholarly exploration. Identifying these research gaps on a global scale provides valuable insights into areas where further investigation and academic attention are warranted.

Table 2.3: Research Coverage in the Global Context

Global Research	Domain	Analysis
High Research coverage	Customer Expectations, Customer Perception	Good understanding of the Customer Journey
Decent Coverage	Understanding of Customer needs, Service Delivery	
Poor Coverage	External Communication	Under-represented because marketing hasn't given good returns (in terms of loyalty Or just ignored/forgotten).
Very Poor Coverage	Service Delivery Policies	because of a poor understanding of how to translate customer insights into actionable experience

The identified gap holds implications for the misalignment between customer expectation insights and actual experiences. In the specific context of India, the analysis yielded the following result:

Table 2.4: Research coverage in the Indian context

Indian Research	Domain	Analysis
Average Research coverage	Customer Expectations, Customer Perception	Limited understanding of Customer Journey. Old data – doesn't reflect new customer innovations.
Average Coverage	Understanding of Customer needs, Service Delivery	
Poor Coverage	External Communication	Under-represented because marketing hasn't given good returns (in terms of loyalty Or just ignored/forgotten).
Very Poor Coverage	Service Delivery Policies	There is a very low correlation between customer expectations and experience because of a lack of recent data.

The identified gap carries significant implications for comprehending the expectations of Indian customers, particularly in light of the limited recent research available on this subject. Drawing from the commonalities observed in business and research problems, six overarching themes have emerged, shaping India's Petro retail service quality landscape. These themes provide a comprehensive framework for exploring and understanding the intricacies of customer expectations

and experiences in the Indian Petro retail industry. The study attempts to close the knowledge gap and provide insightful information about the dynamics of service quality in the context of Petro retail services in India by carefully analysing these aspects.

2.2.1. Service Quality Drivers in Service Management and Petro Retail

The process of de-regulation is a common trend across various industries, prompting a continual improvement in customer services to align with evolving choices and preferences. In general retail, the enhancement of customer service, achieved through adequate staffing and operational efficiency, plays a pivotal role in meeting customer expectations effectively. Notably, the factors influencing buying behaviour in Petro retail are predominantly centred around the quality and quantity of the products.

Key determinants at the product level encompass considerations of quality and quantity. At the same time, service-level factors involve air check-ups, proof of delivery, and minimising transaction times. Additionally, the introduction of augmented factors like ATM facilities, supermarkets, and vehicle cleaning has demonstrated the potential to increase non-fuel revenue. Despite these promising prospects, adopting such a model has faced challenges in the Indian market due to significantly lower profit margins in petrol and diesel sales compared to the retail sector.

Anticipated factors, poised for future growth, add another layer to the evolving landscape. However, the intricacies of service quality drivers in Petro retail in India are yet to be fully elucidated, especially in the context of the transformed customer buying behaviour, lifestyle, and experiences derived from general retail. This emphasises the need for a comprehensive exploration of the unique dynamics that shape customer expectations and experiences within the Petro retail sector in India.

[Publication: Purohit, S., Jain, A.K. (2020), *Evolution of Fuel Retail in India Vis –a- vis India Customer: Shift in Consumer Behavior*, *International Journal of Management (IJM)*, Volume 11, Issue 8, pp. 199-207.]

2.2.2. Service Quality Dimensions

Among the extensively studied service quality dimensions, “Tangibility”, “Reliability”, “Responsiveness”, “Assurance”, and “Empathy” have consistently emerged as focal points. Conceptually and empirically, it is well-established that these dimensions exhibit variations across different industries and cultures. One prominent service quality dimension in the petro retail industry is Oil Marketing Companies (OMCs) comprehensively understanding customer needs and designing and delivering appropriate services.

Price, market conditions, and trends substantially influence customer purchase choices in the Petro retail sector. Notably, the quality of services stands out as a crucial determinant for fostering customer loyalty and establishing meaningful relationships between customer loyalty and satisfaction. While existing studies predominantly delve into the perspective of the customer, a notable difference exists in exploring the OMCs' perspective regarding “service quality dimensions” in Petro Retail services. Understanding how service providers perceive and prioritise these dimensions is crucial for a holistic comprehension of service quality dynamics within the Petro Retail industry.

[Publication: Purohit, S., Jain, A.K. (2022), Review of Service Quality Dimensions and their Measurements in Indian Petro- Retailing, Paideuma Journal of Research, Volume 14, Issue1, pp. 1-11]

2.2.3. Service Quality Measurement

Most studies focusing on service quality dimensions have taken a quantitative approach, with researchers keenly analysing customer expectation-performance scores on these dimensions. While some studies advocate using performance-only measures for data analysis, the prevalent method in Petro retail research involves using questionnaire-based surveys to study customers.

In this landscape, an intriguing gap arises concerning exploring differences between customers' perspectives and Oil Marketing Companies (OMCs) perspectives on service quality assessment.

This gap encompasses the examination of perception gaps, design, and standard gaps. The nuanced exploration of these differences is an uncharted territory within the Petro retail domain, offering a promising avenue for future research to unravel the intricate dynamics shaping service quality assessment from both customer and service provider standpoints.

[Publication: Purohit, S., Jain, A.K. (2022), *Review of Service Quality Dimensions and their Measurements in Indian Petro- Retailing*, *Paideuma Journal of Research*, Volume 14, Issue1, pp. 1-11]

2.2.4. Linkage of Customer Satisfaction and Organization's Profitability

Service providers increasingly rely on innovative customer services as a critical strategy for brand differentiation in the highly competitive retail landscape. Integrating technology into retail operations has proven instrumental in fostering customer patronage and loyalty. The retail sector in India is undergoing a rapid transformation in customer buying behaviours, with a notable preference for organised retailing over unorganised alternatives, particularly in tier 1 and 2 cities. This shift is attributed to the influence of a modern lifestyle, which has elevated shopping expectations and fundamentally altered buying behaviours.

The applicability of these trends extends to the petroleum retail sector, where modernised petroleum pumps have played a crucial role in enhancing customer satisfaction and subsequently driving increased sales. Aligning Oil Marketing Companies (OMCs) marketing strategies focusing on meeting customer expectations has become paramount in achieving customer satisfaction, which, in turn, contributes to customer retention and heightened sales performance.

Successful strategies for attracting more customers revolve around improving the organisation's reputation, enhancing customer satisfaction, and building consumer trust. Fine-tuning customer satisfaction emerges as a preventative measure against customer attrition, ultimately leading to increased sales. This positive relationship between customer satisfaction and company profitability, witnessed in various sectors, underscores the significance of managing the difference between customer expectations and experiences to meet and exceed customer satisfaction.

[Publication: Purohit, S., Jain, A.K. (2021), *Analyzing Consumer behaviour Patterns in Indian*

2.2.5. Technology Impact on Service Management & Petro Retail

Across numerous studies, there is a consistent indication of substantial technology adoption in general retail and the upstream and middle streams of the Oil and Gas industry. However, on a global scale, there is a noticeable absence of research into utilising the Internet of Things (IoT), specifically in safety and customer services within the Petro retail sector. Notably, in Indian Petro retail, technology adoption is minimal, particularly when viewed through customer service. Yet, acknowledging the evolving landscape and increasing customer expectations, technology adoption becomes advantageous and imperative for delivering enhanced services and maximising returns.

While the widespread adoption of technology has significantly transformed service sectors, the Petro retail sector lags in incorporating technological advancements to meet customer service expectations. This technological gap presents an opportunity for further exploration and intervention to bridge the divide and bring Petro retail in line with the advancements observed in other service-oriented industries.

[Publications:

- 1) Purohit, S., Jain, A.K. (2021), *Evolution of Customer Service Protocols with the enhancement of the technology adoption in Petro Retailing in India*, *ZENITH International Journal of Business Economics & Management Research*, Volume 11, Issue 12, pp. 26-33
- 2) Purohit, S., Jain, A.K. (2021), *Mitigating COVID-19 Impact on Fuel Retail Services Using Technology*, *International Journal of Advanced Research in Engineering and Technology*, Volume 12, Issue 7, pp. 46-54]

2.2.6. Customer Expectations in Petro Retail

The impact of technology adoption on customer buying behaviour is undeniable. There is an increasing reliance on social media for personalised interactions, integrating modern algorithms and digital technologies for targeted customer engagement, and utilising virtual reality (VR) and

other advanced technologies in shaping the overall customer buying journey. Despite widespread technology adoption in the upstream oil and gas sector, the downstream segment, particularly in Petro retail, continues to demonstrate limited integration of technological advancements.

Competition in the industry has led Oil Marketing Companies (OMCs) to enhance promotional programs, recognising the growing importance of non-fuel retailing at fuel stations. Customer needs, influenced by factors such as demography and region, extend beyond fuel purchases, emphasising the significance of allied services in customer retention. However, there is an observed gap between customer expectations and the service offerings of Oil Marketing Companies (OMCs). To bridge this gap, service providers in the Indian Petro retail sector must allocate more significant resources to develop technology-driven infrastructure and services that align with customers' evolving behaviours and needs.

The adoption of technology in petro retail services shows a visible gap in meeting customer expectations. Strategic interventions are needed to align technological advancements with customer needs. This will enhance overall service delivery in the sector.

[Publication: Purohit, S., Jain, A.K. (2021), *Analyzing Consumer Behavior Patterns in Indian Petro Retail*, *International Journal of Multidisciplinary Educational Research*, Volume 10, Issue 5(1), pp. 133-139]

A comprehensive overview of studies focusing on specific themes, encapsulating their findings, contributions, and gap analyses is illustrated in Annexure II. This compilation serves as a valuable resource for gaining insights into the nuanced exploration of themes within the scope of the studies, offering a systematic presentation of the research landscape. Each entry in the table encapsulates the essence of the study, allowing for a detailed examination of the unique contributions and key findings associated with each theme. Analysing gaps in these studies further contributes to an enriched understanding of the research landscape, identifying areas where further exploration and investigation may be warranted. This tabulated format facilitates a structured review of the diverse themes explored in the studies, providing a consolidated reference for researchers, practitioners, and stakeholders seeking a deeper understanding of the specific contributions and gaps within the respective thematic domains.

2.3. Research Gap

The literature review has unearthed several notable gaps in the understanding of Petro Retail Services:

- i. There is a noticeable dearth of adequately published works on Customer Experience within the Petro retail sector. Exploring the knowledge and perception gaps in petro retail is essential for identifying any existing discrepancies.
- ii. The existing body of literature lacks sufficient coverage on the Design and Standard gap in Petro retail. Further exploration is necessary to understand the existing gap in this critical aspect of service quality.
- iii. A distinct gap is identified in the availability of published approaches within Petro retail services that integrate both Customers' and OMCs' (Providers') perspectives in measuring service quality gaps. This integrated perspective is currently non-available in the published literature.
- iv. Published works have a notable inadequacy regarding technological advancements and their applications in petrol retail in India to meet customer expectations versus experiences. This area requires further exploration to bridge the knowledge gap and understand technological interventions in the petrol retail sector.

2.4. Petro Retail Service Quality (PRSQ)

Poor service quality in petrol stations may cause customers to experience a variety of negative emotions, such as annoyance, hopelessness, worry about expenses and complexity of services, and stress, as they are unable to get what they need from stations that don't have enough time to comprehend and satisfy their needs (Atkinson et al., 2019). Inadequate service quality might have severe consequences, such as reduced usage or, in certain situations, complete avoidance (Andaleeb, 2001).

Numerous characteristics that contribute to service quality have been identified by research focusing on Petro retail quality. These characteristics include the availability of contemporary

equipment at fuel stations, visual appearance, keeping word, effective problem solving, precise fuel quantity, timely services, politeness, and customer attention (Panduru et al., 2022). (Kakunu,2012). In order to emphasise that technical quality is a prerequisite for applicable quality, service quality is further divided into functional and technical dimensions (Gronroos, 1984).

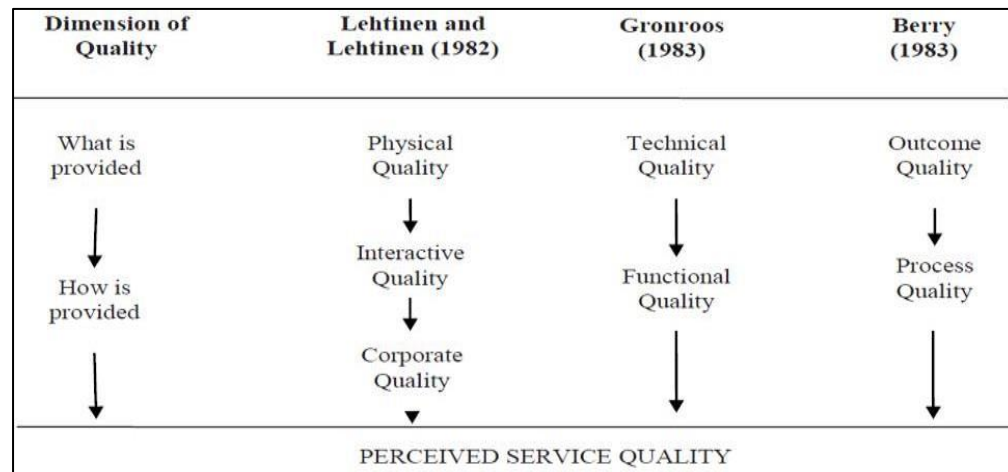


Figure 2.2: Perceived Service Quality Dimensions Adapted from Purcărea, V. L., Gheorghe, I. R., & Petrescu, C. M. (2013). Procedia Economics and Finance, 6(13), 573–585.

It is essential to recognise that perceptions of service quality are relative assessments that may vary across countries and individuals. Moreover, Petro retail customers often experience physical or psychological discomfort or both (Kakunu, 2012; Mgiba & Madela, 2020), making their feedback on evaluating fuel retailing service quality potentially flawed. Understanding these nuances is crucial for comprehensively assessing service quality in the Petro retail sector.

2.4.1. Determinants and Dimensions of Petro Retail Service Quality

Parasuraman et al. (1985) discovered ten service quality dimensions in five different sectors. These dimensions were later condensed into five essential elements known as RATER: responsiveness, assurance, tangibility, empathy, and reliability. These dimensions have been extensively applied in various service settings, including the Petro retail sector (Karim et al., 2021). The widespread utilisation of these dimensions in research settings has established their validity and reliability, linking them directly to customer satisfaction (Andaleeb, 2001; Jandavath & Byram, 2016; Javed

& Ilyas, 2018; Ramez, 2012 ; Mohamed & Azizan, 2015;) and loyalty (Amin & Nasharuddin, 2013; Fatima et al., 2018; Kheng et al., 2010; Mosahab, et.al., 2010).

While these dimensions hold generalizability, it is crucial to note their context-specific nature (Xavier et al., 2022). Retail customers at petrol stations may emphasise these aspects to varying degrees (Cronin & Taylor, 1992). In Petro retail, service quality evaluation primarily focuses on structural aspects encompassing service, processes, and outcomes (Karim et al., 2021). This nuanced understanding highlights the multidimensional nature of service quality and its dynamic interaction with customer satisfaction and loyalty in the Petro retail sector.

In Petro retail, the priorities customers assign to different attributes can vary significantly (Mgiba & Madela, 2020). The Petro retail service quality dimensions are in line with the RATER requirements. The physical attributes of buildings, machinery, employees, and communication mediums are considered tangibles. The capacity to precisely and consistently provide the promised service is a necessary component of reliability. Response time is correlated with eagerness to help clients and deliver timely service. Assurance is associated with employees' courteous behaviour and ability to build trust and confidence. Lastly, Empathy relates to the caring and personalised attention the firm provides its customers (Kakunu, 2012).

The Pivotal-Core-Peripheral (PCP) model of service quality, as proposed by Philip and Hazlett (1997), introduces a hierarchical framework that assigns relative importance to different service attributes. This model identifies three tiers of service qualities: Peripheral (incidental extras or frills surrounding service interactions), Core (people, process, and organisational structure), and Pivotal (end product or outcome). The model suggests that pivotal attributes are more significant for customer satisfaction than the other two categories. As customers spend more time or are frequently exposed to the service, core and peripheral attributes become increasingly essential.

This hierarchical arrangement provides a more nuanced understanding of petro retail service quality, acknowledging the varying levels of importance associated with different attributes. Pivotal attributes, being integral to the end product or outcome, carry more weight in influencing customer satisfaction. Meanwhile, the core and peripheral attributes play crucial roles, mainly as customers

engage with the service over an extended period. Figure 2.3 below visually represents the hierarchical structure proposed by the PCP model, offering a comprehensive view of the interplay between pivotal, core, and peripheral dimensions in shaping the overall service quality in the Petro retail sector.

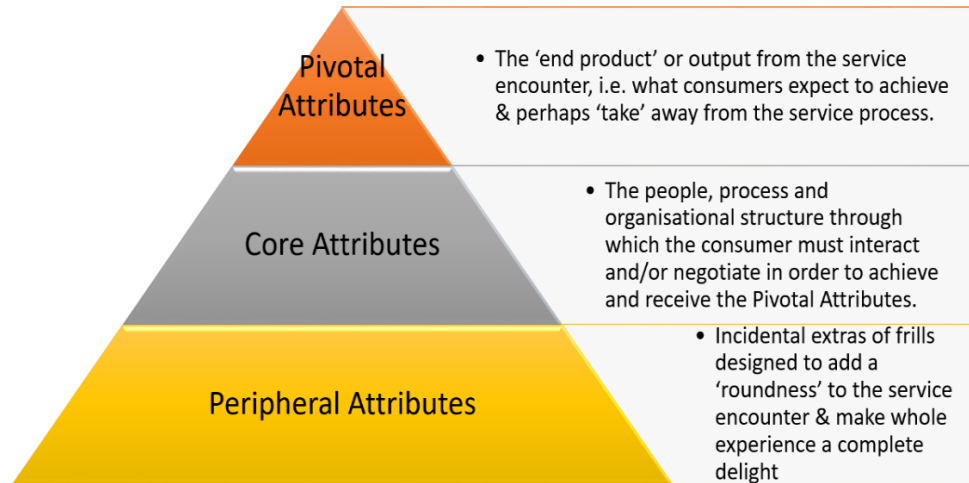


Figure 2.3: Service quality measurement framework adapted from George Philip Shirley-Ann Hazlett, (1997), "The measurement of service quality: a new P-C-P attributes model", International Journal of Quality & Reliability Management, Vol. 14 Iss 3 pp. 260 - 286

2.4.1.1. Pivotal Attributes

Petro retail providers' knowledge, skills, and competence are crucial in determining the service outcome. Customers greatly emphasise service providers' professionalism, skills, and competence when evaluating service quality (Ramsaran-Fowdar, 2008). The chosen service protocol, encompassing factors such as fuel availability, forecourt efficiency, and innovative payment methods, indicates technical service quality (Fonna et al., 2022).

In the realm of Petro retail services, service seekers look for attributes at various product levels, including the three product levels identified: Basic (quality and quantity), Expected (associated services), and Augmented (added features and benefits) (Musa et al., 2020). These attributes represent the minimum tolerable expectations that both Petro retail seekers and providers hold in their minds.

2.4.1.2. Core Attributes

The fundamental elements of Petro retail, termed Core attributes, are delivered to customers by engaging in interactions and agreements with individuals, procedures, and the organisational framework (Philip & Hazlett, 1997). Interactions occur with delivery and other fuel station staff throughout the customer journey at a fuel station, encompassing touchpoints such as fuelling, air checking, lubricant checking, and windshield cleaning (Fonna et al., 2022). Communication arising from these interactions, particularly concerning fuel availability, customer needs, and service protocols, significantly influences service quality evaluations (Mohamed & Azizan, 2015).

Effective communication between OMCs and fuel station staff is pivotal in shaping perceived service quality (Ramsaran-Fowdar, 2008). The demeanour and behaviour of service providers toward customers establish trust (Piligriemienė & Buciuniene, 2008). Trust is cultivated through attentive listening by service providers (Hasin et al., 2001), friendliness in their interactions (Choi et al., 2004), demonstrating respect to the customer (Baltussen, 2002), and maintaining the confidentiality and privacy of customer details (Donabedian, 1983). Additionally, as human beings, customers anticipate receiving compassion, empathy, courtesy, dignity, and responsiveness from service providers, aligning with the dimensions proposed by Parasuraman et al. (1993) (Philip & Hazlett, 1997).

2.4.1.3. Peripheral Attributes

The embellishments associated with the Petro retail service, contributing to the overall completeness and often having tangible characteristics, are termed Peripheral attributes (Philip & Hazlett, 1997). These peripheral attributes encompass elements such as the modern appearance of fuel stations, cleanliness, available payment options, and ease of entry to the fuel station (Karim et al., 2021). Additionally, cultural factors, such as 'collectivism,' significantly mitigate customer stress, influencing service quality evaluations (Rose et al., 2004).

It is crucial to recognise that the Core, Peripheral, and Pivotal attributes do not carry equal weight in the evaluations made by Petro retail service providers and customers. While providers may emphasise technical aspects of service, customers tend to prioritise functional factors when evaluating service quality. Consequently, service providers are more inclined to recognise the

importance of pivotal and core attributes, whereas service seekers emphasise the functional aspects during service quality evaluations.

The dimensionality of service quality is a topic of debate within the literature. Some researchers assert a unidimensional perspective (Hansen et al., 2008; Wongrukmit & Thawesaengskulthai, 2014), while others propose up to ten dimensions (Krishnamoorthy, 2014; Pakdil & Harwood, 2005). Despite these variations, many authors continue to employ the conventional five-dimensional construct in their assessments of service quality in the Petro retail context. (Annexure III).

2.4.2. Measurement Of Petro Retail Service Quality

Measuring customer expectations and perceptions plays an important role in gaining valuable insights into the service quality assessment in the Petro retail sector (Babakus & Mangold, 1992). Understanding how the recipients of services determine service quality dimensions highlights the complexity of measuring customers' perceptions, particularly in the context of Petro retail experiences (Karim et al., 2021). The widely adopted 'SERVQUAL' scale, introduced by Parasuraman et al. (1988) and its subsequent modifications, has been a prevalent tool in assessing service quality in Petro retail settings. The difference between what customers think of service providers and what they expect is measured by this scale.

Nonetheless, there have been critiques of the SERVQUAL scale in a number of studies (Babakus & Mangold, 1992; Cronin & Taylor, 1992; Teas, 1994; Teas & Kenneth, 1993). One notable critique is its context-specific nature, challenging its universal applicability and necessitating modifications to align with specific services (Upadhyai et al., 2019). Jain and Gupta (2004) suggested that while SERFPERF might be preferred for comparing different scenarios within the same industry, SERVQUAL tends to provide more effective diagnostic results for identifying areas of concern in the service delivery process.

Numerous studies measuring various aspects of service quality in retail petroleum have been carried out, with an emphasis on customers who have used the services. Questionnaires were predominantly used in these studies, often aligning with items from the SERVQUAL questionnaire or its modified versions. The sample sizes varied, with a minimum of 100 respondents (Kakunu,

2012). The number of attributes considered in these studies ranged from 3 (Kakunu, 2012) to 18 (Karim et al., 2021). Service quality dimensions were measured using Likert scales, typically 3, 5, or 7 points. These dimensions vary based on demographics, culture, country, types of services required, and distinctions between urban and rural customers. Consequently, researchers aimed to identify specific factors influencing service quality. Various analytical techniques such as factor analysis, principal component analysis, ANOVA, structured equation modelling, correlation, and multiple regression were employed to identify and measure diverse service quality Dimensions.

2.4.3. Scales in the context of Petro retail

In the specific context of Petro retail, there is a notable scarcity of literature and research dedicated to developing scales for assessing service quality. However, the study recognises the significance of established models like SERVQUAL, which comprises five dimensions—RATER (“Reliability, Assurance, Tangibles, Empathy, and Responsiveness”). While the dimensions have been extensively employed and validated in various service sectors, their direct application to the Petro retail context is limited.

Acknowledging the absence of Petro retail-specific scale development, this study takes a rigorous approach. It draws inspiration from the existing scales utilised in different service sectors that align with the SERVQUAL framework. Leveraging the well-established dimensions of SERVQUAL, the study adopts scales from diverse service industries as a starting point for the initial construction of the scale tailored to the Petro retail landscape. This thorough process ensures the reliability and validity of the scale.

While acknowledging the unique challenges of the Petro retail service environment, this study takes a novel approach. It leverages the wealth of knowledge and validation existing in related service sectors, adapting and refining scales to suit Petro retail services' specific characteristics and intricacies. This method aims to establish a strong foundation for assessing and measuring service quality in this industry, navigating the limited existing literature by integrating proven concepts from analogous domains. The result is a robust and contextually relevant scale for Petro retail service quality assessment.

2.4.4. Service Quality Models

Based on the foundational theories of well-established service quality models, companies utilise service quality measurement programs to pinpoint improvement areas, address gaps, and refine service delivery (Bolton & Drew, 1991). Within the vast body of service quality models in academic literature, the "GAP Model of Service Quality" (Parasuraman et al., 1985) is widely recognised and frequently utilised. This model offers a structured approach to evaluating service performance by highlighting the gaps between customer expectations and perceptions, making it a versatile framework applicable across various service settings. This model employs a systematic approach to measuring service quality by identifying discrepancies between consumers' expectations and their actual experiences of service performance. (see Figure 2.4 below).

A cornerstone of service quality management, the GAP model focuses on the functional components of service quality rather than the frequently intricate technical aspects (Gronroos, 1984). This focus on functional dimensions provides a robust and comprehensive framework for evaluating service quality, enabling organisations to pinpoint areas for enhancement based on customer expectations and experiences. The visual representation in Figure 2.4 further clarifies the key components of the GAP model, enhancing understanding of how gaps are identified and addressed in the service quality assessment.

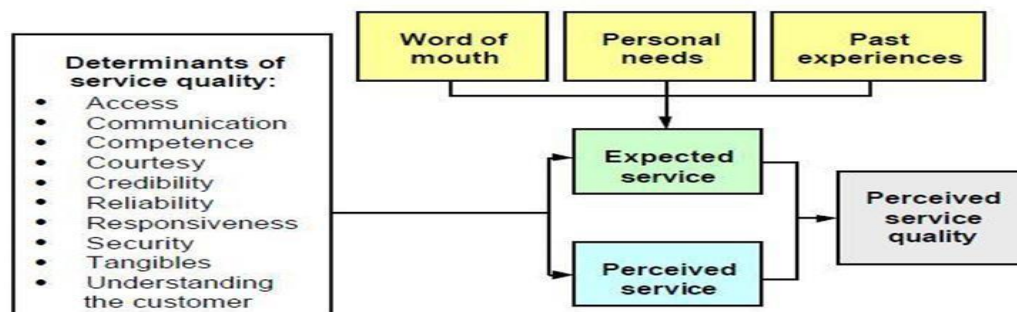


Figure 2.4: Determinants of Perceived Service Quality, Adapted from A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry (1993), Conceptual Model of Service Quality and Its Implications for Future Research, *Jour of Marketing*, Vol. 49, No. 4 (Autumn, 1985), pp. 41-50

2.4.4.1. Gap Model Of Service Quality

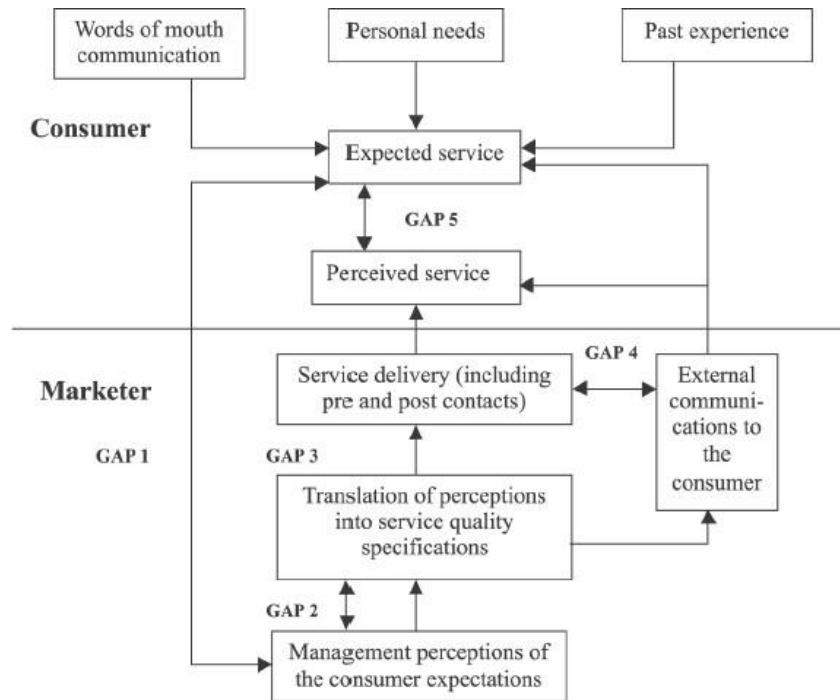


Figure 2.5: Gap Model of Service Quality, Adapted from A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry (1993) Conceptual Model of Service Quality and Its Implications for Future Research, *Journal of Marketing*, Vol. 49, No. 4 (Autumn, 1985), pp. 41-50

Parasuraman et al. (1985) introduced a comprehensive five-gap model, as depicted in Figure 2.5 above, in tandem with the SERVQUAL service quality measurement tool (Parasuraman et al., 1988). The SERVQUAL scale, a widely used tool, employs a twenty-two-item inventory to assess customer expectations and perceptions, focusing on reliability, responsiveness, assurance, empathy, and tangibility. This tool is essential for identifying areas for service quality improvement.

By comparing mean scores from expectation and perception questionnaires, researchers can identify gaps in service quality, aiding in recognising areas for improvement. While widely used, the SERVQUAL scale has faced criticism, with some researchers contending that expectation

scores do not impact satisfaction ratings (Cronin & Taylor, 1992; Teas, 1993). These criticisms suggest that the SERVQUAL scale may not fully capture the complexity of customer expectations and their influence on satisfaction, potentially leading to a skewed understanding of service quality.

Cronin and Taylor (1994) introduced the 'SERVPERF' scale as an alternative, disputing the idea that expectations do not impact satisfaction. The SERVPERF scale has higher predictive validity for customer satisfaction (Cronin & Taylor, 1992; Lee et al., 2000; Ramez, 2012; Teas, 1994). However, the SERVQUAL scale's applicability in various service settings has been questioned (Andaleeb, 2001; Babakus & Mangold, 1992). Despite this, the SERVQUAL scale is favoured for its ability to diagnose and identify service gaps, unlike the SERVPERF scale, which is mainly used to measure customer satisfaction (Jain & Gupta, 2004). The ongoing debate in the literature revolves around the choice between using the 'perception minus expectation' score or 'perceptions only' score for measuring service quality. This debate has practical implications for service quality management, as it influences how service quality is measured and, consequently, how improvement strategies are developed and implemented, as illustrated in Table 2.5 below.

Table 2.5: Utilisation of Expectations and/or Perceptions score in Service Quality assessment

Scoring of Dimension	Author/Year
Perception <i>minus</i> expectation Score (16 Studies)	Babakus & Mangold,1992; Taylor & Cronin ,1994; Lim & Tang,2000; Baltussen et.al.,2002; Sohail,2003; Rose et.al.,2004;Pakdil & Harwood,2005; Chowdhury,2008; Fowdar,2008; Bakar et.al.,2008; Arasli et.al.,2008; Aagja & Garg,2010; Prakash & Mohanty,2012; Ramez,2012; Purcareea et.al.,2013; Pramanik,2016
Perception only score (34 studies)	Butler et.al.,1996; Haddad et.al.,1998; Andaleeb,2001; Hasin et.al.,2001; Jabnoun & Chaker,2003; Kilbourne et.al.,2004; Duong et.al.,2004; Choi et.al.,2004; Rao et.al.,2006; Mostafa,2006; Teng et.al.,2007; Dagger et.al.,2007; Duggirala et.al.,2008; Hansen et.al.,2008; Otani,2010; Sivakumar & Srinivasan,2010; Chahal & Kumari,2010; Narang,2010; Altuntas et.al.,2012; Senic & Marinkovic,2012; Irfan et.al.,2012; Chang et.al.,2013; Amin & Nasharuddin,2013; Krishnamoorthy & Srinivasan,2014; Wongrukmit & Thawesaengkulthai,2014; Dheepa et.al.,2015; Satsanguan et.al.,2015; Venkateshwarlu et.al.,2015; Mohamed & Azizan,2015; Kondasani & Panda,2015; Bahadori et.al.,2015; Pai & Chary,2015; Thawesaengkulthai et.al.,2015; Jandavnath & Byram,2016;

Source: Upadhyay et al. 2021

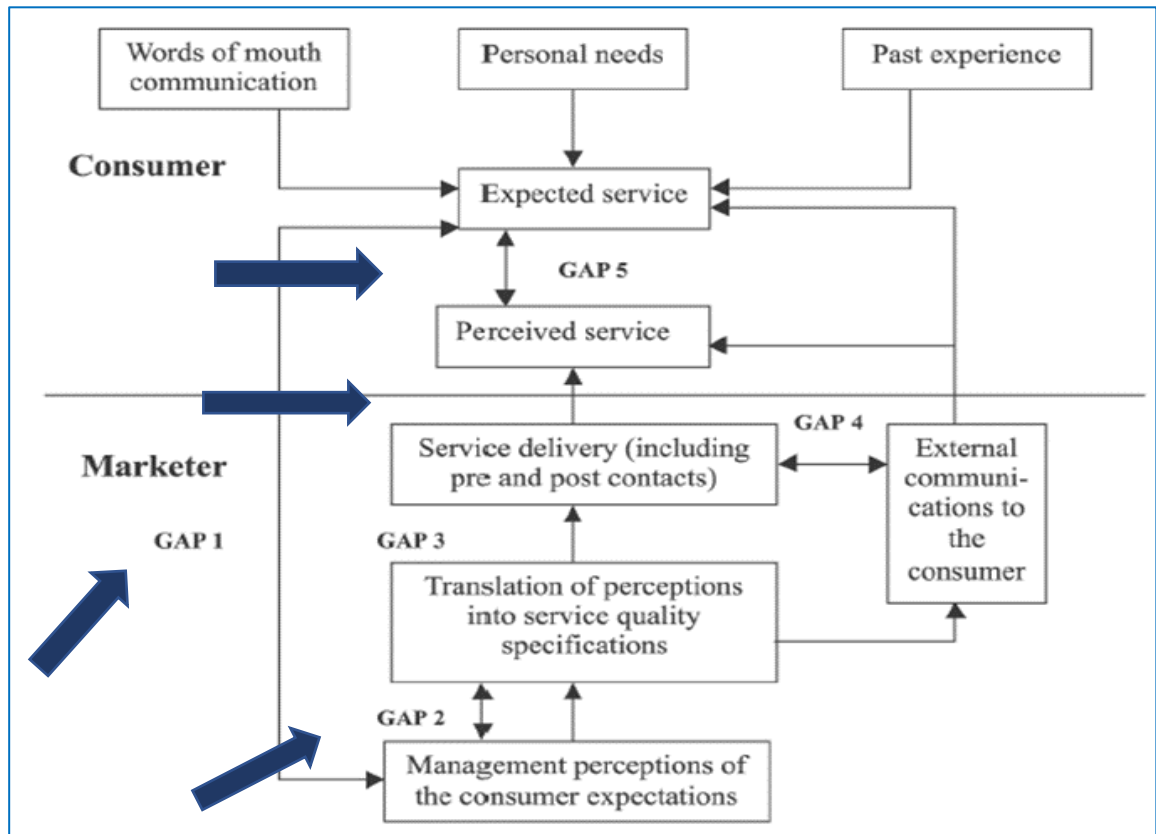
2.4.4.2. Literature Gap

Our study is anchored in the renowned Gap model introduced by Parasuraman, Zeithaml, and Berry in 1993, depicted in Figure 2.5 above. The Gap model, a conceptual framework widely acknowledged in the service industry, is a valuable tool for evaluating and understanding service quality by identifying potential discrepancies between customer expectations and perceived service performance.

The model consists of five distinctive gaps that can occur in the service delivery process:

1. **Gap 1: Knowledge Gap** - Discrepancy between customer expectations and management's perception of those expectations.
2. **Gap 2: Policy Gap** - Discrepancy between management perceptions and the translation of policies into service quality specifications.
3. **Gap 3: Delivery Gap** - Discrepancy between service quality specifications and the actual service delivery.
4. **Gap 4: Communication Gap** - Discrepancy between service delivery and customer external communication.
5. **Gap 5: Perception Gap** - Discrepancy between customer expectations and perceptions of the service delivered.

This model provides a structured approach to identifying and addressing service quality gaps, facilitating organisations' enhancement of customer satisfaction and loyalty. Businesses can implement targeted improvements to bridge these gaps and deliver a more satisfactory customer experience by pinpointing specific areas where expectations may not align with actual service delivery.



Gaps proposed for this study

Figure 2.6: A. Parasuraman, Valarie A. Zeithaml and Leonard L. Berry (1993), A Conceptual Model of Service Quality and Its Implications for Future Research, Journal of Marketing, Vol. 49, No. 4 (Autumn, 1985), pp. 41-50

Following the established Five-Gap model elucidated by Parasuraman et al. (1993), the refinement comes from the revised Gap model proposed by Wirtz and Lovelock in 2011, as illustrated in Figure 2.7 below. This updated model builds upon the foundational concepts of the original Five-Gap model, offering an extended and nuanced framework for comprehensively understanding and addressing service quality gaps in the delivery process. The extension introduced by Wirtz and Lovelock adds granularity and contemporary insights to the original model, enabling a more detailed analysis of the service delivery process. This revised model is valuable for organisations striving to bridge gaps and optimise service quality, fostering enhanced customer satisfaction and loyalty.

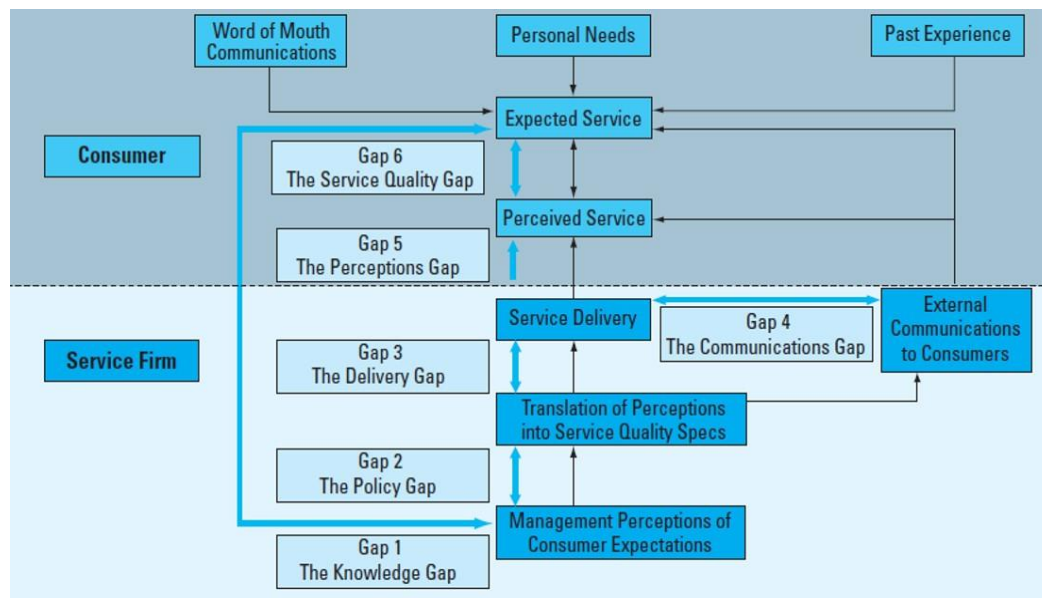


Figure 2:7: Revised Gap Model of Service Quality, Adapted from Lovelock, C. H., & Wright, L. (1999). *Services Marketing: People, Technology and Strategy*. 7th ed., Prentice Hall, p391

The conceptual framework introduced by Lovelock and Wright (1999) emphasises the intricate relationship between customer perceptions and expectations, asserting that service quality evaluation is not solely contingent on customers' assessments. This perspective posits that the service quality gap, a pivotal consideration in service delivery systems, can be effectively addressed by addressing multiple gaps.

Choi et al. (2004) assert that quality evaluations, particularly in high-contact credence-based services, should consider potential gaps arising from both sides of the service exchange—encompassing expectations and actual experiences. Brown and Swartz (1989) further support this stance, highlighting the significance of understanding and addressing gaps that may impact quality assessments.

Specifically, Choi et al.'s (2004) model defines the knowledge gap as the disparity between patient expectations and service providers' perceptions. Concurrently, the perception gap is defined as the variance between customers' perceptions of their service encounters and the providers' perceptions

of service delivery. These propositions underscore the multifaceted nature of service quality evaluation, acknowledging the dual perspectives of customers and service providers.

The model posits equations encapsulating the intricate dynamics of customer expectations, experiences, and provider perceptions within the service delivery context to elucidate these operational gaps. This comprehensive framework encourages organisations to holistically address various dimensions of the service process to enhance overall service quality and customer satisfaction.

Hence, Identifying managerial challenges is vital to the research, which seeks to explore these issues through targeted questions, addressing the complexities of managerial responsibilities and organisational hurdles in the given context.

1. What are the factors affecting customer expectation and experience?
2. Is there any gap between Customer experience front and servicing OMC experience front?
3. Is there any gap between customer expectations and the OMC's understanding of customers' expectations?
4. Is there any gap between the service design and the Customers' expectations?
5. How can customer and OMC perspectives of measuring service quality gaps be bridged in Petro Retail in India?
6. How can technology adoption help to bridge the gaps?

These research questions serve as a roadmap for exploring managerial challenges, offering a comprehensive framework for analysis and deeper understanding. They aim to shed light on the complex dynamics encountered in Petro retail settings, aligning with the following research objectives:

1. To explore the significant attributes for evaluating service quality by customers and OMCs of Petro retail services.
2. To identify the gap in customer expectation and understanding of OMCs, including design & standard for the same by OMCs.
3. To explore & propose a Bilateral approach to measure customers' and OMC's perspectives on petro retail service quality Gap

2.4.4.3. Petro Retail Service Quality Gap in the Study

Gap 1: Service Quality Gap

Petro Retail Seekers' Expectations – Petro Retail Seekers' Perception of Their Own Experiences

Gap 2: Knowledge Gap

Petro Retail Providers' Perception of Service Seekers' Expectations – Petro Retail Seekers' Expectations

Gap 3: Perception Gap

Petro Retail Seekers' Perception of Their Own Experiences – Petro Retail Providers' Perception of Service Delivery

Gap 4: Design and Standard Gap

Service Quality Design & Standard – Provider Perception of Customer's Expectation

The service quality framework articulated by Parasuraman et al. (1988) encompasses four fundamental gaps, with GAP 1, the Service Gap, highlighting discrepancies between customer expectations and service providers' perceptions. Measured through the SERVQUAL model, it is a crucial metric for evaluating alignment in service delivery. GAP 2, the Knowledge Gap; GAP 3, the Perception Gap; and GAP 4, the Design and Standard Gap – each addressing nuances in understanding, interpretation, and strategic design within the service delivery system. While the SERVQUAL model effectively gauges GAP 1, there is a noticeable gap in the literature concerning strategies to address Gaps 2, 3, and 4, highlighting the need for further work.

3. CHAPTER 3: RESEARCH METHODOLOGY

3.1. Introduction

The preceding chapter delves into the diverse aspects of Petro Retail's service quality, encompassing its methodologies and models for measurement. Although there is limited research on the quality dimensions of Petro Retail Service, it can be inferred that it possesses a multidimensional structure as a service. Additionally, these dimensions may vary from the standpoint of customers seeking Petro retail services and the providers of these services (OMCs), and the measurement also differs accordingly. Service quality models are commonly employed to primarily assess the quality of services in areas such as petro retail, with a focus on the perspective of the service recipients. Petro retail is a specialised service facilitating two-way transactions between clients and oil marketing companies (OMCs).

This chapter establishes the framework for further study to direct the ensuing knowledge discovery phases. Subsequent sections will clarify the approach to bridge the identified research gap by utilising mixed-method research.

3.2. Methodology Adopted

The research methodology adopted for this study draws from established models and frameworks to comprehensively analyse the service quality in the Indian Petro retail scenario. A fundamental model utilised in this endeavour is the SERVQUAL model, which serves as a foundational framework for determining Service Quality Gaps. The Petro retail industry has unique characteristics that require modifications to the SERVQUAL questionnaire. These adjustments ensured the questionnaire's relevance and effectiveness in capturing the specific aspects of Petro retail service quality.

An additional approach employed in the study involved the application of the GAP analysis model. The literature review highlighted a dearth of prior research in the Petro retail customer service domain, particularly in understanding the buying behaviour of Indian fuel customers and the factors that augment their experiences. The existing research landscape suggested a potential gap between customer expectations and management perceptions, prompting the need to examine these

gaps systematically. The study employed appropriate methods to substantiate and elucidate these gaps, contributing to a more nuanced understanding of the Petro retail service quality dynamics.

The study adopted a Mixed-Method research approach to ensure a comprehensive and rigorous investigation, explicitly employing the Exploratory Sequential Mixed-Method Design (Qual-Quan). This sequential design involved a systematic progression of steps to capture qualitative and quantitative aspects of service quality.

The five-step research process began with identifying Service Quality Attributes for customer expectations and experiences in the Petro retail service. Subsequently, service quality attribute identification was undertaken to understand expectations from the perspective of Petro retail service providers, namely oil marketing companies (OMCs). The third step involved employing appropriate dimension reduction techniques, including Delphi and factor analysis, which led to constructing a robust research instrument.

The fourth step focused on GAP identification through gap score measurement, revealing the disparities between customer expectations and service experiences. Finally, in the fifth step, a comprehensive solution, framed as a Bilateral approach, was proposed to address and rectify the identified service quality gaps. This methodological framework ensured a holistic and nuanced exploration of service quality dynamics in the Petro retail sector, marrying qualitative insights with quantitative measurements for a comprehensive understanding.

3.3. Sources and places of Data sources for the Study

3.3.1. Primary Data Sources

The primary data collection for this study was meticulously designed to encapsulate a diverse spectrum of perspectives and experiences within the Petro Retail Service domain. The primary data sources encompassed a comprehensive range, ensuring a representative and nuanced understanding of the service quality landscape. One crucial segment of primary data was from customers, reflecting the end-user's perceptions and expectations. This category included both 2-wheelers and 4-wheelers, catering to the distinctions between commercial and non-commercial vehicle users. This segmentation was essential to capture the varied expectations and service

experiences across different types of vehicle users.

The study also targeted truckers on highways to examine the intricacies of service quality in deeper specific contexts. Recognising this demographic's unique challenges and expectations, their insights contribute significantly to the overall understanding of Petro Retail Service. Furthermore, customers in rural areas, often representing a distinct consumer segment, were included in the primary data collection. The rural perspective is crucial, given the potential divergence in service expectations and experiences compared to urban and highway settings.

Interviews conducted at Retail Outlets (ROs) in cities, highways, and rural areas added a structural dimension to the primary data. This involved interacting with front-line staff at the ground level, providing insights into the operational intricacies and challenges faced in delivering Petro Retail Services. Additionally, interviews with Oil Companies' officers at Headquarters/Region and field levels were conducted. These interviews aimed to capture the strategic perspectives and policies of Oil Marketing Companies (OMCs), shedding light on the overarching frameworks that influence service quality across their retail outlets.

By strategically diversifying the primary data sources, the study aimed to create a comprehensive narrative that reflects the multifaceted nature of Petro Retail Service quality, incorporating both customer-centric and organisational viewpoints.

3.3.2. Secondary Data Sources

In order to enrich the research and provide a comprehensive foundation for the study, a meticulous collection of secondary data was imperative. The reservoir of secondary data was primarily sourced from various reputable channels, including annual reports of relevant companies and agencies. These reports are invaluable information repositories, offering insights into the financial health, strategic objectives, and operational milestones achieved by the entities within the study's purview. Additionally, trade reports were scrutinised to gain a broader industry perspective understanding of market trends, challenges, and innovations that might have a bearing on the Petro Retail Service landscape.

Published Management Information System (MIS) reports constituted another integral source of secondary data. Often disseminated by authoritative bodies or industry organisations, these reports shed light on crucial aspects such as technology implementations and customer-centric initiatives undertaken by Oil Marketing Companies (OMCs). Examining statistics derived from OMCs' sales data played a pivotal role in comprehending market dynamics, consumption patterns, and Petro Retail Services' overall performance.

The study aimed to build a robust and well-informed foundation by tapping into this diverse array of secondary data. Integrating information from multiple sources bolsters the reliability and validity of the findings and ensures a holistic understanding of the multifaceted Petro Retail Service landscape.

3.3.3. Places of Primary Data Sources

The survey was strategically conducted across diverse geographic locations, including metro cities such as Delhi and Mumbai, 2-tier cities like Jalandhar and Ranchi, significant highways like Mumbai-Bangalore, Mumbai-Delhi, Delhi-Kolkata, and rural areas in Maharashtra and Jharkhand—this meticulous selection of survey locations aimed to capture the varied service expectations of customers in different segments. Recognising the distinct livelihoods and requirements of individuals in these areas, the survey targeted specific customer profiles.

In metro cities like Delhi and Mumbai, where the pace of life is rapid, the predominant car customers are more time-sensitive about their fuelling needs and have heightened awareness of service expectations. On major highways, the customer base primarily comprises truckers, each with unique service expectations, while car customers on highways may have different needs compared to those in the city. Notably, diverse service expectations exist among the population in 2-tier cities like Ranchi and Jalandhar, which are undergoing rapid urbanisation.

The selection of Mumbai, known for its high vehicle congestion; Delhi, with the highest car population in India; Ranchi, a rapidly growing urbanised city; Jalandhar, a city with urban and industrial populations; and rural areas in Maharashtra and Jharkhand, was based on the need to ensure a representative sample of urban, semi-urban and rural experiences. Additionally, these

locations were chosen to encompass the distinct service expectations prevalent in agrarian-based economies.

The survey locations were strategically chosen to align with the study's objective of capturing the heterogeneity in customer service expectations across various segments. The diverse socio-demographic profiles represented in the sample, considering factors such as lifestyle, occupation, and economic activities, contributed to a comprehensive analysis. It's important to note that the study recognised time and cost constraints, and therefore, the selected locations were optimised to cover the maximum possible customer segments while maintaining feasibility. The outcomes of the study, derived from this strategically chosen and diverse sample, were then generalised for broader applicability.

3.4. Research Design

The research framework adopts a pragmatic worldview, advocating a mixed-method research approach to address the problem. Utilising an exploratory sequential mixed-method design, the study strategically combines qualitative and quantitative data to garner a comprehensive understanding from diverse perspectives. This approach involves the initial collection of qualitative data to inform the development of a measurement instrument administered to a larger sample for quantitative interpretation (Creswell, 2013, p.267). This methodological choice enhances the richness of insights and contributes to a more holistic exploration of the research problem.

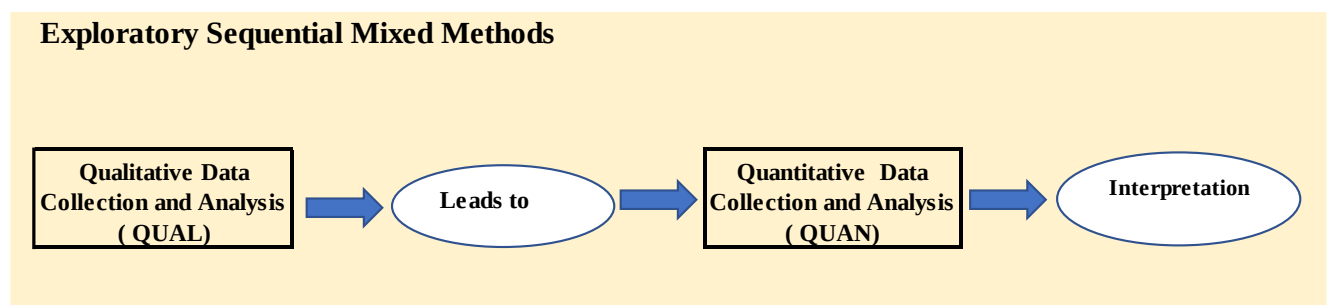


Figure 3:1: Research Design of Study – Exploratory Sequential Mixed Method

The research unfolds through distinct phases and follows a systematic process, with anticipated outcomes detailed in the following flow:

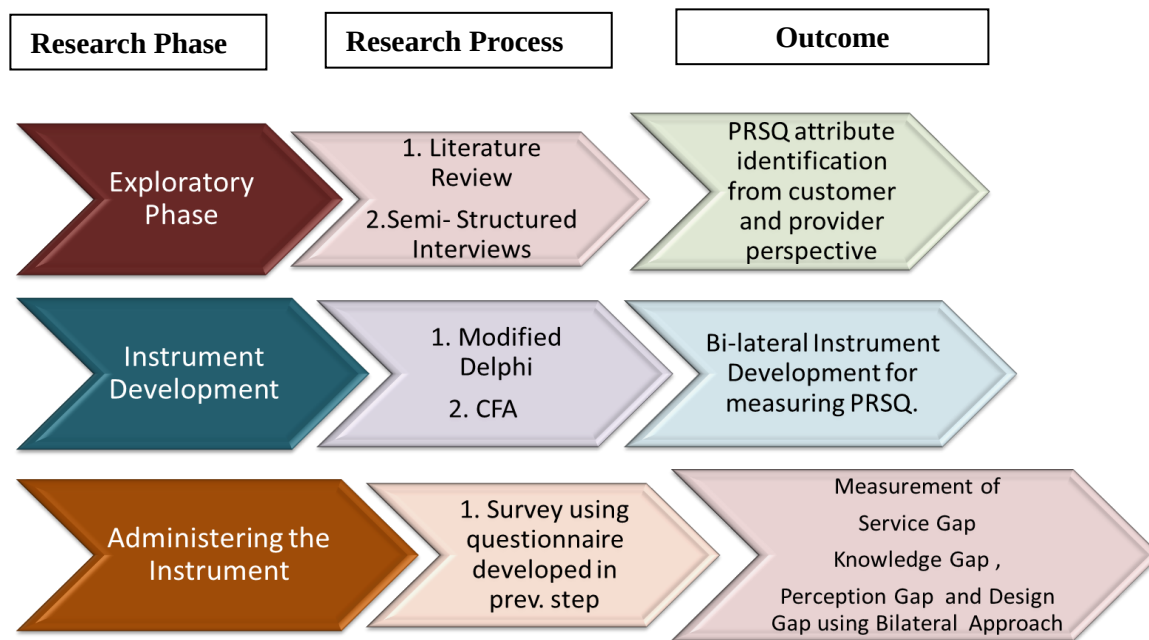


Figure 3.2: Snapshot of research Phases for the study

Exploratory Sequential Mixed Method Design (Qual-Quan) was used for this study. The research methodology process followed was as follows:

- Setting up Priory theme from Literature review
- Semi-structured interviews with panellists
- Organising textual data by coding using the template analysis method
- Classification of themes under the PCP model
- Modified Delphi – 2 rounds including inter-rater reliability test (kappa)
- Confirmatory Factor Analysis (CFA) is used to validate themes
- Measurement of Gap using a survey (7-point Likert scale)

- h. Deriving service quality, perception, knowledge, design and standard gap
- i. Fitment and proposing a modified bilateral approach

3.5. Data collection strategy in measuring Petro retail Service Quality

In designing the data collection plan for our study, we drew insights and strategies from similar works conducted in various service industries. The prevailing data collection method in these studies was primarily through self-administered questionnaires, which emerged as a robust and widely employed approach. While this method is conducive to quantifiable data, some researchers opted for a mixed-methods approach, incorporating qualitative data collection techniques. This diverse array of methodologies encompasses direct observation (Haddad et al., 1998; Hansen et al., 2008), interviews (Andaleeb, 2001; Rao et al., 2006), focus groups (Dagger et al., 2007), the Delphi technique (Aagja & Garg, 2010), and telephonic interviews (Otani et al., 2010).

The diversity in sample size across questionnaire-based studies was notable, ranging from a modest 100 participants (Duggirala et al., 2008) to extensive samples exceeding 5000 (Hansen et al., 2008). The measurement scales for evaluating service quality exhibited substantial variability as well. Studies employed scales with as few as fifteen items (Sohail, 2003) to comprehensive ones incorporating up to eighty-six items (Duggirala et al., 2008). Interestingly, some studies perceived service quality as unidimensional, employing an eight-item scale (Hansen et al., 2008). The choice of Likert scales was widespread, with most studies utilising a five-point Likert scale for respondents' evaluations. Nevertheless, a spectrum of scale variations was observed, including three-point (Pakdil & Harwood, 2005), four-point (Hansen et al., 2008), and even pictorial five-point scales in specific studies (Rao et al., 2006). This rich tapestry of methodologies and scales indicates the flexibility and adaptability researchers have employed in the diverse landscape of service quality assessment.

Table 3.1 Data Collection Strategy in SQ measurement studies

Item Inventory	No. of Studies	Data Collection Method	No. of Studies
8 to 20	11	Observation	1
21-40	17*	Telephonic Interviews	1
41-60	2	Face-to-face Interviews	4
60+	2	Focus Groups	3
Scale Characteristics	No. of Studies	Mail Based Questionnaire	4
3 point scale	2	Self Administered Questionnaire	21
4 point scale	2		
5 point scale	19		
7 point scale	8		
10 point scale	1		

7 studies using 22-item SERVQUAL instrument

3.6. Phase 1: Exploratory Phase

3.6.1. Attribute Identification (Petro Retail Seeker - Customers)

The qualitative phase of this research was conducted with a unique approach, focusing on gathering in-depth insights from customers of Petro retail services. This method, known as purposive sampling, strategically selected participants with valuable and relevant perspectives on the Petro retail service experience. The elements targeted were customers of Petro retail services, forming a crucial part of the service ecosystem. The sampling units were individual customers who had recently visited fuel stations, representing diverse experiences and expectations within the Petro retail context.

The data collection method in this research involved the use of open-ended questions in semi-structured interviews, a choice that allowed for flexibility and depth in responses. This approach was instrumental in enabling customers to express their thoughts, expectations, and experiences freely, contributing to a comprehensive understanding of service quality in the Petro retail domain.

3.6.2. Attribute Identification (Petro Retail Provider)

The research design for this qualitative phase involved a qualitative approach, explicitly employing semi-structured interviews. The sampling technique utilised was snowball sampling, which aimed to recruit participants through referrals. The critical elements targeted for this qualitative exploration were officers operating at the headquarters (HQ) level, encompassing both public sector undertakings (PSU) and private oil marketing companies (OMCs), as well as dealers and their managers. The sampling units identified were OMC officers and their franchisees, namely dealers.

The extent of this qualitative exploration spanned OMC officers at both PSU and private OMCs, allowing for a comprehensive understanding of the Petro retail service sector. Data collection was accomplished through semi-structured interviews featuring open-ended questions. This approach facilitated in-depth responses, allowing participants to freely share insights, experiences, and perceptions. The qualitative research design, coupled with the snowball sampling technique and semi-structured interviews, aimed to uncover nuanced perspectives from critical stakeholders in Petro retail services, providing a rich and detailed understanding of the various dimensions within the industry.

3.7. Phase 2: Instrument Development

3.7.1. Dimension Reduction and Construction of a Research Instrument

3.7.1.1. Qualitative Phase (Scale Construction)

The qualitative phase of our study marked the initiation of a comprehensive process aimed at creating a robust item pool to measure petro retail service quality. This involved a meticulous compilation of relevant statements or items derived from various sources, including (a) insights gathered from prior studies related to service quality assessment, not only in petro retail but also in other service sectors; (b) service quality statements identified explicitly during interviews with customers and OMCs in the petro retail domain; and (c) integration of elements from the well-established SERVQUAL questionnaire. The amalgamation of these diverse sources resulted in a

comprehensive questionnaire encompassing all the shortlisted items for further evaluation.

The Modified Delphi approach was adopted for data reduction and qualitative analysis to ensure data accuracy and reliability. The Delphi method's distinctive features, such as participant anonymity, iterative refinement of views, controlled feedback mechanisms, and statistical data analysis, were instrumental in the structured execution of this phase. Drawing parallels with a similar scale development process for hospital services by Upadhyai et al. (2021), who utilised two iterations of the Delphi method, our study also leveraged this iterative process to validate the scale. The panel involved in the Delphi process comprised OMC officers, dealers, and customers, ensuring a diverse representation of stakeholders, from decision-makers regarding service quality to last-mile executors of the designed services.

The items and statements were meticulously selected for further evaluation based on the median rating and Item Content Validity, aligning with established criteria. The panel's valuable input, including suggestions for deletion, modification, and classification of items, played a pivotal role in refining the item pool. The resulting set of questions underwent a rigorous statistical analysis to establish the questionnaire's validity, ensuring the robustness and reliability of the subsequent quantitative phase of our study.

3.7.1.2. Quantitative Phase (Scale Validation)

In the subsequent phase of our study, we collected a new set of convenience sampling data, explicitly targeting Petro Retail Service customers who had visited a fuel station within the last three months. The objective was to amass relevant data for Confirmatory Factor Analysis (CFA), a robust statistical method used to validate the proposed scale. This involved subjecting the collected data to a battery of appropriate test statistics meticulously chosen to assess the reliability and validity of the envisaged scale. Through this systematic process, we aimed to refine and optimise the instrument, enhancing its effectiveness in measuring crucial dimensions such as service, knowledge, perception, and the Design & standard gap. These efforts culminated in creating a final instrument poised to provide nuanced insights into the intricate dynamics of Petro Retail Service quality.

3.8. Phase 3: Administering The Research Instrument

3.8.1. GAP Identification

The research design adopted for this study was quantitative, employing a survey design methodology. The sampling technique utilised was Convenience Sampling, targeting elements from both sides of the Petro retail service spectrum—service providers (Oil Marketing Companies or OMCs) and customers. The sampling units encompassed a diverse range, including OMC officers (both at headquarters and in the field), dealers, District Sales Managers (DSMs), and customers who had visited fuel stations in the preceding three months. The geographical scope of the study extended to cover both OMCs and customers of Petro Retail services throughout India.

Primary data were collected using a research instrument, specifically a self-administered questionnaire, developed in the earlier phases of the study and strategically designed to gauge expectations and experiences related to Petro retail services. For providers, the questionnaire prompted responses based on their perception of customer evaluations, encompassing both expectations and experiences with the service. On the other hand, customers were surveyed about their expectations and experiences with Petro retail services. The Likert scale was employed to quantify data for customer expectations, customer experience, and OMC's perception of customer expectations, employing a bilateral approach to measure service quality comprehensively. This method allowed for a holistic understanding of the Petro retail service landscape from provider and customer perspectives.

3.8.2. GAP analysis

The study utilised a comprehensive approach to evaluating service quality within Petro retail by calculating various service quality gaps. The mean scores were derived for distinct aspects, including Customer Expectations, how customers view their experiences, how OMCs interpret consumer expectations, and how OMCs view the provision of services. These mean scores laid the foundation for the computation of significant service quality gaps that illuminate the areas of

strength and improvement within Petro retail service interactions.

The Service Quality Gap was determined by subtracting Petro Retail Customers' Perceptions of their Own Experiences from their Expectations. This calculation provides insights into the alignment or disparity between what customers expect and what they perceive regarding the service received. The Knowledge Gap was assessed by subtracting Petro Retail Customers' Expectations from Petro Retail OMCs' Perception of Customers' Expectations, shedding light on how OMCs understand and meet customer expectations.

Furthermore, the Perception Gap was computed by subtracting Petro Retail OMCs' Perception of Service Delivery from Petro Retail Customers' Perception of their Own Experiences. This gap highlights the disparities in perceptions between customers and OMCs regarding service delivery. Lastly, the Design and Standard Gap were determined by subtracting OMCs' Perceptions of Customers's Expectations from the Service Quality Design and Standard. This gap analysis offers valuable insights into how well the service design and standards align with customer expectations. The study aimed to provide a nuanced understanding of the dynamics shaping Petro retail service quality through these calculated gaps.

Table 3.2: Gaps under study

Gaps under study	Definition	Reason for study
Service Gap	Customer Expectations – Customer Experiences (GAP 5)	Provide the gap between customer expectation and perceived experience
Knowledge Gap	Customer Expectations – OMC's Perception of Customer's Expectations. (GAP 1)	Provide a gap in OMCs' perception of customer expectations than actual.
Perception Gap	Customer Experience – OMC's Perception of Customer's Experience (New)	Provide a gap in OMCs' perception of customer experience than actual
Design & Standard Gap	Service Design & Standard – OMC's Perception of Customer's Expectation (GAP 2)	The extent of this gap depends on management's belief that service quality is essential and possible. This may involve inadequate service design, neglecting to maintain and regularly update their delivery of excellent customer service, or simply lacking standardisation. This gap may cause consumers to seek a similar product with better service elsewhere. Besides understanding what customers expect, OMCs should develop some service standards. This is more important given the transformation of technology and its exposure to consumers.

However, the study also examined Gaps 3 and 4 of the Gap model to arrive at the abovementioned gaps.

4. CHAPTER 4: RESULTS & DISCUSSION

4.1. Introduction

Data collection and analysis were conducted in three phases, according to the research goals. This chapter provides a comprehensive overview of the instruments and methodologies used in the research process's qualitative and quantitative phases. The initial step of the study involves conducting semi-structured interviews with individuals seeking petro retail services (Customers) and the suppliers of these services (OMCs). The template analysis approach was employed to scrutinise the qualitative data. The interview rounds revealed common themes on the quality of petro retail services based on the remarks provided by the respondents. Although consumers and OMCs may have different viewpoints on the quality of Petro retail services, our analysis has discovered similar themes and recurring patterns.

The validity of statements on Petro retail services' quality was assessed to determine their suitability for inclusion in the measuring instrument. The modified Delphi approach established the original Petro retail service quality measuring scale. The methods used to identify the panellists and establish consensus have been described, including assessing the initial instrument's content and scale validity. Confirmatory factor analysis was used to validate and reduce the initial 61-item measure quantitatively. This approach was used to construct the fit indices, including the absolute, relative, and non-centrality-based indices discussed in this chapter. This chapter introduces a comprehensive evaluation tool called the Bilateral Instrument of Petro Retail Service Quality Evaluation (BISQUE). BISQUE consists of 55 statements covering thirteen Petro retail service quality categories.

This chapter concludes by elucidating how BISQUE may quantify the quality of petro retail services at a fuel station. The outcomes presented in this chapter determine the methods for measuring the service quality gap from the viewpoints of consumers and OMCs. The chapter presents a way to bridge the gap in evaluating the measurement of knowledge, perception, and Design and standard gaps using a bilateral approach.

4.2. Methodology for Sampling and Analysis

Data collection and analysis were conducted in three phases, aligned with the research objectives. The initial research step involves conducting semi-structured interviews with Petro retail customers and suppliers, known as OMCs. Template analysis was employed to analyse qualitative data. The interview rounds revealed the critical themes related to the quality of service provided by Petro Retail, as expressed by the respondents. Although customers and OMCs may have different viewpoints on the quality of Petro retail services, this analysis has discovered similar themes and recurring patterns.

The validity of statements about Petro retail service quality was assessed and incorporated into the measurement tool. The modified Delphi approach developed the original Petro retail service quality measurement scale. The study has detailed the methods used to select the panellists and establish consensus. This includes discussing the content and scale validity of the initial instrument that was designed. The scale of the initial items has been validated and reduced in dimension through confirmatory factor analysis. The technique employed in this study allowed for the calculation of fit indices based on absolute, relative, and non-centrality measures. The results of these calculations are reported in the current chapter. The proposal for the Bilateral Instrument of Petro Retail Service Quality Evaluation (BISQUE), which encompasses multiple dimensions of Petro retail service quality from both providers' and seekers' perspectives, has been put forward

The qualitative phase began by collecting and combining the interview responses. This phase aimed to provide a collection of items that can be used to measure the quality of Petro retail services. The item pool was generated utilising:

- a) A compilation of statements or items from prior research evaluating service quality in Petro retail and other service industries.
- b) Service quality comments were identified from Petro retail services' clients and OMCs (Oil Marketing Companies) during the interview rounds.
- c) the SERVQUAL questionnaire. A survey encompassing all the selected items was compiled.

Customers, dealers, fuel station staff, and OMC officers of Petro retail were interviewed using a semi-structured format. The interviewer carried out the interview. The initial phase of the ancient Delphi cycle is deemed redundant for the investigation, as the parameters of service quality have already been established in the current body of literature. Therefore, modified Delphi with a varied panel is employed (Keeney et al., 2011). The participants in this stage of the Delphi process consist of OMC officers, dealers, delivery staff, and customers who have recently visited the petrol station during the past three months. The purposive sampling was employed to discover panellists who can provide significant revelations (Etikan, 2016). The purpose of this study and the expert panel's role in the Delphi procedure were explained to the 36 members of the panel. Before the Delphi procedure, all participants were provided with informed consent, and their anonymity was guaranteed, a crucial prerequisite.

From March to April 2022, clients interviewed fell under the age bracket of twenty to sixty-five. Participants with recent experience with service in Petro retail industries within the past three months were selected via snowball sampling. This method was chosen since customers often find it challenging to accurately recall and describe their past experiences (Andaleeb, 2001) (Mohamed & Azizan, 2015) (Ramez, 2012). Therefore, additional samples falling beyond the last three months were dropped.

Fifteen OMC officers and twelve dealers—including petrol station employees—voluntarily participated in the Petro retail provider interview between March and April 2022. The interview sample consisted of the providers contacted through referrals.

The designed, tested, and upgraded interview approach was conducted using the criteria “Fontana and Frey (2000)” and “Jacob and Furgerson (2012)” given. With the interviewee's verbal consent, the interviews were audio recorded. The interviewees were informed about the purpose and anticipated outcome of the research, and anonymity was guaranteed. The interviews commenced with gathering demographic data, as well as the objective of the visit and relevant information, from clients of Petro Retail. Additionally, professional information was obtained from Petro retail

providers. The interview consisted of open-ended questions that allowed participants to express their ideas on four sections freely: (i) service quality, (ii) different parts of the service, (iii) evaluation of the service, and (iv) the discrepancy between expectations and experiences.

The recordings were conducted in a bilingual format, incorporating both English and Hindi, depending on the interviewee's level of ease and proficiency. The recordings were transcribed precisely as spoken in English and then analysed using Template Analysis (TA) (Brooks & King, 2012). Textual analysis (TA) stands out among inductively based analytical methods because it allows for the previous specification of codes for data analysis. This approach offers a flexible method of analysing data, unlike more rigid approaches like grounded theory (Saunders et al., 2009).

Before conducting interviews, a comprehensive literature review was carried out (Purohit & Jain, 2022), which involved identifying predetermined themes. This made it possible to focus the talks jam-packed with insightful material. The improved capability for information (Malterud et al., 2015) led to the sufficiency of the sample. In addition, research utilising TA often utilise a sample size ranging from twenty to thirty participants (McMillan et al., 2016). Achieving "meaning saturation" as opposed to "code saturation" was the primary objective of this phase (Hennink et al., 2017), ensuring sufficient sampling. Therefore, the interview continued for several rounds till the sample adequacy was observed.

The data acquired in this phase underwent statistical analysis using Template analysis, Delphi method, and Confirmatory factor analysis. The outcome of this analysis was utilised for the subsequent phase. The Modified Delphi technique was applied to reduce and analyse qualitative data. The Delphi technique guarantees participant anonymity to promote unrestricted exchange of information and insights, incorporates iterative processes to enhance the accuracy of viewpoints, manages feedback by sharing other participants' opinions to influence individual perspectives potentially, and employs statistical analysis of data. OMC officers, dealers, and customers confirmed the scale's accuracy. Based on the panelists' responses, specific items and statements were selected for further research. The selection was based on the content validity of the items and

their median ratings. The proposal to establish a panel to oversee removing, altering, and categorising things or assertions was also considered. The last set of questions underwent additional statistical analysis to determine the validity of the questionnaire.

A recent data set was collected via convenience sampling, following Yemen's criteria for determining sample size. The data was gathered from consumers of the Petro retail service who have visited any petrol station during the past three months. The acquired data was analysed using Confirmatory Factor Analysis (CFA). The suggested scale's reliability and validity were assessed using relevant statistical tests. Consequently, a definitive tool was developed to assess the quality of service. During this stage, 550 participants were selected using convenience sampling. The Yemen methodology for determining the number of participants was employed to establish the final sample size. Four hundred eleven participants completed the online questionnaire, while 139 replies were obtained via the physical questionnaires. A total of 21 replies were excluded from the study due to incomplete information in the responses. Only the 529 responses that pass the initial check will be eligible for the analysis. Eight participants provided a distinct set of values for all variables, making them outliers and subsequently excluded from the study (Hair et al., 2006). Five hundred twenty-one replies were suitable for Confirmatory Factor Analysis (CFA).

Data was collected from a diverse range of individuals who sought Petro retail services and those who provided them, with careful selection. The OMCs (providers) have implemented standardised service quality policies across all of their fuel stations in India. While slight variations in service policies among OMCs may exist, they are similar overall. The service quality of Petro Retail was assessed using a Bilateral Approach, employing a questionnaire consisting of fifty-five items that were produced in the earlier stage of the research. This study employed convenience sampling to choose two metropolitan cities, two-tier II cities, and highway and rural areas in India.

The data acquired in the preceding steps was evaluated to test the suggested solution, considering both the customer's expectations and the OMC's perspective and experience. Subsequently, data analysis was conducted using the Gap Score measuring process, a quantitative methodology.

4.3. Exploratory Phase (Interview Rounds)

4.3.1. Participants and Procedure

Semi-structured interviews conducted by the researcher were carried out with customers, dealers, fuel station staff, and officers from the OMC (Oil Marketing Company). The opening round of the ancient Delphi round is unnecessary for the study since the dimensions of service excellence have already been defined from the current literature. As a result, the modified Delphi method with a diverse panel is employed (Keeney et al., 2011). The participants in this phase of the Delphi process include OMC officers, dealers, delivery staff, and consumers who have recently visited the petrol station during the past three months. The purposive sampling process was employed to select individuals who could provide essential insights (Etikan, 2016). Each of the 36 expert panel members was briefed about the purpose of the research and their specific role in the Delphi process. All participants provided informed consent, and their anonymity was guaranteed, a crucial prerequisite for the Delphi procedure.

From March to April 2022, the customers surveyed were between the ages of twenty and sixty-five. Snowball sampling was used to choose participants who had recently received service in the Petro retail industries within the previous three months. This method was chosen since customers often struggle to recall and describe their past experiences accurately (Andaleeb, 2001) (Mohamed & Azizan, 2015) (Ramez, 2012). In addition, any additional samples collected more than three months after the visit to fuel stations were excluded.

In March-April 2022, fifteen (15) officers from the OMC and twelve (12) dealers, including gasoline station staff, agreed to participate in the interview for the petro retail provider. The sample for the interview phase consisted of the providers who were reached through referrals. In addition, five (5) customers were selected for this interview.

The Interview methodology was developed, tested, and revised according to the criteria provided by Fontana and Frey (2000) and Jacob and Furgerson (2012). Interviews were recorded in audio format after obtaining verbal agreement from the interviewee. The interviewees were informed about the purpose and anticipated outcome of the research, and their anonymity was protected. The interviews began with acquiring demographic data, the objective of the visit, relevant information

from Petro retail consumers, and professional particulars from Petro retail providers. The interview consisted of four sections, namely (i) quality of service, (ii) elements of service, (iii) assessment of service, and (iv) the discrepancy between expectations and experiences. Open-ended questions were used to encourage participants to express their thoughts freely.

The recordings were conducted in English and Hindi, depending on the interviewee's linguistic proficiency. The recordings were transcribed as spoken in English and then analysed using Template Analysis (TA) (Brooks & King, 2012). Among the inductively based analytical techniques, TA allows the researcher to specify codes in advance for data analysis. It also gives a flexible approach to data analysis instead of more rigid methods like grounded theory (Saunders et al., 2009).

Before conducting interviews, comprehensive literature research was carried out (Purohit & Jain, 2022) to identify predetermined themes. Please refer to Table 4-1 for more details. This aided in refining the discussions, which were abundant in valuable information. The enhanced information capacity (Malterud et al., 2015) contributed to the suitability of the sample by providing a more comprehensive understanding of the participants' perspectives. This increased capacity allowed for a deeper and more accurate evaluation of the sample, ensuring that it effectively represented the key characteristics needed for the research. In addition, research that utilises TA generally employs a sample size ranging from twenty to thirty (McMillan et al., 2016). This step aimed to determine the sufficiency of the sample by achieving 'meaning saturation' rather than 'code saturation' (Hennink et al., 2017), ensuring sampling adequacy. Therefore, the interview continued for several rounds until a sufficient sample representation was observed.

Table 4-1: Initial Themes Identified from Literature

1. Pivotal attributes	2. Core attributes	3. Peripheral attributes
1.1 Customer service	2.1. Entry, waiting, fuelling and exit process	3.1 cost of fuel & services
1.2 Knowledge and competence of services	2.2 Service Availability	3.2 Digital payment options
1.3 Complaint redressal	Communication	3.3 Image
1.4 Availability of fuel and allied services	2.3 Behaviour of staff	
	2.4 Fuel quality and quantity	3.4 Social responsibility
1.5 Adoption of technology		3.5 Facilities and physical measurement
1.6 Management of fuel station operation		
1.7 Fair and equitable		
1.9 prevention		
1.10 Promptness		
1.11 Safety		

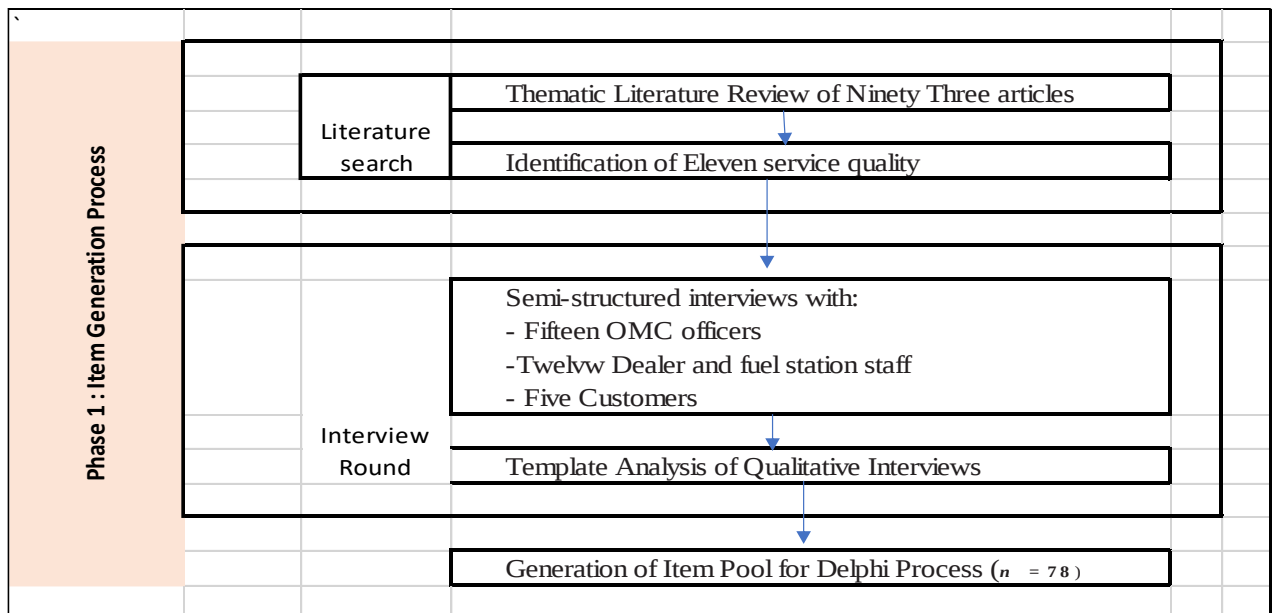


Figure 4.1: Flow of Item Generation Process

4.3.2. Approach to Analysis: Template Analysis

In adopting a contextual constructivist approach, the interpretation of textual data is framed within

the context of the researcher's reflexivity, prioritising the richness of description over rigid coding reliability (King, 2004, p256). The methodology hinges on Template Analysis (TA) (Blair, 2015), a flexible tool allowing for the hierarchical organisation of themes within the data. Within this framework, broader themes are positioned at a higher level, gradually narrowing to more concentrated themes (Slade et al., 2009). Priori themes facilitated the initial assignment of broader categories, streamlining the analysis process.

TA's strength lies in its ability to accommodate both deductive and inductive analysis, offering flexibility in the interpretation of data (Saunders et al., 2009, p505). Using priori codes provides a structured starting point that can be revisited and refined. Unlike approaches emphasising coding depth, TA emphasises the template's breadth, capturing a holistic view of the emerging themes (Brooks & King, 2014).

This methodology prioritises the nuanced understanding of the data over rigid coding structures, aligning with the study's constructivist philosophy. As such, the process encourages a reflexive engagement with the data, allowing for a more intricate exploration of the themes that have surfaced during the interviews. The intersection of deductive and inductive elements in TA provides a balanced approach, ensuring that the analysis captures predefined categories and emergent patterns in the textual data (see Annexure IV).

4.3.3. Data Analysis and Quality Check

Before delving into the interviews, a comprehensive literature review laid the foundation for identifying priori themes, following the methodology proposed by Upadhyay et al. (2019). A careful approach was used to avoid potential bias, with the initial collection of themes kept to a minimum to avoid the blinkering effect. These fundamental themes were strategically classified into the three main aspects of the PCP model: Pivotal, core, and peripheral, using the framework established by Philip and Hazlett (1997).

As the interviews progressed, verbal communications were meticulously transcribed and subjected to a thorough analysis. The textual data collected from these interviews were organised to create a first linear list of templates, following the standards established by Brooks and King (2012). Ensuring methodological rigour, the creation and modification of templates were accompanied by

the preparation of 'respondent feedback' and 'audit trails,' as Nigel King (2004) advocated. A feedback loop was established with participants to enhance the robustness of the templates. Specifically, one customer and one representative from the Oil Marketing Company (OMC) among the interviewed respondents were invited to scrutinise the final template based on a random selection of sample scripts. This process provided a comprehensive and balanced perspective, allowing template refinements based on the constructive feedback received. The iterative nature of this analysis aimed at achieving a more nuanced and accurate representation of the themes that emerged from the interviews.

4.3.4. Differing accounts for Petro Retail Service Quality

Customers' assessment of service quality revolves around their subjective judgment of how healthy services align with predetermined criteria and their evaluation of the execution of the service delivery process. Typically, customers enter into service transactions with certain expectations, forming a baseline against which the actual service delivery is measured. The perceived service quality, as elucidated by Gronroos (1984), encapsulates the gap or dissonance between customers' post-service perceptions and their pre-service expectations. In essence, service quality can be defined as the discernible variance between customers' perceptions of the services rendered and their expectations from the company, as underscored by studies such as Bolton and Drew (1991) and Parasuraman et al. (1988).

However, a distinctive framework emerges regarding Petro retail service quality. Petro retail services, Although falling under the broader umbrella of services, Petro Retail deviates from conventional service industries. Petro retail, still perceived as a commodity, introduces complexity in evaluating service quality. Unlike other service sectors, Petro retail customers find it challenging to assess service quality even after the service has been performed (Kakunu, 2012; Karim et al., 2021). This inherent difference in Petro retail, where fuel station services are scrutinised through a distinct lens, adds a unique dimension to this industry's comprehension and service quality evaluation.

4.3.5. Seeker's Perspective of Petro Retail Service Quality

In Petro retail, customers experience continuous anxiety during service encounters, impacting their

objective evaluation of service quality (Mgimba & Madela, 2020). The perception that customers lack technical expertise makes them prioritise functional aspects over technical intricacies in their assessments (Gronroos, 1984). The fuelling journey, comprised of various touchpoints, shapes customer satisfaction, emphasising the intricate nature of Petro retail service evaluation (Dagger et al., 2007). Striking a balance between satisfaction with service touchpoints and tangible outcomes poses a nuanced challenge (Kakunu, 2012). Despite complexities, the industry maintains a steadfast adherence to customer-centricity, aligning with the five dimensions of service (Fonna et al., 2022). Petro retail service evaluation is a multifaceted journey where anxiety, functional considerations, and tangible outcomes intricately shape customer perceptions, underscoring the enduring relevance of prioritising customer experiences.

4.3.6. Petro retail Service Quality as seen by Providers

The petro retail service providers are also equitable participants in delivering services. Their expertise and perspectives on the functioning of a petro retail system hold equal significance (Kakunu, 2012). Perceptions of service quality differ among service recipients and providers. Professionals are responsible for creating the design and delivery of a service, while receivers evaluate the service based on their overall view of how they consume it (Brown & Swartz, 1989). It was found that Fuel station management, fuel price, technology adoption, and service quality are crucial elements that substantially impact retail fuel consumption and contribute to improved service delivery (Musa, 2020). Technological progress and changing customer behaviours, lifestyles, tastes, and expectations have transitioned and continue to evolve. Although Petro retail has achieved notable technological advancements in recent years, there appears to be a noticeable disparity between client expectations and their experience (Atkinson et al., 2019). Service providers assert that a specific set of talents is crucial for providing good retail service. Petro retail service providers must possess a comprehensive understanding and proficiency in the specific information and abilities relevant to their industry. Proficiency in managing equipment and associated accessories for service provision is required. The level of training and knowledge acquired by the Provider will also impact the quality of service (Haddad et al., 1998; Ramsaran-Fowdar, 2008). Hence, assessing service quality in the oil retail industry should incorporate 'professional knowledge and skills' as its determining factor. Throughout the interviews, nearly all

petro retail service providers emphasised that petro retail services encompass technological and functional components. Service providers prioritise the technical side, whereas customers (seeking) pay greater attention to the functional aspect of petro retail. This can also be observed in the provider's description of the dual division of PRSQ during the interviews (refer to Annexure V). The Contrasting components of service quality emerged from the providers' interviews, establishing the need for a bilateral approach.

4.3.7. Reflections on Petro Retail Service Quality

In the complex space of Petro retail service quality, a distinct divergence arises between the perspectives of service providers and seekers, highlighting a notable bifurcation into technical and functional dimensions (Panduru et al., 2022). Petro retail service providers delineate these dimensions, emphasising the intricate technical and functional aspects contributing to service delivery. This dichotomy underscores Petro retail services' information and comprehension asymmetry, reinforcing the power dynamics within this service domain (Mgiba & Madela, 2020). Seekers, often lacking technical knowledge, face information asymmetry exacerbated by the nonvisible nature of products, relying heavily on representations and assurances from providers. Their evaluation focuses on functional aspects impacting psychological well-being, emphasising overall experience and alignment with expectations. By Gronroos' framework (1984), the concept of service quality into technical and functional dimensions demonstrates the power dynamics as providers armed with technical expertise, shaping the discourse around Petro retail service quality. In essence, this bifurcation serves as a pivotal point of divergence, with providers navigating technical intricacies and seekers contributing to the holistic evaluation of Petro retail services, reflecting the complexities and power dynamics within the industry.

4.3.8. Customers as Layman

In the Petro retail service domain, seekers, the customers, often considered laymen, grapple with inherent limitations in comprehending the specialised knowledge possessed by service providers, particularly concerning fuel-related processes, quality control measures, and technical aspects (Kakunu, 2012). The non-visible nature of Petro retail products exacerbates this challenge, leaving seekers reliant on the information presented by providers and trusting their representations regarding quality and efficiency.

Recognising the information asymmetry and potential power dominance, Petro retail service seekers strategically seek alternative methods to evaluate service quality, aiming to level the playing field and ensure a fair assessment of the services received (Panduru et al., 2022). Instances recounted by respondents within Petro retail facilities serve as tangible examples of seekers actively pursuing alternative ways to gauge service quality, showcasing their determination to be active participants in the evaluation process (Karim et al., 2021). The experiences shared by respondents, as encapsulated in Annexure VI, shed light on the diverse strategies adopted by Petro retail service seekers, serving as testimonies to their resilience in the face of information gaps (Xavier et al., 2022). These insights provide valuable evidence of seekers' proactive approach in navigating the complexities of Petro retail service evaluation.

4.3.9. Customer's Expectations

In the intricate tapestry of Petro retail service dynamics, a complex interplay of expectations defines the symbiotic relationship between seekers and providers (Musa et al., 2020). For Petro retail service seekers, the paramount expectation revolves around well-being, encompassing safety, security, and overall satisfaction during service interactions (Fonna et al., 2022). Acknowledging the significance of well-being as a central expectation, providers recognise seekers' intrinsic need for assurance and a positive encounter contributing to their overall well-being.

Amidst the prevalent anxiety experienced by Petro retail seekers, providers are aware of a diverse array of expectations, understanding that these expectations vary among seekers, adding a layer of complexity to service interactions (Karim et al., 2022). While anxiety remains a common thread, the recognition of distinct expectations necessitates a nuanced approach from providers to meet the unique needs of Petro retail seekers.

Understanding the varied nature of expectations is considered an integral part of providers' responsibilities, positioning them as evaluators of service quality based on these expectations. As seekers and providers engage in this dynamic interplay, acknowledging well-being as a foundational expectation sets the tone for a service experience transcending transactional facets.

Recognising diverse expectations adds layers to this narrative, prompting providers to navigate the intricate landscape with sensitivity and adaptability. Understanding and responding to Petro retail service seekers' multifaceted expectations becomes a challenge and key to ensuring a service encounter that transcends anxiety and aligns with the seekers' well-being (See Annexure VII)

4.3.10. Commonalities in Themes

Service seekers and providers expressed distinct perspectives that were highly persuasive and clear. The recurring manifestation of these perspectives was documented in numerous interviews. Petro retail customers heavily depended on the dealers' expertise, abilities, capabilities, and delivery personnel. This feature empowers service providers to have control and influence in their professional interactions with clients while delivering services. The service provider has complete control over the decision-making process regarding Petro Retail's service protocol. Petro retail service seekers have no alternative but to place their trust and confidence in the service provider. Moreover, individuals searching for and offering Petro retail services believe that dealers' and delivery personnel' expertise, abilities, and proficiency are directly connected to the accurate provision of services.

Petro retail seekers believed that providers withheld service protocols from them. In contrast to other services, providers believed that seekers are eager and psychologically inclined to go from the fuel station quickly. This severely limits the opportunity for extensive and comprehensive connection with potential customers seeking Petro retail services. On the other hand, Seekers anticipate a transparent and open approach to service transactions and the Provider's communication of the benefits offered at the fuel station. The Provider also acknowledges that comprehension, communication of available services, and transaction openness are crucial for customer confidence and satisfaction.

Throughout the customer journey, the conduct of individuals in the personnel role is crucial in assessing the quality of service. Providers maintain that cultivating customer trust and pleasure necessitates the development of strong interpersonal skills in addition to professional expertise. The increasing number of vehicles on the road has led to problematic congestion at fuel stations,

particularly during peak hours, affecting customers and fuel providers. Simultaneously, customers are pressed for time and have limited availability. Both customers and service providers emphasise promptness in client dispersal, queue management, and a decrease in queuing time.

Having a helpdesk either at the petrol station or offered by the OMCs will alleviate concerns and facilitate the resolution of any disputes, hence improving customer grievance redressal. In addition, clients are given access to the most recent advancements in general retail and the opportunity to encounter them personally. It has heightened the anticipation for Petro retail as well. Although providers have integrated modern technologies such as dispensing pumps and automation into their equipment, there is a lack of technological intervention in customer service and customisation.

Table 4.2. Theme commonality —Sample Quotes

Themes	Seekers' Perspective	Providers' Perspective
Know-how and skillset in services	The staff's know-how, skillset, and competency are vital. First and foremost, the staff should be well-versed in the services offered. The customer service facility must be on par.	The product is not visible during the process, hence how it is presented to the customers. Then, you can describe it to the customer efficiently and give good service, including judgment on the outcome.
	The delivery staff and the fuel station manager at the forecourt are essential.	Since the customers are misguided by managers and staff sometimes, their skillset are equally essential.
Delivering correct fuel (product)	In petro retail, the most important thing for me is the staff's prompt fuel delivery; they are the vital link.	The customers never forget unwanted behaviour from the staff even after getting exemplary service.
	Good Quality and the correct quantity of fuel are essential.	Customers want prompt services, and we also want to give quick services.
	One is acknowledging the customers' expectations, the second is the services offered, and the last is the benefit realised from it. The sum of these three can be said to be of excellent quality.	Delivering correct quantity and Quality is an essential requirement.

	The service provided was excellent. They detailed all requirements without ignoring anything.	
	In petro retail, quality is when a customer is fuelled within a reasonable time with good fuel and service.	
Promptness		Customers should be appropriately guided to the proper bay for fueling; the priority is managing the queue, thus saving time for the customers.
	We had to run here and there to reach the right place to fuel at the fuel station. I had to enter the fuel station, but a person was there to guide me to the right place.	How do we deliver and complete transactions and let the customer move out of the fuel station happily?
	I prefer the quick dispersal of the customer during peak hours, saving time.	We should provide all payment methods as per the customer's wish.
Available service communication to customers	I observed that staff were doing their regular work and could not identify the customer's requirements.	Customers are satisfied if the staff's behaviour is cordial, if they talk to them, extend services, and explain things to them.
	Customers are to be told what is happening at the fuel station, which impacts them or any promotional program being run. Often, staff try to cheat customers and hide information that lacks transparency.	Staff should communicate clearly about the available services. Provide clarity, maintaining the transparency.
Personnel behaviour (of Fuel station manager and delivery staff)	Staff listen to customer requirements	Nowadays staff behaviour should be polite with good communication skills.
	You are going to the fuel station because you need fuel or services, and you need to know how quickly the requirement is fulfilled.	Customers will be unhappy if staff do not extend prompt services as expected. You cannot compare good quality services with customer satisfaction.

	We are not experts on how fueling is done or the finalised price. Based on basic trust, staff & fuel station will serve transparently.	Staff should explain the fueling services in the customer's language.
		Trust is essential in the staff-customer relationship.
Helpdesk		A person, helpdesk, or display should be available to guide the customer to the fueling bay and request redressal.
	My first experience was that no counter was available at the fuel station. Customers were not provided with enough information when they entered the station. It was a hit-and-miss process for customers to reach the appropriate person in case of any hiccups or complaints.	.
Queuing time	Queuing and congestion lead to long wait times. There should be a process for queue management and facilitating customers for quick dispersal. Even if you are in the queue,	After entering the fuel station, if a customer enters a fuel station and faces queues at the fuelling bay, specifically during peak hours or at the small fuel stations, another point for congestion is the air-filling point. It is an overall time loss for the customer, Waiting time is subjective. Fuel station managers & staff/company's criteria are different. Fuel station staff need to prioritise. We must have a team to look after customers in the queue and in a hurry. The endeavour should be to provide fuel and other services as quickly as possible.
	The customer queue area was not very well managed. There was virtually no guidance. The queue area was	

	insufficient to accommodate many customers without proper Management.	
Technology adoption	In retail and online shops, we get many experiences where the latest technology is used, which is not valid for the fuel station.	A few new technologies, such as automation, have been adopted for the dispensing pump. However, they are inward-looking, specifically for managing fuel station operations and monitoring.
	There is hardly any new or latest technology used for customer service. It is all mostly manually driven.	There is hardly any technological intervention towards customer service and personalisation.

In the interview rounds with Petro retail service seekers and providers, specific recurring themes emerged, shedding light on the key dimensions that both parties consider pivotal in evaluating service quality. Below are the common themes identified.

1. Knowledge and Competence of Services:

- **Provider's Perspective:** Ensuring staff possesses the necessary knowledge and competence to deliver services effectively.
- **Seeker's Perspective:** Expectation of informed and competent staff providing services.

2. Delivering Correct Fuel (Product):

- **Provider's Perspective:** Emphasis on accurate fuel dispensing and product quality.
- **Seeker's Perspective:** Expectation of receiving the correct fuel grade and quantity.

3. Promptness:

- **Provider's Perspective:** Timely service delivery is critical to service quality.
- **Seeker's Perspective:** Expectation of prompt and efficient service.

4. Available Service Communication to Customers:

- **Provider's Perspective:** Communication about available services and offerings.

- **Seeker's Perspective:** Desire for clear communication regarding available services.

5. Personnel Behaviour of the Fuel Station Manager and Delivery Staff:

- **Provider's Perspective:** Recognition of the impact of staff behaviour on service quality.
- **Seeker's Perspective:** Evaluation of service quality based on the behaviour of station staff.

6. Helpdesk:

- **Provider's Perspective:** Significance of a responsive and helpful helpdesk.
- **Seeker's Perspective:** Seeking assistance and guidance from the helpdesk when needed.

7. Queuing Time:

- **Provider's Perspective:** Managing and minimising queuing times for enhanced service quality.
- **Seeker's Perspective:** Expectation of reduced waiting times during peak hours.

8. Technology Adoption:

- **Provider's Perspective:** Acknowledgment of the role of technology in enhancing service quality.
- **Seeker's Perspective:** Expectation of technology adoption for smoother service processes.

These common themes highlight the alignment in perspectives between service providers and seekers regarding the critical dimensions of Petro retail service quality. The convergence of these key themes signifies their universal significance and emphasises their impact on the service experience. As these themes form the foundation for further analysis, their identification and categorisation contribute to a nuanced understanding of the multifaceted nature of service quality in the Petro retail sector.

4.3.11. Recurrent Themes

In this section, we delve into the prominent perspectives extracted from interviews with Petro retail service seekers and providers, shedding light on the intricacies both parties deem crucial in evaluating service quality. Most providers emphasised the importance of customer trust, effort, and customer attributes in determining service quality ratings. Alternatively, researchers felt that the fuelling procedure, service cost, facilities, and physical infrastructure influenced service quality assessments.

Customer Trust: Seekers criticise the service if the result does not meet their expectations or if something goes awry. For petro retail service seekers, trust in the fuel station and transaction transparency are indicators of customer trust. Fuel stations adhere to several services and customer service norms, which may not be readily apparent to customers and can be challenging to assess.

In their interviews, the service providers referred to these protocols many times. Conversely, no petro retail seeker talked about them. This error might be ascribed to the anxiety and haste of those seekers for a quick exit instead of the service process. Hence, the provider's and Seekers' perspectives on Customer Trust can be viewed as:

- **Provider's Perspective:** Trust is viewed through the lens of transaction transparency and adherence to service protocols, which are often not apparent to seekers.
- **Seeker's Perspective:** Trust is anchored in the outcome meeting expectations, and transaction transparency is a crucial indicator.

Effort: Delivery staff must multitask in a fuel station, specifically during peak hours, as they have to take care of customers' correct fueling, additional services asked, payment processing, etc., right on the forecourt. Providers believe investing more time with customers delivers quality service during fewer rush hours. However, that is not the case during peak hours, where quick service completion is the priority. This perspective has been echoed by providers more than seekers in the rounds of interviews.

- **Provider's Perspective:** Delivery staff multitasking is highlighted during peak hours, emphasising the need for personalised service during less busy periods.
- **Seeker's Perspective:** Quick service is prioritised during rush hours, with an acknowledgement of the challenges faced by providers.

Customer Characteristics: Customers' awareness level is higher in metro and urban areas than in rural and highway areas. While customers are more demanding of services in urban areas, promotional programs are prioritised in highway and rural areas. Service quality assessments for service providers primarily focus on assessing the quality of the service being provided. The conduct of the staff plays a crucial role in ensuring client happiness, hence fostering trust and contentment.

- **Provider's Perspective:** Urban areas demand more services, while rural and highway areas focus on promotional programs. Staff behaviour is pivotal in customer satisfaction.
- **Seeker's Perspective:** Urban customers are more demanding, while rural and highway areas prioritise promotional programs. Staff behaviour is crucial for trust and satisfaction.

Process of Services: Customers must pass various touchpoints in their fueling journey. They are starting from getting the right by for fueling once they are inside the fuel station, communicating the required fuel quantity and grade, processing the payment, etc. Petro retail service seekers participate in many processes until they are exited. Based on their verbal accounts, the fueling process procedure was the predominant topic of discussion among those seeking petro retail services. Proper communication of available services, Management of queues and reduced congestion, and how fueling and payment have processed the service quality evaluations.

- **Provider's Perspective:** Emphasis on proper communication, queue management, and efficient fuelling and payment processes to enhance service quality.

- **Seeker's Perspective:** The fuelling process is a focal point, with communication, queue management, and smooth fuelling and payment processes influencing service quality evaluations.

Cost of Services: While fuel is still being administered in government-run OMCs, the cost of fuels in privately run OMCs differs. Both cost and Quality are innate linkages in the minds of petro retail customers. They believe fuel stations charging higher prices tend to listen to customers' expectations. Before using the service, users often determine the anticipated costs at the petrol station. However, other individuals argue that petrol stations impose higher prices in exchange for the supplementary amenities and services they provide.

- **Provider's Perspective:** Cost and quality perceptions are intertwined, with higher prices associated with more excellent responsiveness to customer expectations.
- **Seeker's Perspective:** Seekers gauge expenses beforehand and link higher prices to better facilities and services, although a few attribute it to additional services.

Facilities and Physical Infrastructure: Petro retail service seekers believe privately run fuel stations have better amenities and physical infrastructure than government-run OMC fuel stations, explicitly ensuring the Quality and quantity of fuel and services. A well-maintained, improved facility and physical infrastructure in the fuel station affect the psychological well-being of the customers.

- **Provider's Perspective:** Privately run fuel stations are perceived to have better amenities and infrastructure, potentially linked to nominal fees charged.
- **Seeker's Perspective:** Privately run stations are believed to offer superior facilities, positively impacting psychological well-being.

Through the interview rounds, various statements about service quality characteristics were identified. Ninety-one statements from individual petro retail service seekers and 98 statements from individual petro retail service Providers were chosen from the transcribed text to create the initial set of items. A linguistic verification was performed on the statements to ensure that their

meaning remained intact and was not altered. After consolidating all statements, a total of 78 distinct statements were identified, following the exclusion of 96 redundant statements and 15 statements with comparable meanings. These 78 statements were selected from a large set based on their clear denotation and meaning. A petro retail service provider and customer verified, selected, and consolidated statements. The statement incorporates responses from the SERVQUAL questionnaire as well. As a result, an initial inventory pool of 78 items was developed and analysed in the next step.

Table 4.3. Recurrent Themes: Providers' Perspective—Sample Quotes

Theme	Providers' Perspective
Customer Trust	From the Customers' perspective, the fundamental thing is their trust in the fuel station and its staff. We have defined goals for ensuring customer trust through service protocol.
	For customers, transparency in transaction confirmation on the delivered Quality and quantity is paramount
Effort	In the forecourt, many customers are in the queue. We cut down the time to understand customer requirements, collect money on pre-fuel etc. If you give time to the customer, they understand the services. If there is less communication, the customer thinks that the fuel station staff is not OK or expectations are not met.
	Customers feel satisfied if they feel that they are attended to thoroughly.
	Sometimes customer crowd is more, and the staff might be busy he cannot give that much time that the customer expects. This may be how this gap increases.
	If the rush is less, then more quality service is delivered.
	The workload is an issue. We are understaffed, so it is a huge problem. Attrition is very high in the fuel station business. The customer suffers a lot. There is a delay at every step because of workload and understaffing
	In the Indian Scenario, quality-based practice is a myth. We have to fuel customers fast. We have the time of 3 hours in the morning (8 am to 11 am) and 3 hours in the evening(6 pm to 9 pm) with the highest rush. We service more than 1000 customers in that period. We have minimal time for each customer.
Customer characteristics	In metros and urban areas, the customer is educated, and it is easier for staff and managers to make him understand, but not in rural or highway areas due to the customer's knowledge level.
	Customers are more aware and demanding of services being taken; hence complaints and feedbacks are also high in numbers
	Highway customers are majorly truckers plying on long-distance routes. They have exposure to cross-state border fuel station services, which lead to creating a perception of fuel station based on the comparison
	Customers expect promotional schemes and personalised services
	The requirement for new technology and recognition of customers is in increasing trend since customers are more exposed to technology environment in other service interfaces

Table 4.4. Repetitive Themes: Seekers' Perspective—Example Quotes

Theme	Seekers' Perspective
Process of fuelling	You have to find out the information and find out the right person first
	My first experience was that no counter was available at the fuel station. A lack of information was displayed to the customers when they entered the fuel station. It is a hit & trial for customers to reach the appropriate person in case of any hiccups or complaints. They have to find the information and the right person they can see.
	Queuing and congestion lead to waiting for a long. There should be a process for queue management and facilitating customers for quick dispersal. Even if you are in the queue, let there be some person to attend to you.
	The customer queue area was not very well managed. There was virtually no guidance. The waiting queue area was not big enough to accommodate many customers without proper management.
	We are not experts on how fueling is done or the price being finalised... it is based upon basic trust that staff & fuel station will serve transparently.
	In petro retail, the most important thing for me is the staff promptly delivering the fuel. The staff plays the most critical role.
	If the staff is friendly, a customer will be able to come out with his expectation more openly, and he will be able to share his requirements which will eventually help providers (fuel station or company) to serve customers better.
Cost of service	My preference would be the quick dispersal of the customer during peak hours, saving time
	My parameter for judging the Quality in petro retail would be how readily the staff is available to the customer's requirement and, in case of any grievance, how fast and correctly the staff handles it.
	Quality in petro retail should be that the customer who has gone to the fuel station should get good fuel and services in a reasonable time
	You are going to the fuel station because you need fuel or services, and you are just looking at how your requirement is fulfilled fast.
	One is acknowledging the customers' expectations, the second is the services offered, and the third is the benefit it has given. If you add all these three things together, I would say it is an excellent quality
	The cost was high regarding the other allied services they were offered.
	I think that financial affordability should not be considered while assessing service quality. Irrespective of my pay, I should be given the same Quality as others.
Facilities and physical infrastructure	The fuel station's physical environment and appearance give customers mental peace.
	Adoption of the latest technologies in petro retail is yet to adopt for enhancing customer buying experience though few have been incorporated, yet to go a long
	In recent times, companies are providing the latest digital machine for fuel dispensing and automation, which increases the transparency
	There is hardly any new or latest technology used for customer service. It is all majorly manually driven.
	In retail and online shops, we get many experiences where the latest technology is used, which is not valid for the fuel station. Personalisation is key, as in other retail and online shops.

Hence, to summarise, the recurrent themes from the customer's and Provider's perspective are :

A. Recurrent Themes (Providers' Perspective):

1. Customer Trust
2. Effort
3. Customer Characteristics

B. Recurrent Themes (Seekers' Perspective):

1. Process of fuelling
2. Cost of Services
3. Facilities and Physical Infrastructure

Thus, the 78-item inventory was created from the literature review. (Table 4.5)

Table 4.5: Inventory created from the literature review

Petro Retail Seeker's Statement	98
Petro Retail Provider's Statement	91
Less Repetitive Statement	96
Initial Item Pool	93
Less Similar meaning statements	15
Total Item Inventory	78

4.3.12. Qualitative analysis Phase (Scale Building)

4.3.12.1. Creation of Initial Item Pool

In exploring customers' and providers' perspectives on Petro retail service quality, recurrent themes emerged, shedding light on essential aspects deemed significant by both parties. The identification of these themes provides a foundation for further investigation and analysis. Statements that were indicative of service quality evaluation were identified through semi-structured interviews. The assertions identified in the preceding phase were categorised according to three criteria using the

PCP Model (Philip & Hazlett, 1997). Based on three criteria, the study utilised Template Analysis (TA) to assess the quality dimensions of 13 petro retail services (Brooks & King, 2012). The dimensions categorised within the Pivotal topic were Technology Adoption, Grievance Resolution, Fuel Station Operation Management, Staff Expertise, Timeliness of Service Delivery, and Quality and Quantity. The core theme concerns the assessment of individuals, procedures, and the structure of an organisation, focusing on service availability, communication, staff conduct, and the overall experience during the process's entry, waiting, fuelling, and exit stages. The additional features and embellishments associated with the service, referred to as the Peripheral theme, include aspects such as Facilities and physical infrastructure, Payment methods and organisation, and Images.

Based on the abovementioned inventory, constructs under various attributes under the P-C-P model have been identified, as shown below in Table 4.6. This comprehensive categorisation lays the groundwork for a nuanced exploration of Petro retail service quality, encompassing various dimensions from pivotal outcomes to core delivery processes and peripheral frills. The subsequent phase involves further analysis and evaluation based on this identified inventory and attribute classification.

Table 4.6: Identification of Constructs based on inventory list.

Type of Attribute	Construct
Pivotal	Adoption of Technology [AT]
Pivotal	Grievance Redressal [GR]
Pivotal	Management of Fuel Station Operation [MFSO]
Pivotal	Staff Knowledge and Competence [SKC]
Pivotal	Promptness in Service Delivery [PSD]
Pivotal	Quality & Quantity [Q&Q]
Core	Service Availability Communication [SAC]
Core	Staff Behaviour [SB]
Core	Process [PROC]
Core	Fueling Cycle Experience (Entry, Waiting, Fueling, exit) [FCE]
Peripheral	Facilities and physical infrastructure [FPI]
Peripheral	Payment Methods & Arrangement [PMA]
Peripheral	Image [IMG]

Table 4.7: Providers' Template

1	Pivotal dimensions
1.1	Customer service
1.2	Knowledge and competence of services
1.3	delivering correct fuel (product)
1.4	Quality of fuel
1.5	Availability of staff
1.6	availability of fuel & allied services
1.7	Availability of equipment, instrument and technology
1.8	fuel station management
1.9	Promptness - quick service
1.10.	Safety
1.11.	Available service communication to customers
1.12.	Effort
1.13	Proximity
2	Core dimensions
2.1	People
2.1.1	Personnel behaviour (of Fuel station manager and delivery staff)
2.1.1.1	Communication
2.1.1.2	Employee training
2.1.1.3	Peer learning
2.1.1.4	Grooming of staff
2.1.1.5	Assurance (quality of service)
2.1.2	Customer characteristics
2.1.2.1	Socio-economic class
2.1.2.2	Rural vs. Urban vs highway
2.1.2.3	First time vs. Repeat
2.1.2.4	Perception of fuel station
2.1.2.5	Type of fuel required
2.1.2.6	Customers in retail (fuel station) and Industrial consumers
2.1.2.7	Tolerance of customers
2.2	Process
2.2.1	Entry and welcoming
2.2.2	Fueling
2.2.3	Waiting time
2.2.4	Payment
2.2.5	Exit
2.2.6	Feedback mechanism
2.2.7	Flexible timing
2.2.8	Availability of allied services like food , car wash etc
2.2.9	Queing and congetion at fuel station
2.2.10	Helpdesk - assistance booth
2.2.11	Confirmation of fueling
2.2.12	Engagement with customers
3	Peripheral dimensions
3.1	Cost of fuel and services
3.2	Payment method
3.3	Latest technology and equipment avilability
3.4	Image of fuel station and company

Table 4.8: Seekers' Template

1	Pivotal dimensions
1.1	Knowledge and competence of services
1.2	delivering correct fuel (product)
1.3	Quality of fuel
1.4	Availability of staff
1.5	availability of fuel & allied services
1.6	Availability of equipment, instrument and technology
1.7	fuel station management
1.8	Promptness - quick service
1.9	Safety
1.10.	Available service communication to customers
1.11.	Providers past reputation
1.12	Proximity
2	Core dimensions
2.1	People
2.1.1	Personal behaviour (of Fuel station manager and delivery staff)
2.1.1.1	Communication
2.1.1.2	Empathy
2.1.1.3	Coordial behaviour
2.1.1.4	Responsiveness
2.1.1.5	Trust
2.1.1.6	Courtesy
2.1.1.7	Integrity of the attendant
2.2	Process
2.2.1	Entry and welcoming
2.2.2	Fueling
2.2.3	Waiting time
2.2.4	Payment
2.2.5	Exit
2.2.8	Availability of allied services like food , car wash etc
2.2.9	Queing and congetion at fuel station
2.2.10	Helpdesk - assistance booth
2.2.11	Confirmation of fueling
3	Peripheral dimensions
3.1	Cost of fuel and services
3.2	Payment method
3.3	Latest technology and equipment avilability
3.4	Image of fuel station and company
3.5	Look & feel
3.6	Promotional programs

4.3.12.2. Statistical Method: Modified Delphi

Modified Delphi Round (May-Jun 2022)

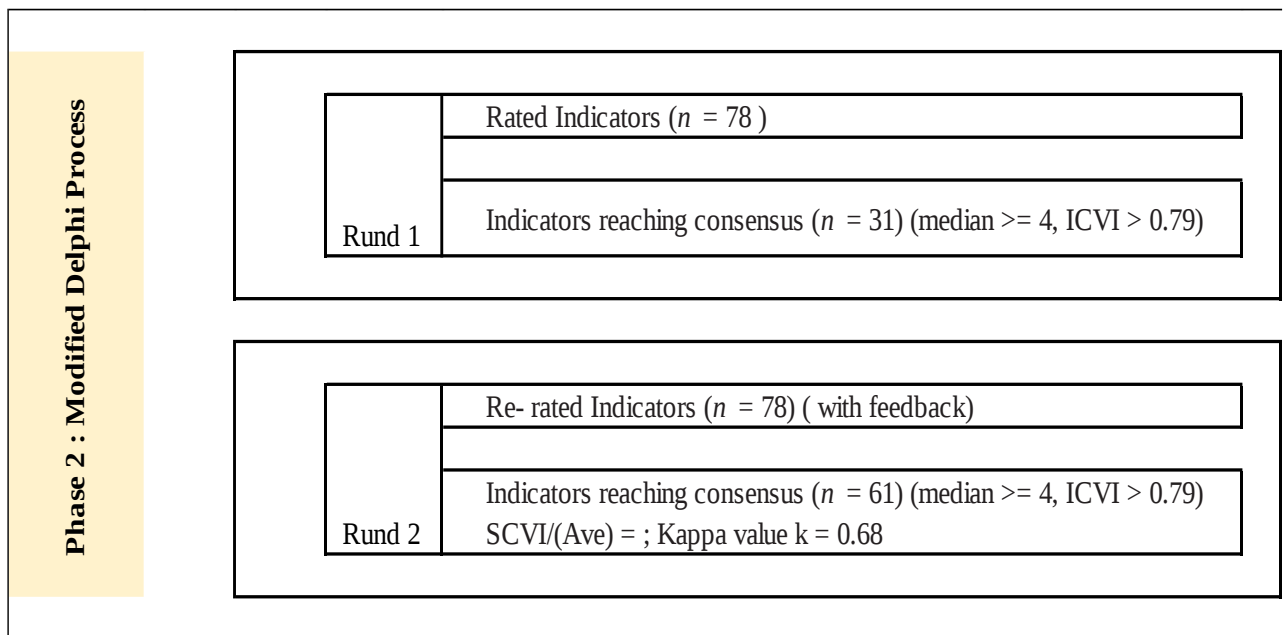


Figure 4.2: Process flow of modified Delphi round

The Delphi method stands out among other decision-making techniques due to its distinctive features. It provides a unique approach to gathering and refining information collaboratively.

- (i) **Refinement and Modification:** One key feature of the Delphi process is the group's ability to refine and modify the information provided in earlier rounds. Unlike some decision-making techniques that follow a more rigid structure, Delphi allows for dynamic adjustments and improvements based on the collective insights of the participating experts (Lindstone et al., 2002). This iterative nature ensures that the final consensus reflects the panellists' most informed and refined perspectives.
- (ii) **Anonymity of Participants:** Another crucial aspect of the Delphi method is the anonymity of participants. This unique characteristic eliminates undesirable psychological effects that may arise in face-to-face interactions. Participants are shielded from biases related to personal relationships, status, or dominant personalities, promoting open and honest

expression of opinions (Lindstone et al., 2002). This anonymity fosters an environment where panellists can freely share their insights without concerns about potential biases or external influences.

All the items were presented again to the panelists during Round Two in the Delphi process. This step aimed to facilitate a comprehensive review of their initial ratings in light of the median rating computed for the group in Round One. The iterative nature of the Delphi method allows participants to reconsider their assessments based on the collective wisdom of the expert group. This review process contributes to the ongoing refinement of the items, ensuring that the final consensus represents a well-informed and collectively validated set of opinions. The ability to reassess ratings in subsequent rounds enhances the method's flexibility and responsiveness to evolving insights, making Delphi a robust and adaptive technique for reaching informed group decisions.

4.3.12.3. Panel Selection

Expert Selection: The literature has already established the dimensions of service excellence, rendering the initial round of the traditional Delphi round extra for the study. Incorporating a heterogeneous panel of experts into the Delphi method modifies its outcome (Keeney et al., 2011). In this phase of the Delphi procedure, OMC officers, dealers, delivery personnel, and consumers who have patronised petrol stations within the previous three months are involved. The researchers employed purposive sampling to select panelists who could provide valuable insights (Etikan, 2016). The expert panel comprised thirty-two volunteers consisting of OMC officers, Dealers and fuel station staff who were informed of the purpose of the study and their involvement as participants in the Delphi procedure (See Annexure VIII). The panellists are chosen to take care of the people related to decision makers, service designers, implementors and service consumers. Before the Delphi procedure, informed consent was obtained from all participants, and assurance of anonymity was provided, both of which are essential requirements.

Data Collection: A printed questionnaire was created to distribute to all the panel members. Every panelist received a briefing on the guidelines and procedures for completing the survey. The survey was conducted from March to April 2022. After the initial reminder, the survey was returned by

thirty-two panelists. Four panelists were unable to participate in the final survey. The participants in this survey round consist of fifteen OMC officers, twelve dealers, fuel station staff, and five customers (seekers). The credibility of the panel members was determined by calculating the authoritative coefficient ($Cr > 0.7$) (Zhao et al., 2015) (refer to Annexure VIII). The authoritative coefficient is calculated by multiplying the expert judgment rating (Ca) with the familiarity rating (Cs). The assessment of expert judgement and knowledge of the topic/subject is conducted using an ordinal scale ranging from 1 (highest) to 0 (lowest) (1, 0.8, 0.6, 0.4, 0.2, and 0), with increments of 0.2. The signs of expert judgement are organised hierarchically and categorised as follows: Theoretical analysis, practical analysis, intuition, understanding from others, and ignorance are all forms of analysis. Familiarity with the subject: The subject is classified as extremely, very, somewhat, marginally, or completely unfamiliar.

A rigorous evaluation of the credibility of the chosen council members was conducted by employing an authoritative coefficient, a robust measure of expert judgment and familiarity. The obtained coefficient value of 0.804 surpassed the threshold of $Cr > 0.7$, indicating high credibility among the panellists (Tan et al., 2007; Zhao et al., 2015). This stringent criterion ensured that the expertise and familiarity of the panel members were sufficiently reliable, laying a solid foundation for the subsequent rounds of the Delphi process.

4.3.12.4. Data Collection Round 1

Panellists who participated in the first round of the Delphi process were actively engaged in indicating the degree to which they agreed or disagreed with each statement included in the item pool. Utilising a Likert scale of five points, ranging from strongly disagreeing to strongly agreeing, we determined the degree to which they agreed with the statement. This scale selection aligned with known techniques in other similar research (Giannarou & Zervas, 2014; Hayes et al., 2015; Howell et al., 2017; Shariff, 2015). These practices were used to capture nuanced perspectives as well effectively.

Thirty-two out of the thirty-six panellists participated in the survey during Round 1, achieving an impressive 89% response rate. The calculated authoritative coefficient for the panel indicated a good level of agreement (Mean $Cr = 0.80$, sd. 0.03), emphasising the reliability and cohesion

within the expert group. The median rating for each statement was determined, setting the stage for the subsequent round.

A stringent selection criterion was applied, with only 31 items proceeding to the next round based on their median rating and Item Content Validity Index (ICVI) exceeding 4 and 0.79, respectively. This careful screening ensured that only the most relevant and widely agreed-upon items advanced, contributing to the refinement and focus of the Delphi process. The successful execution of Round 1 laid a solid groundwork for the iterative and consensus-building nature of the subsequent Delphi rounds.

4.3.12.5. Data Collection Round 2

Determining Consensus:

In the second round of the Delphi process, the primary aim was to ascertain consensus among the panellists regarding including statements in the scale measuring Petro retail service quality. The median rating for each statement was presented to the panellists, allowing them to compare their ratings with the aggregated responses of the group. Panellists had the opportunity to revise their ratings based on this information. If no changes were made, the previous rating was considered final in this round. All thirty-two panellists actively participated in the second round.

To streamline the selection process, items with a median rating of 4 or more and an Item Content Validity Index (ICVI) above 0.79 were retained (Rodrigues et al., 2017). These criteria ensured that only statements with a high level of agreement and content validity were included in the scale. Following this rigorous process, sixty-one items were initially considered for inclusion in the Petro retail service quality scale.

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The Delphi Round concluded with the following notable outcomes:

1. Consensus and Inter-Rater Reliability and stability of responses:

- All 32 panellists participated in round 2.
- Sixty-one items reached consensus with a median rating of 4 or above, meeting the criteria for content validity. (*Grant & Davis, 1997; Lynn, 1986; Polit & Beck, 2006*)
- Inter-rater reliability was assessed using Fleiss's Kappa; the panellists were in strong agreement, as seen by the positive direction and higher magnitude of the k value. The kappa-coefficient (k) value can range between -1 to +1.

2. Conditions Met for Delphi Round Conclusion:

- S-CVI/Ave of the scale was 0.9087 (std. dev.= 0.0501), classified as excellent, affirming content validity (Rodrigues et al., 2017).
- The Kappa Value ($k=0.68$, $p<0.05$) It was evident that the consensus among the panellists was not coincidental, further supporting the reliability of the Delphi process (McHugh, 2012).

These robust outcomes signified the achievement of consensus, ensuring that the panellists deemed the selected items relevant and demonstrated a high level of agreement among them. The meticulous attention to content validity and inter-rater reliability, as evidenced by the S-CVI/Ave and Kappa Value, respectively, underscored the credibility and reliability of the items retained in the Petro retail service quality scale. This marked the completion of the Delphi Round, setting the stage for the subsequent stages of scale development and validation.

4.3.12.6. Item Representativeness in Scale

During the second round, the panellists were responsible for evaluating each topic's relevance using a four-point ordinal scale. The scale ranged from 1, which indicated "not relevant," to 4, which indicated "highly relevant." The items with ratings of 3 and 4 were considered to have content validity, as shown by Grant and Davis (1997), Lynn (1986), and Polit and Beck (2006). The Item Content Validity (I-CVI) was determined for each response by dividing the number of panellists rated 3 or 4 by the total number of panellists calculated by Polit et al. (2007). Items in the scale were deemed relevant when their I-CVI values surpassed 0.79. A Content Validity (S-CVI/Ave) score above 0.9 was deemed excellent, according to Rodrigues et al. (2017). In this particular situation, the S-CVI/Ave for the scale was 0.9087 (sd. 0.0501).

These robust validity measures, captured in Annexure IX, collectively attest to the representativeness and relevance of the sixty items in the scale designed for measuring Petro retail service quality. The Delphi method's thorough assessment of stability, agreement, and content validity lays a strong foundation for the subsequent stages of scale development and validation.

4.3.13. Quantitative Phase (Scale Validation)

4.3.13.1. Statistical Method: Confirmatory Factor Analysis

The scale development and validation process commenced with the creation of a comprehensive 61-item scale during the Delphi round. This instrument assessed various service quality dimensions in Petro retail, considering providers and seekers. Data were obtained by distributing a self-administered questionnaire using convenience sampling to guarantee a broad and varied sample. To address the issue of common method bias, data was collected using both online and traditional pen-and-paper methods.

Confirmatory Factor Analysis (CFA) was employed to evaluate the questionnaire's psychometric properties (Duggirala et al., 2008). The scale's reliability was determined using Cronbach's alpha values, with a minimum threshold of 0.7. In addition, we assessed the Composite Reliability (CR) of constructs, with a minimum threshold of 0.7, and the Average Variance Explained (AVE), with

a minimum threshold of 0.5, as recommended by Hair et al. (2006).

The One-dimensionality of each construct was assessed through the Comparative Fit Index (CFI>0.9) (Byrne,2013) (Hair et al., 2011), (Hair et al.,2006).

Exploratory Factor Analysis (EFA) and CFA serve distinct purposes in scale development. Hair et al. (2006) defined EFA as particularly useful when constructs are not predefined, allowing for a statistical exploration of relationships among observed variables. On the other hand, CFA tests a preconceived measurement theory, evaluating how well the theoretical structure aligns with the observed data (Byrne, 2016). The choice between EFA and CFA depends on the stage of scale development and the underlying knowledge of constructs.

EFA is helpful when a sufficiently detailed theory indicates relationships of the observed variables when the construct is unavailable (Gerbing & Anderson, 1988, p189). Churchill (1979, p 69) believed that "factor analysis can indeed be used to suggest dimensions, and the marketing literature is satisfied with articles reporting such use." However, adequate research has been done on service quality in retail and other service sectors where the observed and latent variables have been adequately combed and framed (Upadhyai et al., 2019) (Upadhyai et al., 2020). Similar scale development processes have been used in several studies, namely in the retail sector (Dabholkar et al., 1996), banking service (Sivakumar & Srinivasan, 2009) and healthcare services as well (Duggirala et al., 2008; Upadhyai et al., 2021). Hence, CFA is better suited to test the conceived measurement theory.

While EFA can be beneficial when a sufficiently detailed theory is lacking, CFA is better suited when a theoretical structure has already been formulated based on a solid understanding of observed and latent variables. The study, focused on Petro retail service quality, benefited from existing knowledge in the field, making CFA the more appropriate choice to test the conceived measurement theory.

In July 2022, a questionnaire consisting of sixty-one items was distributed. A total of 550 individuals returned the questionnaire. A total of 411 participants completed the online questionnaire, while 139 replies were obtained from physical questionnaires distributed through

purposive sampling. Twenty-one respondents were excluded from the study due to incomplete information in their responses. After doing the initial check, 529 replies were deemed eligible for study. Eight participants provided a distinct set of values for all variables, making them outliers and subsequently excluded from the study (Hair et al., 2006). A total of 521 valid responses were obtained, which is suitable for conducting Confirmatory Factor Analysis (CFA). This meticulous method of gathering and analysing data guarantees the accuracy and consistency of the measurement model, establishing a solid foundation for reliable conclusions in the following stages of the research.

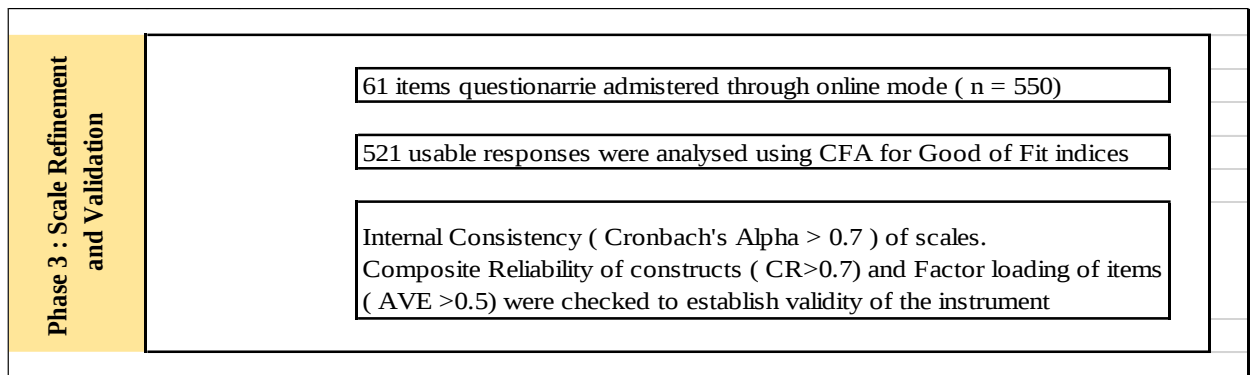


Fig 4.3 Process flow for Scale refinement and validation

Table 4-9: CFA Phase: Demographic Profile of Respondent

Classification	Nos.
Gender	
Male	337
Female	184
Age Group	
<20 yrs	51
21-30 yrs	89
31-40 yrs	166
41-50 yrs	148
51-60 yrs	48
>60 yrs	19
Highest Qualification	
Doctorate	6
Post-Graduate	118
Graduate	330
Intermediate	67
Employment Status	
Self Employed	84
Salaried	287
Homemaker	34
Student	59
Retired	28
Others	29
Work Profile	
Petro Retail Service Provider	157
Seekers	364
Time of Last Visit	
<3 weeks	388
4–6 weeks	92
>6 weeks	41

Source : Author

In the Confirmatory Factor Analysis (CFA) model conducted using AMOS 23 software, all sixty-one variables were meticulously placed under their respective dimensions within the service quality construct. This step was crucial for assessing the validity and reliability of the measurement model. Various indices, including absolute, relative, and non-centrality-based measures, were considered to evaluate the model fit thoroughly.

Following a comprehensive evaluation, all items that met the recommended limits were retained in the CFA model, ensuring that the model accurately represented the underlying dimensions of the service quality construct. However, six items with the identifiers Q13, Q30, Q31, Q46, Q49, and Q55 were identified as not contributing significantly to the model. Consequently, these items were deemed redundant and removed from the model and the questionnaire.

The values of different fit indices, spanning absolute, relative, and non-centrality-based measures, surpassed the recommended threshold values for all dimensions within the three attributes. This observation confirmed that the measurement model effectively captured the structure of the service quality construct across its various dimensions.

Furthermore, the Scale Content Validity Index Average (S-CVI/Ave) improved, increasing from 0.9087 to 0.9321 after the CFA rounds. This enhancement in the S-CVI/Ave value indicated better content validity for the 55-item scale, affirming that the items within the scale collectively and accurately measured the intended dimensions of service quality.

To ensure construct reliability, the Composite Reliability (CR) values for all dimensions within the 55-item scale were found to be above the recommended threshold of 0.7. This established the constructs' reliability, providing confidence in the stability and consistency of the measurement model.

The comprehensive evaluation and refinement through CFA ensured the removal of redundant items and affirmed the validity, reliability, and content accuracy of the 55-item scale for assessing service quality. Various fit indices and reliability measures contributed to a robust and well-validated measurement model for subsequent analyses in the study (See Annexure X)

4.3.13.2. Construct Validity

The Assessment of Convergent Validity was carried out, examining the Average Variance Extracted (AVE) for each construct. AVE is a measure that assesses the amount of variance captured by the construct's items relative to the amount of variance due to measurement error. In this analysis, the AVE values for all constructs were more significant than 0.50, indicating strong convergent validity for each construct.

A high AVE signifies that a substantial proportion of the construct's variance is attributed to its underlying factors rather than measurement error. This outcome is crucial as it validates the consistency and reliability of the measurement model, affirming that the items within each construct converge to measure the intended underlying concept effectively.

The presentation of these AVE values in Table 4-10 provides a clear and concise summary of the convergent validity across all constructs. This positive result adds a layer of confidence to the measurement model, suggesting that the constructs in the study are well-defined and the items within each construct are reliable indicators of their respective underlying concepts. This is a critical validation step in ensuring the accuracy and trustworthiness of the measurement instrument used in the study.

Table 4-10: Convergent Parameters of Validity

Attributes	Construct	Items	Factor loading	Composite reliability	AVE
			[Above 0.5]	[Above 0.7]	[Above 0.5]
Pivotal	AT	Q32	0.78	0.791	0.563
		Q33	0.79		
		Q34	0.62		
		Q35	0.71		
		Q36	0.74		
	GR	Q42	0.75	0.746	0.561
		Q43	0.63		
		Q44	0.71		
		Q45	0.76		
		Q56	0.75		
	MFSO	Q16	0.78	0.718	0.671

		Q17	0.7		
		Q18	0.77		
	SKC	Q37	0.71	0.787	0.618
		Q38	0.72		
		Q39	0.81		
		Q40	0.78		
		Q41	0.71		
	PSD	Q24	0.71	0.772	0.542
		Q25	0.74		
		Q26	0.71		
	QQ	Q47	0.78	0.762	0.514
		Q48	0.72		
		Q58	0.75		
Core	SAC	Q50	0.73	0.791	0.523
		Q51	0.75		
	SB	Q19	0.76	0.878	0.631
		Q20	0.84		
		Q21	0.78		
		Q22	0.81		
		Q23	0.78		
	PROC	Q52	0.76	0.753	0.561
		Q53	0.72		
		Q54	0.76		
		Q57	0.78		
	FCE	Q1	0.74	0.781	0.532
		Q2	0.79		
		Q3	0.81		
		Q4	0.72		
		Q5	0.81		
		Q6	0.79		
		Q7	0.73		
		Q8	0.76		
		Q9	0.77		
Peripheral	FPI	Q27	0.71	0.81	0.564
		Q28	0.73		
		Q29	0.77		
		Q60	0.75		
		Q59	0.72		
	PMA	Q10	0.78	0.712	0.534

		Q11	0.71	0.812	0.598
		Q12	0.72		
	IMG	Q61	0.81		
		Q14	0.82		
		Q15	0.78		

Source: Author

In refining the measurement model, the Confirmatory Factor Analysis (CFA), guided by the Delphi method, was employed to ensure that only items meeting recommended limits were retained. This rigorous approach aimed to enhance the instrument's construct validity. Consequently, items Q13, Q30, Q31, Q46, Q49, and Q55, which did not significantly contribute to the model, were identified through CFA and subsequently excluded from the questionnaire.

The assessment of the pivotal attributes of service quality yielded mixed results. Notably, the values of the Maximum Shared Variance (MSV) values for “staff knowledge & competence” “Quality & Quantity” and “promptness in service delivery” exceeded these constructs' Average Variance Extracted (AVE) within the pivotal attribute subscale. This observation indicated a potential issue with discriminant validity for these constructs, prompting a closer examination of their relationships.

In the case of the core attribute subscale, discriminant validity for the constructs of 'process', 'Fuelling cycle experience', and 'staff behaviour' was challenging. Deviations in the expected relationships between these constructs required further refinement and scrutiny.

Similarly, the peripheral attribute subscale displayed a deviation in discriminant validity, particularly between 'facilities and physical infrastructure' and 'payment method and arrangement'. This finding suggested potential overlap or confusion between these constructs, necessitating careful consideration in the final evaluation.

These analyses and refinements culminated in creating the Bilateral Instrument of Service Quality Evaluation (BISQE) for Petro retail, presented in detail in Annexure XI. This comprehensive instrument incorporates the refined and validated items, ensuring a robust assessment of service

quality in Petro retail. The meticulous process of item selection, guided by statistical rigour, contributes to the instrument's reliability and validity, laying a solid foundation for subsequent analyses and conclusions in the research.

After CFA rounds, the S-CVI/Ave of the 55-item scale worked out to 0.9312, indicating better content validity.

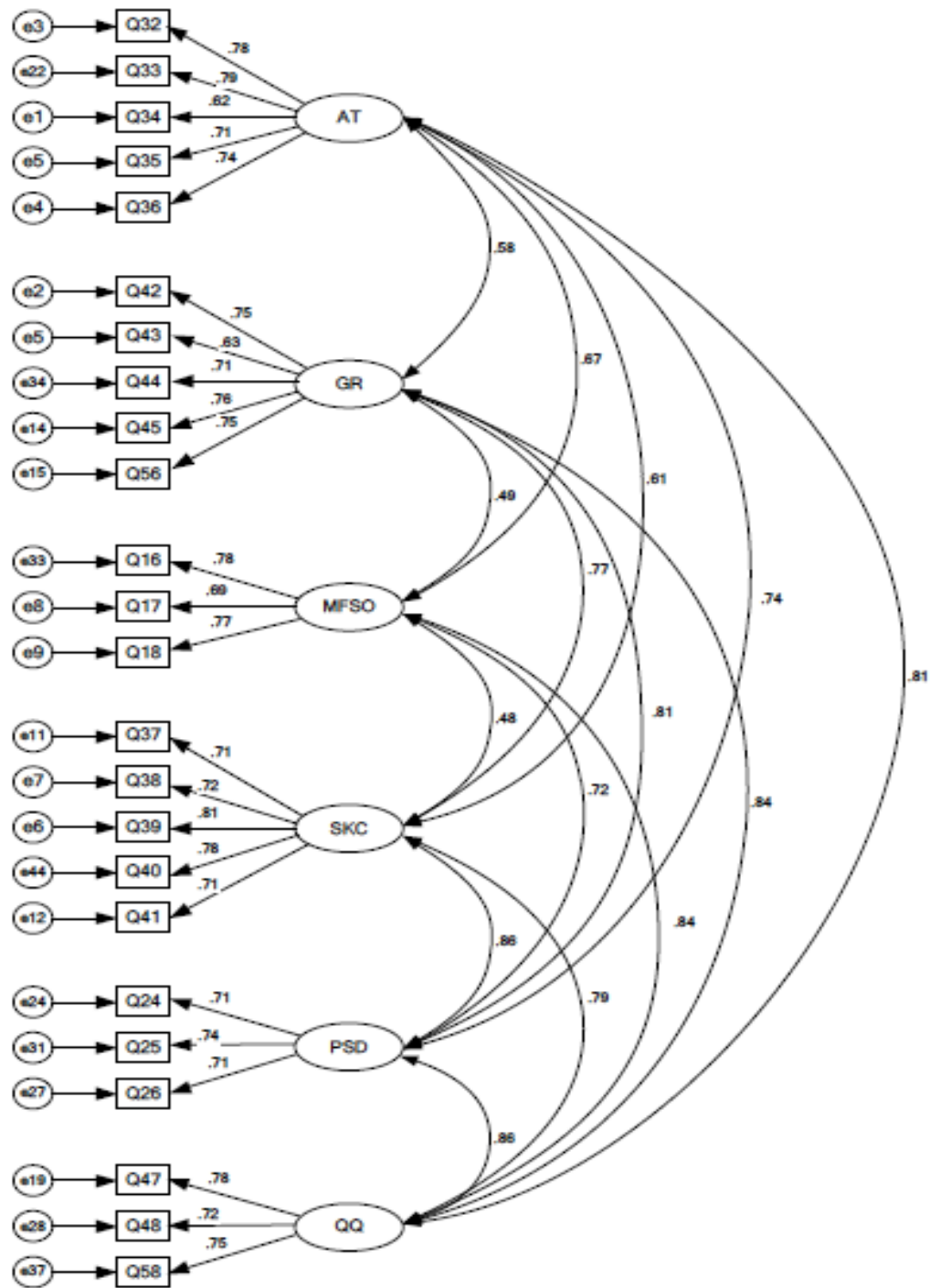


Figure 4.4: PRSQ Dimension model under Pivotal Attributes

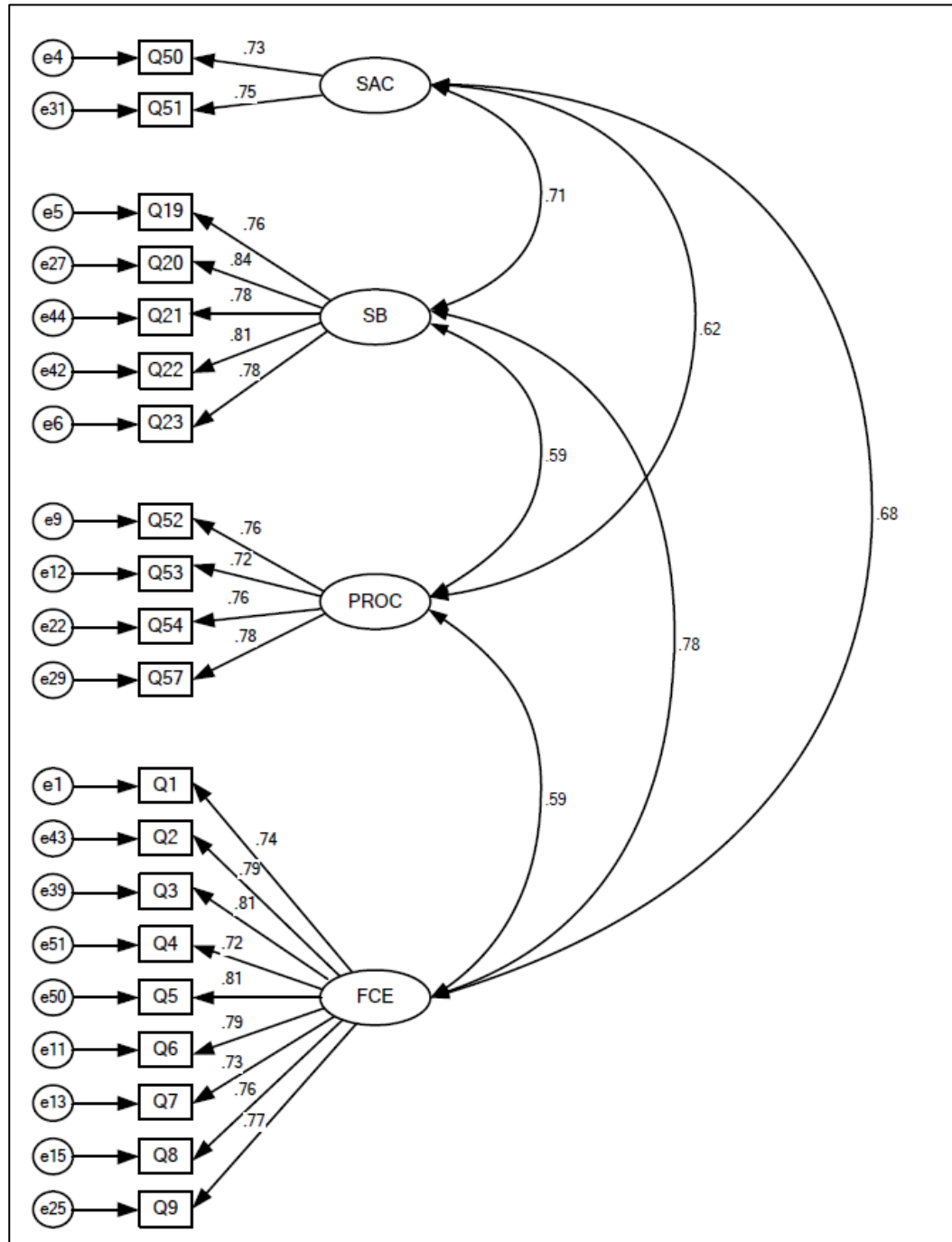


Figure 4.5: PRSQ dimension model under Core Attributes

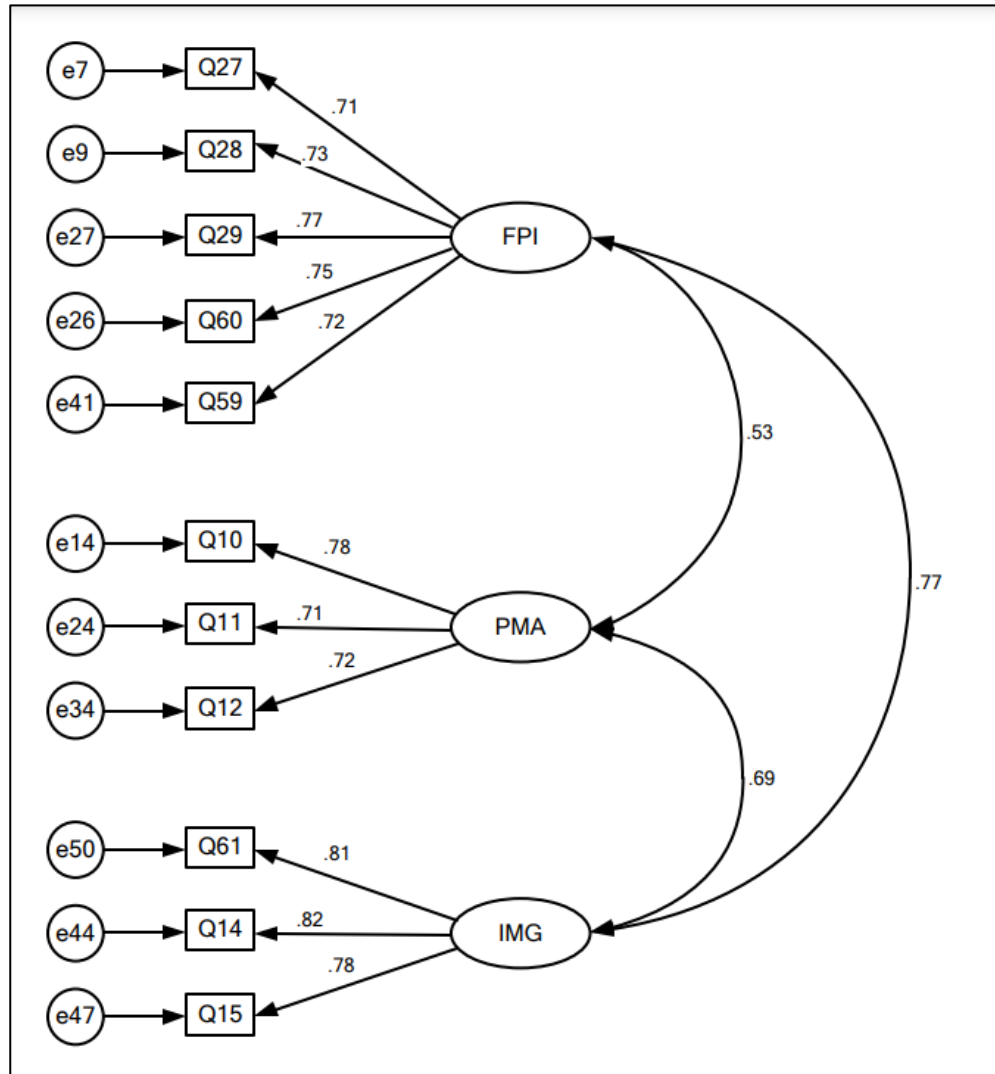


Figure 4.6 PRSQ dimension model with Peripheral attributes

4.3.13.3. Scale Reliability

The reliability of the scale, a critical aspect in ensuring the consistency and dependability of measurement, was assessed using the widely employed Cronbach's Alpha coefficient. For the comprehensive scale comprising 55 items, Cronbach's Alpha was calculated to be 0.887, surpassing the generally accepted threshold of 0.7. This high value attests to the internal consistency and reliability of the entire scale.

Breaking down the scale into its constituent parts, the pivotal attribute, consisting of 24 items,

exhibited a reliability value of 0.911. The core attribute, with 20 items, demonstrated a reliability value of 0.864, and the peripheral attribute, comprising 11 items, yielded a reliability value of 0.895. Importantly, all three subsets surpassed the threshold of 0.7, further affirming their high reliability.

In assessing the multicollinearity between variables, particularly given the very high Cronbach's Alpha values, the interitem correlation was examined for the individual subscales, i.e., pivotal, core, and peripheral attributes. Interestingly, no significant changes were observed in the correlation values, indicating the inclusion of all 55 items in the Bilateral Instrument of Service Quality Evaluation (BISQE) for Petro retail, as presented in Table 4.16 above, was warranted.

This thorough examination of reliability assures researchers and practitioners that the scale, encompassing pivotal, core, and peripheral attributes, is not only internally consistent but also reliably captures the nuances of service quality evaluation in the Petro retail context. The decision to retain all 55 items in the evaluation tool is supported by this rigorous assessment of reliability, reinforcing the scale's robustness for subsequent analyses and interpretations in the research.

4.3.13.4. CFA: Final Scale Items

- ❖ The **S-CVI/Ave** of the 55-item scale **worked out to 0.9312** after CFA rounds, indicating better content validity.
- ❖ The widely used measure for reliability coefficient **Cronbach's alpha** of the complete scale with 55 items was found to be **0.817** (>0.7).
- ❖ The **24 items of the Pivotal attribute**, **20 items of the Core attribute** and **11 items of Peripheral attributes** had reliability of **0.829**, **0.826** and **0.801**, respectively, surpassing the threshold limit.

4.3.13.4.1. Gap Analysis (Aug 2022)

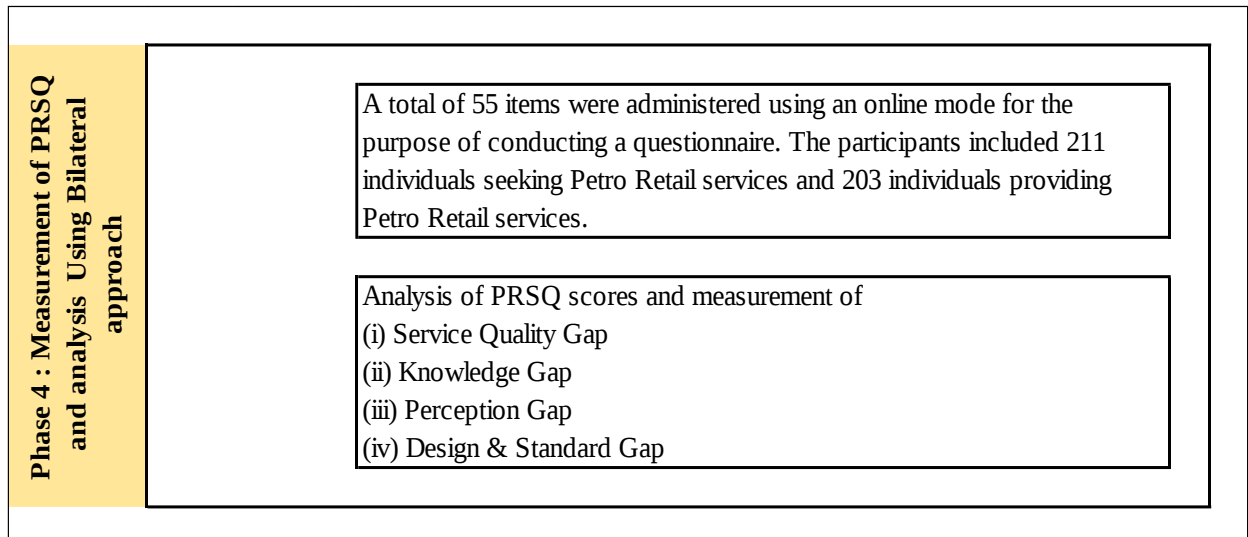


Figure 4.7: Process flow of Measurement of PRSQ

4.3.14. Quantitative Phase (Measuring and Analysing Petro Retail Service Quality)

4.3.14.1. Profile of Respondents

In the data collection phase, a purposeful selection strategy was employed to gather diverse perspectives from Petro retail service seekers and providers. The Oil Marketing Companies (OMCs) representing service providers consistently implement uniform service quality policies across their fuel stations in India. While minor variations in service policies among OMCs may exist, the overall framework remains largely consistent. To assess Petro retail Service Quality, a Bilateral Approach was adopted, utilising a comprehensive fifty-five-item questionnaire developed in the preceding research phase.

Convenience sampling was employed to select two metro and two-tier II cities, including highway and rural areas in India, ensuring a broad representation of contexts. OMC officers and customers were approached through established connections, and the study's purpose was transparently communicated. Participants were guaranteed complete anonymity for both Petro retail service providers and seekers. The survey was voluntary, emphasising that respondents could choose whether or not to participate.

Throughout the three months of August 2022, physical questionnaires were distributed to Petro retail service seekers and providers. Two hundred eleven responses were collected from service seekers and 203 from service providers across the four selected cities. The breakdown included 200 responses from metro cities, 186 from tier II cities, and 28 from highway and rural areas. These diverse responses gathered through convenience sampling, provided a comprehensive overview of Petro retail service experiences.

The collected data, comprising 414 responses from both Petro retail service seekers and providers, was aggregated for a holistic analysis of Petro retail service quality. MS Excel (Office 365) tabulated and analysed the data. The demographic profile of the respondents for this phase provided insights into the diversity and representation achieved in the study.

This detailed data collection process, encompassing various geographical settings and stakeholder perspectives, lays the foundation for a robust and comprehensive analysis of Petro retail service quality. The transparency in communication, emphasis on participant autonomy, and the careful selection of diverse locations contribute to the dataset's validity and richness for subsequent research phases.

4.3.14.2. Hypothesis

In this phase of the study, the nomological validity of the scale has been rigorously examined and established. Nomological validity is crucial as it confirms that the construct possesses distinct qualifications and significances, reflecting the theoretical relationships between various constructs (Iacobucci et al., 1995; Piha et al., 2021; Jahanvi & Sharma, 2021). To assess the nomological validity of the scale, a conceptual framework was meticulously developed and tested, identifying essential qualifications and significance.

Respondents actively participated in rating the overall service quality of fuel stations, employing a single-item measure on a 7-point Likert scale. The hypotheses formulated for this examination were as follows:

H1. Pivotal attributes (24 Questions) will contribute to the overall service quality assessment. H2. Core attributes (20 items) will contribute to the overall service quality assessment. H3. Peripheral

attributes (11 items) will contribute to the overall service quality assessment.

Data collection involved multiple stakeholders, including OMC officers at both HQ and field levels, dealers, delivery salesmen (service delivery personnel), and customers visiting fuel stations (refer to Annexure XII). The three constructs, pivotal, core, and peripheral attributes, were evaluated against a single predictor— "overall service quality," with all responses measured on a seven-point Likert scale.

The analysis yielded compelling results, affirming the nomological validity of the scale. Each attribute category demonstrated a positive and statistically significant impact on the overall service quality:

- Pivotal attributes ($\beta = 0.31$, $p < 0.001$),
- Core attributes ($\beta = 0.36$, $p < 0.001$),
- Peripheral attributes ($\beta = 0.36$, $p < 0.001$).

These findings reinforce the theoretical connections between the specified attributes and their collective influence on the overall service quality assessment. The nomological validity established in this phase enhances the credibility and robustness of the scale, validating its effectiveness in capturing the intricate relationships between different dimensions of service quality in the context of fuel stations.

Table 4-11: Statistics for paths of Nomological test

Structural Model			
	Standardised estimate		
Path Tested	value (t-value)	Hypothesis	Result
OSQ $\leftarrow$ PIVO	0.314 (6.127)***	H1(+)	Support
OSQ $\leftarrow$ CORE	0.356 (6.798)***	H1(+)	Support
OSQ $\leftarrow$ PERI	0.362 (6.212)***	H1(+)	Support
*** $p < 0.001$			

Table 4.12: Sample detail

	Petro Retail Service Seeker	Petro Retail Service Provider
Metro 1	50	50
Metro 2	50	50
Tier II , City 1	50	50
Tier II, City 2	41	45
Highway & Rural	20	8
Total	211	203

4.3.14.3. Gaps in Service Quality

The interpretation of measuring the service quality, as outlined in Table 4-13, offers a quantitative insight into various dimensions of service quality. The table serves as a valuable tool, shedding light on the magnitude and direction of values that are pivotal in comprehending the existing service quality gaps.

Examining Table 4-13 reveals crucial information about service quality dimensions. The magnitude of values against each dimension indicates the extent of the gap, with higher magnitudes signalling more considerable disparities between customer expectations and perceptions. Simultaneously, the direction of values, predominantly negative, signifies a shortfall in service quality, implying that actual performance falls below customer expectations. This negative sign denotes a deficit and highlights a more substantial shortfall with a more significant negative value, pointing towards an inferior service on those dimensions.

Negative values in the service quality dimension indicate inferior service and are a cause for concern. More negative values emphasise more significant areas of concern, necessitating increased attention and improvement efforts to bridge service quality disparities.

The practical implications derived from this interpretation are manifold. Firstly, the table aids in identifying specific service quality dimensions with substantial gaps, prioritising them as areas for improvement. Organisations can strategically plan by directing resources and efforts towards dimensions with the most significant gaps, leading to more effective and efficient improvements in overall service quality.

Furthermore, the negative values point directly to areas where customers perceive the service as lacking. Addressing these dimensions allows organisations to align their services more closely with customer expectations, thereby enhancing satisfaction. The table also establishes a foundation for continuous service quality monitoring and evaluation, enabling organisations to track the impact of improvement initiatives and adjust strategies accordingly.

Table 4-13 is a valuable tool for understanding service quality gaps. Its insights into the magnitude and direction of values guide organisations in prioritising improvement efforts and addressing areas of concern. Organisations can enhance overall customer satisfaction and loyalty by reducing service quality gaps. The continuous monitoring facilitated by the table contributes to an ongoing cycle of improvement in service quality, ensuring adaptability and responsiveness to changing customer expectations

Table 4-13: Gaps in Service Quality Dimensions

Service Quality Dimensions	Service Quality Gap	Knowledge Gap	Perception Gap	Design and Standard gap
Adoption of Technology [AT]	-1.112	-1.104	-0.987	-0.908
Grievance Redressal [GR]	0.126	0.452	0.487	0.312
Management of Fuel Station Operation [MFSO]	0.254	0.394	0.545	0.212
Staff Knowledge and Competence [SKC]	-0.679	-0.449	-0.346	-0.435
Promptness in Service Delivery [PSD]	-0.893	-0.986	-0.997	-0.877
Service Availability Communication [SAC]	-1.143	0.239	-1.017	0.147
Staff Behaviour [SB]	-0.287	0.326	-0.403	-0.174
Process [PROC]	-1.025	0.354	-1.482	-0.867
Fuelling Cycle Experience (Entry, Waiting, Fuelling, exit) [FCE]	-1.112	-1.021	-1.037	-0.998
Quality & Quantity [Q&Q]	-0.867	-0.922	-0.889	-0.117
Facilities and physical infrastructure [FPI]	0.257	0.352	0.157	0.197
Payment Methods & Arrangement [PMA]	-0.667	-0.453	-0.221	-0.329
Image [IMG]	-0.559	-0.628	-0.587	-0.667

Service Quality Gap= Petro Retail Seekers' Expectations – Petro Retail Seekers' Perception of their Own Experiences

Knowledge Gap = Petro Retail Providers' Perception of Service Seekers' Expectations – Petro Retail Seekers' Expectations

Perception Gap = Petro Retail Seekers' Perception of their Own Experiences – Petro Retail Providers' Perception of Service Delivery

Design and Standard Gap = Service Quality Design & Standard – Provider Perception of Customer's Expectation

4.3.14.3.1. Service Quality Gap

The Service Quality Gap for Petro retail service seekers is assessed by calculating the difference between customer expectations and perceptions of the service. This provides insights into areas where the actual service performance aligns with, exceeds, or falls short of expectations. The figures reveal specific dimensions where Petro retail service performance did not meet expectations.

Dimensions with positive values, such as Grievance Redressal (0.126), Management of Fuel Station Operation (0.254), and Facility & Physical Infrastructure (0.257), indicate that Petro retail either meets or slightly exceeds customer expectations in these areas. For instance, positive values in Grievance Redressal imply effective complaint handling. In contrast, positive figures in the Management of Fuel Station Operation and Facility & Physical Infrastructure suggest efficient operational management and positive perceptions regarding the physical aspects of service.

Conversely, dimensions with negative values, including Adoption of Technology (-1.112), Service Availability Communication (-1.143), Process (-1.025), and Fuelling Cycle Experience (-1.112), highlight areas of concern. Highly negative values indicate significant shortfalls in customer expectations. For instance, the starkly negative value in the Adoption of Technology suggests a substantial gap in integrating technological solutions, while negative values in Service Availability Communication and Process point to deficiencies in conveying operational information and service delivery processes. The highly negative value in the Fuelling Cycle Experience indicates Petro Retail is falling significantly short in managing various stages of the fuelling cycle.

Hence, the Service Quality Gap analysis identifies specific dimensions where Petro retail service performance falls short of customer expectations and provides quantitative values for each dimension. Addressing concerns in technology adoption, service availability communication, service processes, and fuelling cycle experience is paramount for enhancing customer satisfaction and closing identified gaps. On a positive note, leveraging strengths in grievance redressal, operational management, and physical infrastructure can contribute to Petro Retail's overall service improvement strategy. The insights gained from this analysis, including specific values, guide targeted initiatives to bridge service quality gaps and enhance the overall customer experience in the Petro retail sector.

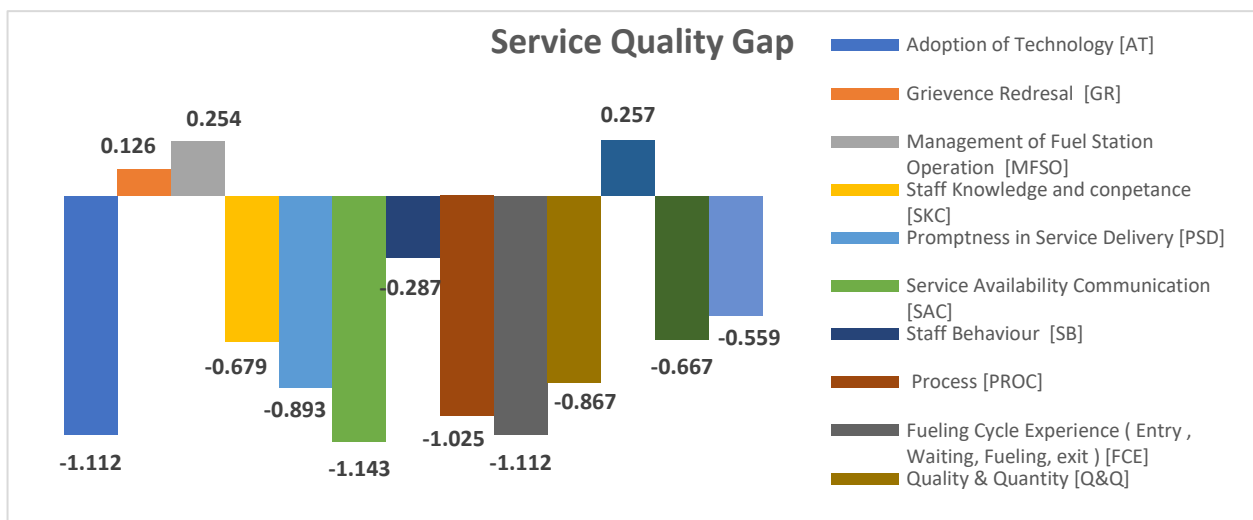


Figure 4:8: Measures of Service Quality (Customer Side)

4.3.14.3.2. Knowledge Gap

The Knowledge Gap within Petro retail service quality denotes the disparity between customer expectations and Oil Marketing Companies' (OMCs) perceptions regarding those expectations. It unveils areas where OMCs may have gaps in comprehending or accurately predicting customer expectations, with the provided figures highlighting pronounced gaps in specific dimensions.

Exploring dimensions with negative values, such as Adoption of Technology (-1.104), Promptness in Service Delivery (-0.986), Fueling Cycle Experience (-1.021), Quality & Quantity (-0.922),

Payment Methods & Arrangement (-0.453), and Image of the Fuel Station (-0.628), underscores significant knowledge gaps. These negative values indicate that OMCs might not fully grasp the extent of customer expectations in these areas, such as technology integration, prompt service delivery, fueling cycle experiences, fuel quality, payment options, and branding considerations.

Conversely, dimensions with positive values, including Grievance Redressal (0.452), Management of Fuel Station Operation (0.394), Service Availability Communication (0.239), Staff Behavior (0.326), Process (0.354), and Facilities and Physical Infrastructure (0.352), suggest a relatively accurate understanding by OMCs of customer expectations in these aspects. This implies that OMCs comprehend customers' significance on effective grievance redressal, streamlined fuel station operations, clear communication on service availability, positive staff behaviour, efficient service processes, and well-maintained physical infrastructure.

Thus, the Knowledge Gap analysis pinpoints specific areas where OMCs may not fully grasp customer expectations. Prioritising dimensions with negative values, especially in technology adoption, prompt service delivery, fueling cycle experience, quality assurance, payment methods, and brand image, becomes crucial for OMCs to bridge the knowledge gap and align their services with customer expectations in the Petro retail sector. Concurrently, positive values in specific dimensions indicate that OMCs have a relatively accurate understanding of customer expectations, serving as a foundation for further enhancements and targeted improvements. The insights gleaned from this analysis can effectively guide strategic initiatives to narrow the identified knowledge gaps.

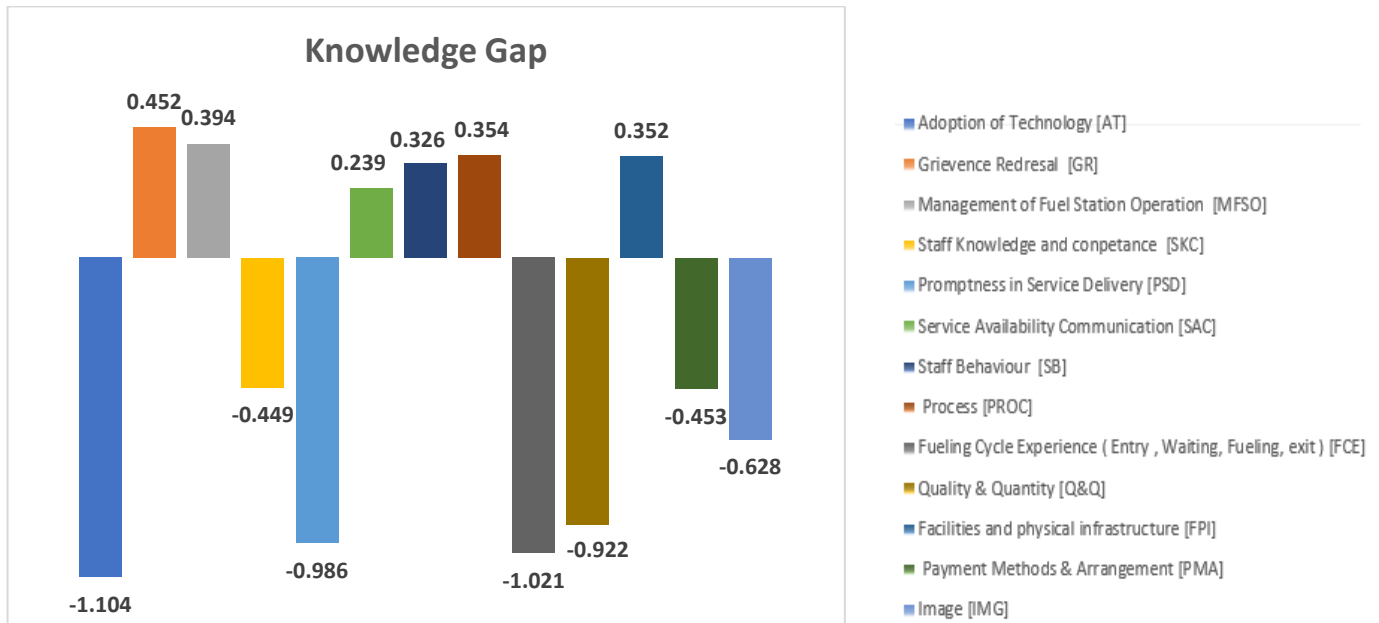


Figure 4:9 Metrics of Service Quality (Knowledge Gap)

4.3.14.3.3. Perception Gap

The Perception Gap within Petro retail service quality signifies the difference between customer experiences and Oil Marketing Companies (OMCs) perceptions of those experiences. It reveals potential discrepancies between actual customer encounters and how OMCs interpret them. The figures provided underscore pronounced gaps in specific dimensions.

Examining dimensions with positive values, such as Grievance Redressal (0.487), Management of Fuel Station Operation (0.545), and Facilities and Physical Infrastructure (0.157), indicates that OMCs' perceptions align well with the actual experiences reported by customers in these areas. Positive values imply that OMCs accurately understand their effectiveness in grievance redressal, operational management, and the condition of fuel station facilities.

Conversely, dimensions with negative values, including Adoption of Technology (-0.987), Service Availability Communication (-1.1017), Process (-1.482), Fueling Cycle Experience (-1.037), Promptness in Service Delivery (-0.997), and Quality & Quantity (-0.889), highlight significant gaps between OMCs' perceptions and customers' actual experiences. Highly negative values suggest substantial misalignments, indicating that OMCs might not fully grasp the extent to which their technological offerings meet expectations, effectively communicate service availability, ensure efficient service processes, manage fueling cycle experiences, provide prompt service delivery, and maintain fuel quality standards.

Hence, the Perception Gap analysis highlights areas where OMCs' understanding of customer experiences may not align with the reported experiences. While positive values suggest alignment in specific dimensions, the negative values underscore critical concerns. Addressing these gaps, particularly in technology adoption, communication, process efficiency, prompt service delivery, and quality assurance, is crucial for OMCs to enhance their perception accuracy and align their services with customer experiences in the Petro retail sector. The insights gained from this analysis can serve as a foundation for targeted improvements and strategic initiatives to bridge the identified gaps.

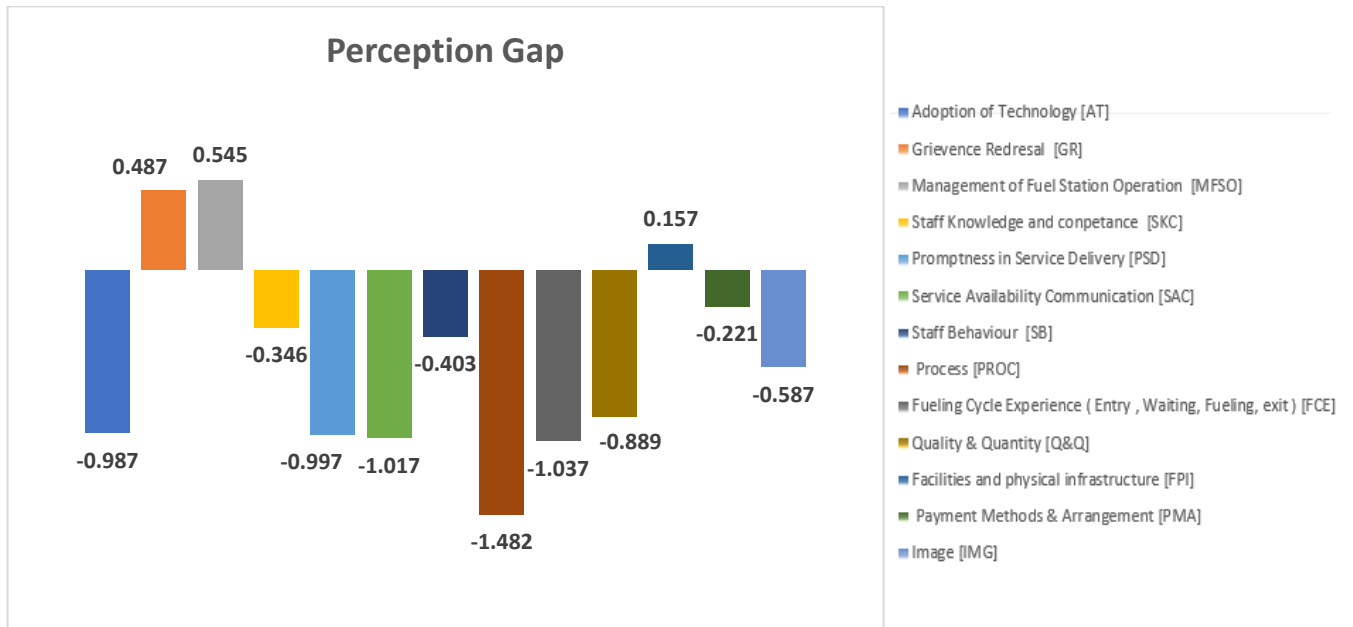


Figure 4:10: Metrics of Service Quality (Perception Gap)

4.3.14.3.4. Design and Standard Gap

The design and Standard Gap is the difference between OMCs' service design and standard and OMCs' perception of customer expectation (see Figure 4:11). Out of the four dimensions of service quality, only Grievance redressal (0.312), Management of fuel station operation (0.212), Service availability Communication (0.147), and Facilities and physical infrastructure (0.197) showed positive results for the Service and Design gap, suggesting a small gap.

Adoption of technology (-0.908), Fueling cycle experience (-0.998), Process (-0.867), promptness in service delivery (-0.877), and Image (-0.889) are five significant areas of concern for the Design and standard gap point of view.

The Design and Standard Gap within Petro retail service quality signifies the disparity between the service design and standards set by Oil Marketing Companies (OMCs) and OMCs' perceptions of customer expectations. This discrepancy is crucial in understanding where OMCs' actual service design and standards may fall short of what customers expect, as the figures underscore pronounced gaps in specific dimensions.

Examining dimensions with positive values, such as Grievance Redressal (0.312), Management of Fuel Station Operation (0.212), Service Availability Communication (0.147), and Facilities and Physical Infrastructure (0.197), reveals that OMCs' service design and standards align well with customer expectations in these areas. Positive values imply effective mechanisms for handling complaints, efficient planning and execution in station operations, clear communication on service availability, and a well-maintained, customer-friendly environment.

Conversely, dimensions with negative values, including Adoption of Technology (-0.908), Fueling Cycle Experience (-0.998), Process (-0.867), Promptness in Service Delivery (-0.877), and Image (-0.889), highlight significant gaps between OMCs' service design and standards and customer expectations. Highly negative values suggest potential shortcomings in technological integration, fueling cycle management, service delivery processes, promptness, and brand perception.

Thus, the Design and Standard Gap analysis reveals areas where OMCs' service design and standards do not align well with customer expectations. While positive values in specific dimensions suggest alignment, negative values in crucial areas highlight critical concerns. Addressing these gaps, especially in adopting technology, fueling cycle experience, process efficiency, prompt service delivery, and brand image, is essential for OMCs to enhance overall service quality and meet customer expectations in the Petro retail sector. The insights gained from this analysis can serve as a foundation for targeted improvements and strategic initiatives to bridge the identified gaps.

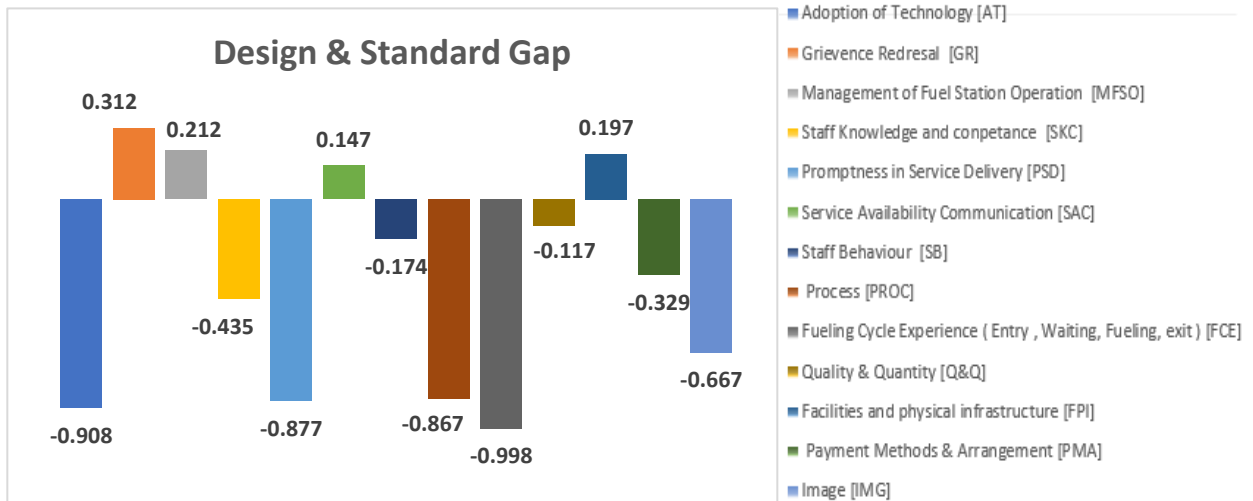


Figure 4:11: Metrics of Service Quality (Design and Standard Gap)

4.3.15. Reconceptualising the Service Quality Gap (Bilateral Approach)

In this section, we advocate a two-sided methodology for evaluating service quality within the context of Petro retail in India. The disparities between customer expectations and their perceptions of performance are identified as key indicators of service quality and are manifested as a service gap within the Gap model. The extent and direction of this gap are referred to as the service quality gap. However, petro retail customers may be restricted from comprehending these dimensions, and their perceptions may be influenced by preconceived notions stemming from hearsay, beliefs, and/or prior experiences. This phenomenon can potentially result in an inaccurate depiction of service quality gaps.

The OMCs' perspective on Petro retail service seekers' expectations will influence the service's design. It is crucial to comprehend the intricacies of quality from the standpoint of Petro retail suppliers (OMCs). Based on their evaluation of the service's crucial elements, OMCs can comprehend and mentally represent the required quality aspects. The discrepancy between the OMCs' perception of and actual customer expectations will reveal the knowledge gap (Wirtz & Lovelock, 2011).

Petro retail clients experience service performance at every stage of their fuelling trip. The

aggregation of various encounters culminates in developing an impression of the service provided. The researchers will assess the perceived performance of the service providers by comparing it to the customer's initial expectations before using the service. In order to have an efficient service delivery system, it is crucial to eliminate any discrepancies between the customers' experiences and the OMCs' interpretation of those experiences. The perception gap offers an opportunity to examine the delivery aspect of the service by comparing the experiences of Petro retail seekers with the view of Petro retail providers on the service provided (Brown & Swartz, 1989).

OMCs provide a range of service designs and standards to fulfil consumer expectations. They create and implement designs and standards based on their understanding of customer expectations. To ensure an efficient service delivery system, it is crucial to eliminate any discrepancies between the service design and the OMC's view of the customer's expectations. The discrepancy in this situation results in the Design & Standard Gap when the actual standard and service quality design deviate from the customer's expectation.

The service quality review will adopt a customer-centric approach, focusing solely on the perspective of Petro retail customers. The dominant position of OMCs in the Petro retail industry results in customers being hesitant to participate as co-producers of the service. Customers comply with the OMCs (Oil Marketing Companies) and stick to protocol due to their limited awareness and understanding of the technical components of Petro retail. Although we know the customer's expectations regarding the thirteen parameters of our instrument, a Petro retail OMC may fail to meet them. This will result in a significant decline or barely noticeable enhancement in the service quality at Petro Retail. The disparity between consumer expectations and the OMCs' view of their service delivery is a prevailing concept lacking much research evidence, particularly in Petro retail. Hence, it is imperative to consider the service quality discrepancy from both the customer's and OMC's viewpoints. Hence, a two-sided method for assessing the quality of Petro Retail services is suggested (see Figure 4:12 below).

Hence, a tool that encompasses the many aspects of service quality perceived by Petro retail customers and OMCs is necessary to assess these discrepancies. A proposed Bilateral Instrument of Service Quality Evaluation (BISQE) consisting of fifty-five items can be used to assess and

explore gaps in service, knowledge, perception, and Design and standard.

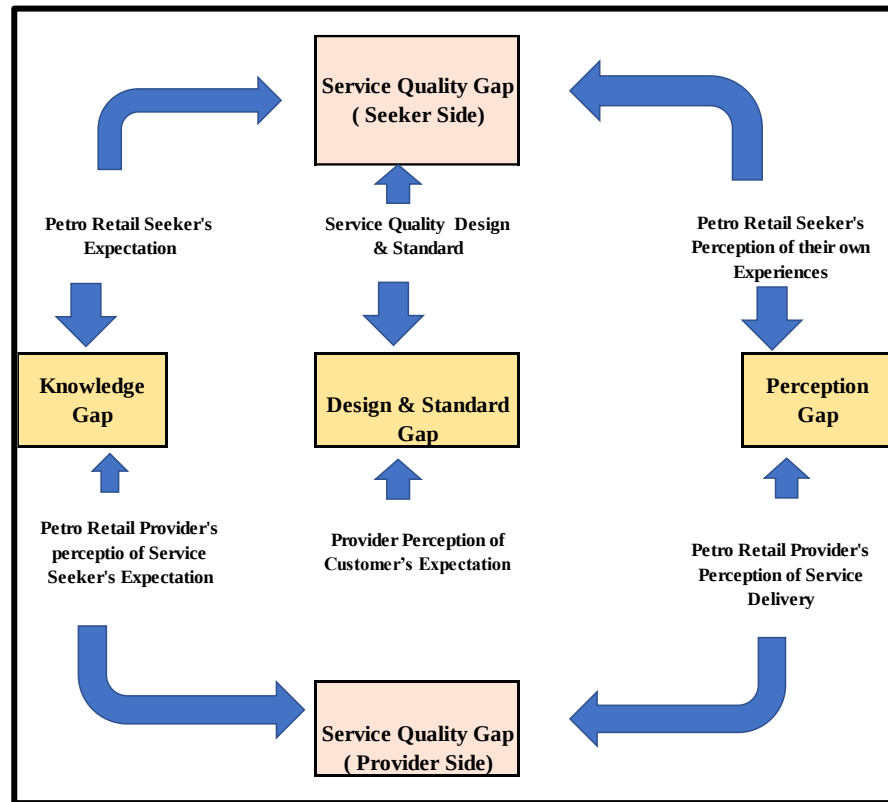


Figure 4:12: Bilateral Approach to Measure Petro Retail Service Quality

Exploring a bilateral approach to measuring the Service Quality Gap in the petrol retail sector is crucial, as it provides insights from both the providers' and customers' perspectives instead of the current viewpoint of the customer alone. Focusing on the providers' viewpoint, specifically the perceptions of Oil Marketing Companies (OMCs), allows for a deeper understanding of the disparity between how OMCs perceive customer expectations and customers' actual experiences. This approach is important because it highlights the differences between what OMCs believe customers expect and what customers truly experience, thus offering a more comprehensive view of the service quality gap. Considering both sides, this method helps identify misalignments, which can inform strategies for improving service delivery and closing the gap between perceived and actual service quality. Delving into the provided Figure 4:13, several dimensions emerge as contributors to the identified service quality gaps, each warranting detailed examination.

The first primary concern is the dimension of technology adoption, marked by a substantial gap of -0.886. This underscores a significant discrepancy between OMCs' perception of customers' expectations regarding technology adoption and the actual experiences customers undergo with implemented technologies, suggesting potential misalignment.

The Process dimension, with a gap of -0.497, highlights a noteworthy disparity in how OMCs perceive customers' expectations for service processes compared to the actual experiences customers face during Petro retail services. It signals potential inefficiencies or misalignments in the service delivery process.

Management of Fuel Station Operation, with a gap of -0.437, signifies a notable difference in how OMCs perceive customers' expectations of operational management versus customers' actual experiences. It indicates potential shortcomings in meeting customer expectations regarding operational efficiency.

The dimension of Promptness in Service Delivery, featuring a substantial gap of -0.767, indicates a significant difference between OMCs' perception of customers' expectations for quick service and the actual experiences customers undergo, implying potential delays or inefficiencies in service delivery.

The Fueling Cycle Experience dimension, with a gap of -0.974, points to a significant disparity in how OMCs perceive customers' expectations for a smooth fueling cycle versus the actual experiences customers undergo, suggesting potential disruptions or issues in different stages of the fueling process.

The Quality & Quantity dimension, reflecting a gap of -0.324, unveils a discrepancy between OMCs' understanding of customers' expectations regarding fuel quality and quantity and customers' actual experiences. This dimension highlights potential issues related to the accuracy and integrity of fuel dispensed.

Payment Methods & Arrangement, with a gap of -0.379, reveals a notable difference between OMCs' perception of customers' expectations regarding payment methods and arrangements versus the actual experiences customers face, suggesting potential inconveniences or dissatisfaction.

Service Availability Communication, featuring a gap of -0.377, showcases differences between OMCs' understanding of customers' expectations regarding clear communication on service availability and customers' actual experiences, indicating potential shortcomings in communication strategies.

With a gap of -0.312, Staff behaviour signifies a significant difference between OMCs' perception of customers' expectations regarding courteous and helpful staff behaviour and customers' actual experiences, implying potential issues with staff interactions.

Staff Knowledge & Competence, with a gap of -0.296, Staff Knowledge & Competence suggests a difference between OMCs' understanding of customers' expectations related to staff knowledge and competence and customers' actual experiences, pointing to potential inadequacies in staff training or knowledge.

The Image dimension, featuring a gap of -0.298, indicates differences between OMCs' perception of customers' expectations regarding the overall image of Petro retail outlets and the actual experiences customers encounter, suggesting potential disparities in brand perception.

Hence, these dimensions of significant concern in the Service Quality Gap from Petro retail providers' perspective, each accompanied by specific gap values, offer valuable insights into areas requiring attention and improvement. Addressing these gaps is crucial for aligning OMCs' perceptions with customers' expectations, enhancing overall service quality in the Petro retail sector. As revealed by these findings, the bilateral approach lays the groundwork for targeted interventions and continuous improvement initiatives to bridge the identified gaps effectively.

Table 4.14: Gaps in Service Quality Dimensions with Bilateral Approach

Service Quality Dimentions	Service Quality				
	Service Quality gap (Seeker Side)	gap (Provider Side)	Knowledge Gap	Perception Gap	Design & Standard gap
Adoption of Technology [AT]	-1.112	-0.886	-1.104	-0.987	-0.908
Grievence Redresal [GR]	0.126	0.174	0.452	0.487	0.312
Management of Fuel Station Operation [MFSO]	0.254	-0.437	0.394	0.545	0.212
Staff Knowledge and competance [SKC]	-0.679	-0.296	-0.449	-0.346	-0.435
Promptness in Service Delivery [PSD]	-0.893	-0.767	-0.986	-0.997	-0.877
Service Availability Communication [SAC]	-1.143	-0.377	0.239	-1.017	0.147
Staff Behaviour [SB]	-0.287	-0.312	0.326	-0.403	-0.174
Process [PROC]	-1.025	-0.497	0.354	-1.482	-0.867
Fueling Cycle Experience (Entry , Waiting, Fueling, exit) [FCE]	-1.112	-0.974	-1.021	-1.037	-0.998
Quality & Quantity [Q&Q]	-0.867	-0.324	-0.922	-0.889	-0.117
Facilities and physical infrastructure [FPI]	0.257	0.195	0.352	0.157	0.197
Payment Methods & Arrangement [PMA]	-0.667	-0.379	-0.453	-0.221	-0.329
Image [IMG]	-0.559	-0.298	-0.628	-0.587	-0.667

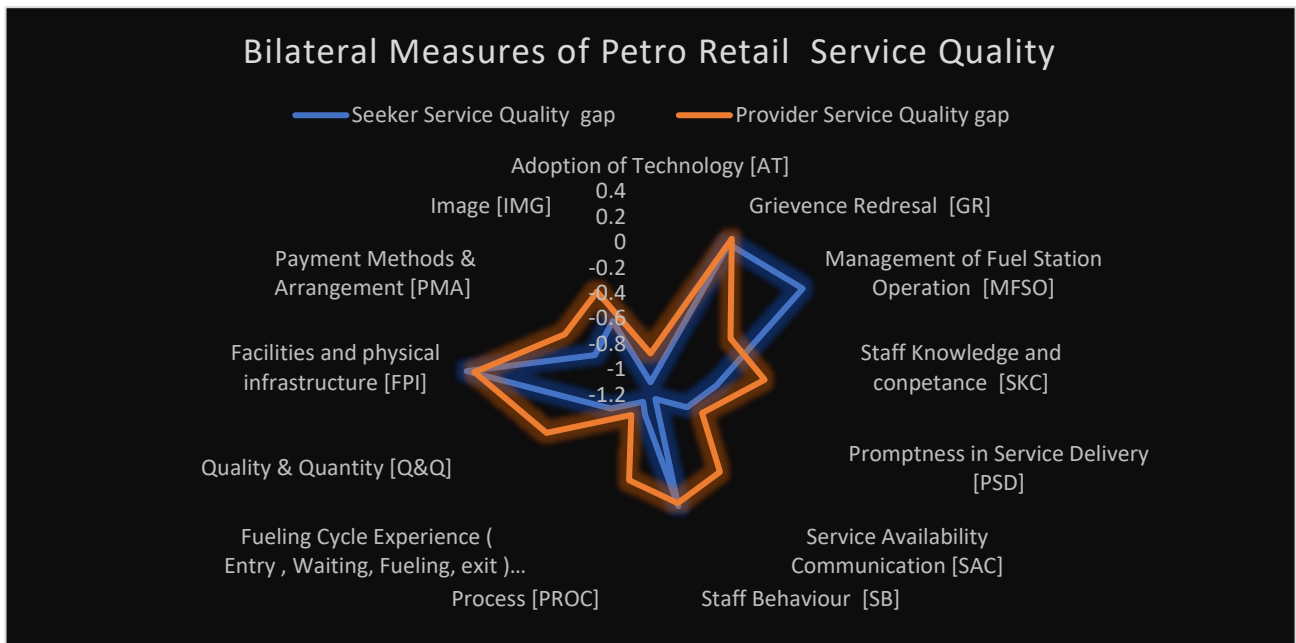


Figure 4:13: Metrics of Service Quality Gap (Provider Side)

Illustrated in Figure 4:14 is a comparative analysis of service quality perceptions between Petro Retail customers (seekers) and Oil Marketing Companies (OMCs) as service providers. The measurements on shared dimensions of service bring to light the challenge of relying solely on user-based evaluations to gauge service quality. This observation underscores our stance that evaluating petro retail service quality necessitates a bilateral approach, moving beyond the prevalent user-centric perspective. Notably, significant gaps are discernible in various dimensions, including Management of fuel station operation, Payment methods & arrangement, Image, Staff knowledge and competence, Quality and quantity, Service availability communication, and Process. These gaps, quantified through the respective values, signify substantial disparities between customer expectations and provider perceptions in these crucial aspects of petro retail service quality. Acknowledging these disparities emphasises the importance of adopting a comprehensive approach that considers both user expectations and provider perspectives better to understand service quality in the Petro retail sector.

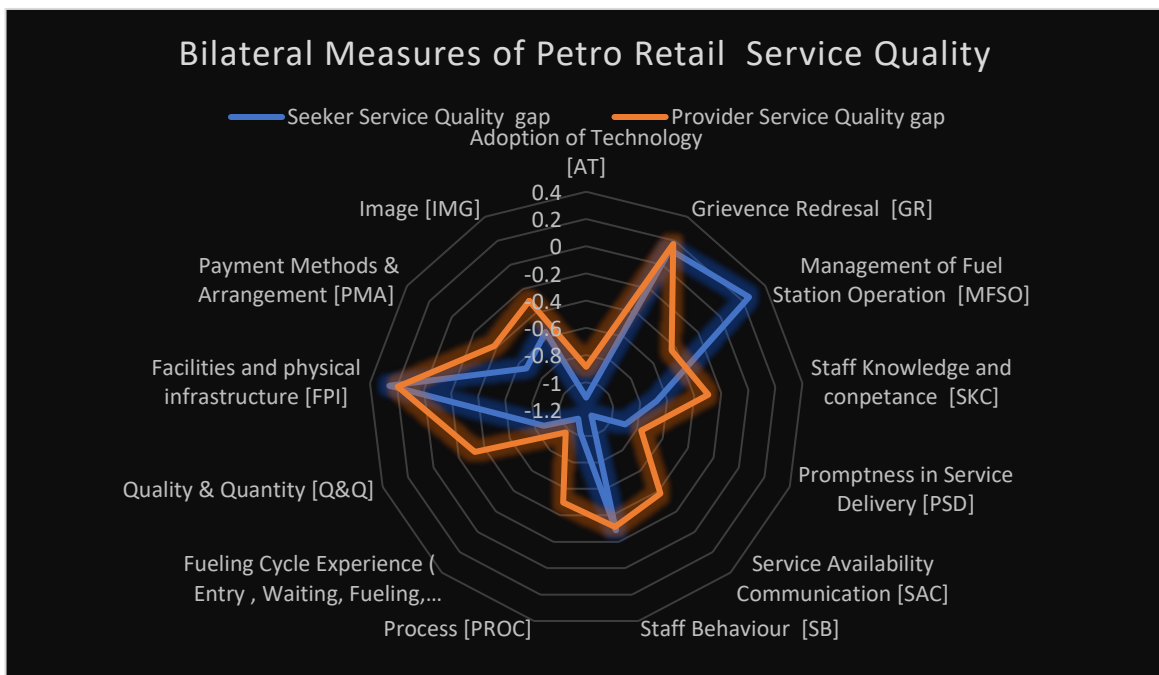


Figure 4:14 Metrics of Service Quality Gap (Seeker vs. Provider)

The existing research on Petro Retail service quality, both within the Indian and Global contexts,

has primarily relied on the SERVQUAL model, focusing on the RATER dimensions. The identified gap has been predominantly associated with tangible factors, with considerably lower emphasis on other dimensions. In contrast, the current study takes a comprehensive approach by uncovering gaps from both customer and provider perspectives. Notably, the study underscores the significance of the Design and Standards gap, emphasising its importance for Oil Marketing Companies (OMCs) in bridging the identified gaps by implementing appropriate designs and standards at fueling stations. Consequently, the study advocates a shift in how service quality measures are considered. Instead of adhering to the framework presented in Table 4.19, the proposed paradigm is encapsulated in Table 4.20, which offers a more nuanced and inclusive perspective. This adjusted approach aims to provide a more holistic understanding of service quality in the Petro Retail sector, encompassing user expectations and provider considerations. By acknowledging the multi-dimensional nature of service quality and the crucial role of design and standards, this study encourages a more comprehensive evaluation framework that aligns with the intricacies of the Petro Retail service landscape.

Hence, it can be said that.

- *Service Quality Gap (Seeker) = Petro Retail Seekers' Expectations – Petro Retail Seekers' Perception of their Own Experiences*
- *Service Quality Gap (Provider) = Petro Retail Providers' Perception of Service Delivery – Petro Retail Providers' Perception of Service Seekers' Expectations*

4.4. Technology Intervention in Bridging the Gaps

The examination of service quality gaps in the Petro Retail sector, as revealed through the literature review and the present study, has highlighted a significant deficiency within the "Adoption of Technology" dimension. Early in the research, the literature review identified a notable research gap regarding the insufficient exploration of technological advancements and their applications in Petro Retail in India regarding meeting customer expectations versus their actual experiences.

As part of our study, we recognised the research gap and engaged in a series of empirical

investigations, collaborating with Oil Marketing Companies (OMCs) while maintaining the anonymity of the involved entities in accordance with research protocols. The primary objective was to assess how adopting technology at fuel stations impacts various aspects, including Petro retail customer behaviour, expectations, overall experiences, and subsequently, its influence on the revenue generated by OMCs.

The study involved testing different technological interventions at fuel stations, offering a unique opportunity to gauge the direct impact of technology adoption on Petro retail dynamics. The findings illuminated how these technological infusions played a pivotal role in bridging all four identified service quality gaps under consideration.

The "Adoption of technology" dimension is crucial, encompassing the integration of innovative technological solutions within the Petro retail service delivery model. The study revealed that such technological interventions not only had a positive impact on customer behaviour but also significantly influenced their expectations and overall experiences at fuel stations.

The specific technological advancements tested during the study were tailored to enhance various aspects of Petro retail services. This included improvements in service efficiency, communication, and overall customer interactions. The outcomes demonstrated that technology adoption could effectively bridge the gaps identified in service quality, leading to an enhanced overall customer experience.

Moreover, the study also delved into the economic implications of technology adoption for OMCs, emphasising the direct correlation between the integration of technological solutions and revenue generation. The positive impact on revenue suggests that not only do these technological interventions contribute to customer satisfaction, but they also have the potential to bolster the financial performance of OMCs operating in the Petro retail sector.

The study's empirical investigations into technology adoption within Petro retail have uncovered valuable insights. The tested technological interventions proved to be instrumental in addressing and mitigating the service quality gaps identified earlier. This emphasises the transformative potential of adopting innovative technologies in Petro retail, not only in meeting customer

expectations and improving their experiences but also in positively impacting the financial performance of OMCs. The study, therefore, advocates for a strategic emphasis on the "Adoption of Technology" dimension to bridge service quality gaps and cultivate a more technologically advanced and customer-centric Petro retail environment.

The IoT system based on Closed-Circuit Television (CCTV) has emerged as a distinguishing factor and will enable the service provider to become the leading company in the industry. Random The congestion and lines that occur during the busiest times at the fuel station result in a dissatisfying experience for customers. This system effectively directs clients into designated lanes and available free spaces, resulting in a more enjoyable experience. The utilisation of Automatic Number Plate Recognition (ANPR) technology and the collection of consumer information allows service providers to develop tailored marketing and promotional initiatives based on their purchasing habits and behaviour. This would also allow OMCs to implement diverse business models that incentivise its network, such as varying commission rates and rewards for dealers, delivery persons, and forecourt personnel based on customer behaviour and sales patterns over time. Implementing CCTV-based Internet of Things (IoT) solutions has a beneficial effect in (i) improving customer experience. This includes ensuring customers have a seamless fuelling experience at petrol stations, with personalised programmes and effective communication. (ii) Enhance operational efficiency by reducing the duration of fuelling cycles, implementing effective traffic management strategies, ensuring compliance with safety protocols, and (iii) Strengthen brand reputation by focusing on acquiring and retaining new customers and implementing strategies for brand building.

Thus, the adoption of digital technologies, including IoT & AI-based solutions, may help in bridging the gap under the dimensions

- (a) Adoption of Technology
- (b) Management of fuel station operation,
- (c) Promptness in service delivery,
- (d) Service availability communication,
- (e) Process,

- (f) Fueling cycle experience and
- (g) Image.

The CCTV-based Internet of Things (IoT) system has become a distinguishing factor and will enable the service provider to secure the market leader position. Random The congestion and lines that occur during the busiest times at the fuel station result in a dissatisfying experience for customers. This technology application directs customers to designated lanes and guides them to accessible islands, resulting in a pleasant experience. The utilisation of Automatic Number Plate Recognition (ANPR) technology and the collection of customer information allows service providers to create tailored marketing and promotional initiatives based on the customers' purchasing patterns and behaviour. This would also allow OMCs to implement multiple business models that incentivise their network, such as offering varying commissions and rewards to dealers, delivery persons, and forecourt personnel based on consumer behaviour and sales patterns over an extended period. The Internet of Things (IoT) solutions that utilise Closed-Circuit Television (CCTV) technology have a beneficial influence in various domains like (i) Improved Customer Experience entails providing customers with a seamless fuelling experience at petrol stations, which includes personalised programmes and effective communication. (ii) Enhancing operational efficiency by shortening the duration of the fuelling cycle, implementing effective traffic management, and adhering to safety protocols. (iii) Strengthening brand reputation through new customer acquisition and retention strategies.

Hence, the implementation of digital technologies, such as the Internet of Things (IoT) and Artificial Intelligence (AI) solutions, could assist in closing the divide across various aspects such as (a) Adoption of Technology, (b) Management of fuel station operation, (c) Promptness in service delivery, (d) Communication of service availability, (e) Processes, (f) Fueling cycle experience, and (g) Image. The citation is from Purohit and Jain's work, published in 2020.

Source : (Purohit & Jain, 2020).

Another study on implementing IoT-based solutions has enhanced operation excellence, including a reduction in equipment downtime, consistency in service delivery and product availability

(Purohit *et al.*, 2021). This has led to the adoption of technology having the edge over dimensions such as management of the fuel station operation process and fueling cycle experience. Adopting technology in backend tech infrastructure enabled the OMCs to drive an AI and ML-based analysis to understand customer purchase patterns. (Purohit, 2021) thus helping OMCs to bridge the service quality gap concerning Design & standard gaps.

Integrating an RFID-based identification system with a dynamic forecourt display has become a distinguishing feature and will position us as the top service providers. RFID-based solutions have a beneficial effect on (i) improving the customer experience -customers desire a seamless fuelling experience, which includes customisation and receiving confirmation by SMS without any disruptions at the fuel stations. (ii) Improve operational efficiency by lowering the time it takes to refuel; (iii) Enhance brand-building efforts, including acquiring and retaining new customers; (iv) Develop better service delivery methods; and (v) Generate additional income for the service provider.

Thus, it bridges all the Four gaps under study. (Purohit & Jain, 2022)

5. CHAPTER 5: CONCLUSIONS

5.1. Introduction

This chapter explores the main findings obtained from the research, discussing the research issue and the related business difficulties. It highlights the additional value this research brings to measuring Petro retail service quality, emphasising how it offers insights into overcoming service quality barriers for enhanced production and delivery processes. This study highlights the importance of academic literature, specifically focusing on the development of theories, the use of methodologies, and the application of methods to measure the quality of Petro retail services. At the end of the chapter, there is a thorough examination of the results, emphasising the importance for scholars and researchers to treat the findings cautiously. Additionally, the chapter sheds light on potential areas requiring further exploration, acting as a guide for future research endeavours. This comprehensive exploration ensures that the significance of the research outcomes is acknowledged and translated into valuable insights for both academic and practical applications in Petro retail service quality.

5.2. Summary of the Research objective vis a vis the outcome of the study

5.2.1. Research Objective 1

To explore the significant attributes for evaluating service quality by customers and OMCs of Petro retail services

Findings: *Significant Service Quality Attributes under the PCP Model:*

1. Pivotal (End Product or Outcome)

- i. Adoption of Technology,
- ii. Grievance Redressal,
- iii. Management of Fuel Station Operation,
- iv. Staff Knowledge and competence,
- v. Promptness in Service Delivery,

- vi. Quality & Quantity

2. Core (Delivery System: People, Process, Organization. System)

- i. Service Availability Communication,
- ii. Staff Behavior,
- iii. process of service delivery
- iv. Fueling Cycle Experience (Entry, Waiting, Fueling, exit),

3. Peripheral (Differentiators / Frills)

- i. Facilities and physical infrastructure,
- ii. Payment Methods & Arrangement, and
- iii. Image

A detailed examination of significant service quality attributes within the PCP (Pivotal, Core, Peripheral) model specific to Petro retail unveils noteworthy findings. Drawing parallels with analogous information across diverse sectors enhances our understanding of the distinctive landscape of Petro retail service quality.

Pivotal Attributes, constituting the end product or outcome, embody crucial dimensions. Adopting technology stresses the integration of innovative solutions such as digital transactions, automated fueling systems, and IoT-based technologies. This mirrors the evolution seen in sectors like banking and e-commerce, where digital adoption is foundational. Grievance redressal, pivotal in telecommunications and hospitality, highlights the importance of effective mechanisms for customers to voice concerns and attain satisfactory resolutions. Efficient management of fuel station operations aligns with operational excellence sought in logistics and manufacturing. Staff knowledge and competence, emphasising skilled professionals and continuous learning, resonates with sectors like healthcare and education. Promptness in service delivery, integral to Petro retail, finds parallels in fast-food, logistics, and express delivery sectors where speed contributes to customer satisfaction. Quality and quantity assurance, fundamental to Petro retail, aligns with the stringent pharmaceutical and food industry standards.

Core Attributes representing the delivery system (People, Process, Organization, System) are essential components. Clear communication on service availability, akin to practices in airlines and public transportation, ensures customers are well-informed. Positive staff behaviour, crucial in hospitality and retail, contributes significantly to the overall customer experience. Streamlined service delivery processes are valued in banking and online retail, and customer convenience is prioritised. The fueling cycle experience mirrors customer journey mapping practices in theme parks and luxury retail, encompassing entry, waiting, fueling, and exit stages.

Peripheral Attributes, considered differentiators or frills, further enhance the Petro retail experience. Well-maintained facilities and physical infrastructure align with aesthetic considerations in hospitality and high-end retail. Offering diverse and convenient payment methods, as seen in e-commerce and dining, caters to varied customer preferences. Petro retail outlets' overall image and branding, influencing customer perception and loyalty, parallels the brand-building efforts in the technology and fashion sectors.

Thus, the PCP model unravels the intricate layers of service quality attributes specific to Petro retail, presenting a comprehensive framework for analysis. Comparative insights from other sectors highlight universal service quality principles and the unique nuances intrinsic to Petro retail. The emphasis on technology adoption, operational efficiency, and positive customer experiences aligns with broader trends in service-oriented industries.

5.2.2. Research Objective 2

To identify the gap in customer expectation and understanding of OMCs, including Design and standards for the same by OMC.

Findings:

A comprehensive 55-item bilateral instrument has been established to measure service quality in Petro Retail, with corresponding statistical values for reliability and validity checks. The details include:

1. **S-CVI / Ave:** The Scale Content Validity Index averaged an impressive value of 0.9312, indicating a high degree of content validity for the instrument.

2. **Cronbach's Alpha:** The overall reliability of the complete scale, comprising 55 items, is substantiated by a Cronbach's alpha of 0.937. This high alpha value suggests strong internal consistency and reliability of the instrument.

3. **Attribute-specific Cronbach's Alpha:**

- **Pivotal Attribute (24 items):** The 24-item Pivotal attribute section demonstrated a commendable Cronbach's alpha of 0.911, emphasising this subset's reliability and internal consistency.
- **Core Attribute (20 items):** The Core attribute section, consisting of 20 items, exhibited a robust Cronbach's alpha of 0.937, underscoring the reliability of this essential component.
- **Peripheral Attributes (11 items):** The Peripheral attributes, comprising 11 items, maintained a strong Cronbach's alpha of 0.901, indicating the reliability of this distinctive subset.

These statistical values not only confirm the overall reliability of the 55-item instrument but also highlight the consistency and dependability of specific attribute categories, reinforcing the instrument's efficacy in measuring service quality in the Petro Retail sector.

The analysis of the gap in Petro Retail Service quality observed from the study, including design and the standard gap, is represented below in **Table 5.1**.

Table 5.1: Gaps in Service Quality Dimensions with Bilateral Approach

Service Quality Dimentions	Service Quality				
	Service Quality gap (Seeker Side)	gap (Provider Side)	Knowledge Gap	Perception Gap	Design & Standard gap
Adoption of Technology [AT]	-1.112	-0.886	-1.104	-0.987	-0.908
Grievance Redresal [GR]	0.126	0.174	0.452	0.487	0.312
Management of Fuel Station Operation [MFSO]	0.254	-0.437	0.394	0.545	0.212
Staff Knowledge and competance [SKC]	-0.679	-0.296	-0.449	-0.346	-0.435
Promptness in Service Delivery [PSD]	-0.893	-0.767	-0.986	-0.997	-0.877
Service Availability Communication [SAC]	-1.143	-0.377	0.239	-1.017	0.147
Staff Behaviour [SB]	-0.287	-0.312	0.326	-0.403	-0.174
Process [PROC]	-1.025	-0.497	0.354	-1.482	-0.867
Fueling Cycle Experience (Entry , Waiting, Fueling, exit) [FCE]	-1.112	-0.974	-1.021	-1.037	-0.998
Quality & Quantity [Q&Q]	-0.867	-0.324	-0.922	-0.889	-0.117
Facilities and physical infrastructure [FPI]	0.257	0.195	0.352	0.157	0.197
Payment Methods & Arrangement [PMA]	-0.667	-0.379	-0.453	-0.221	-0.329
Image [IMG]	-0.559	-0.298	-0.628	-0.587	-0.667

The existing body of research on Petro Retail service quality, both in the Indian and global contexts, has been predominantly centred around the SERVQUAL model, which incorporates the RATER dimensions (Reliability, Assurance, Tangibles, Empathy, and Responsiveness). Previous studies have indicated that service quality gaps, as assessed by customers, were prominently identified in tangible factors, such as the physical facilities and equipment at fuel stations. Conversely, the gaps were reported to be relatively lower in the other dimensions, encompassing reliability, assurance, empathy, and responsiveness.

However, the significance of this current study lies in its comprehensive exploration of service quality gaps from not only the customer perspective but also the provider's viewpoint within the Petro Retail sector. Unlike previous research that primarily focused on customer perceptions, this study sheds light on the gaps perceived by both service providers, often represented by Oil Marketing Companies (OMCs), and the end-users, i.e. service seekers.

An intriguing finding of this study is the emphasis on the Design and Standards gap, highlighting its critical role for OMCs in narrowing down service quality gaps. Design and standards encompass the fueling stations' planning, layout, and overall specifications. The study suggests that strategically placing appropriate design elements and adhering to stringent standards at these stations could be instrumental in addressing and mitigating service quality gaps.

The Design and Standards gap is essentially concerned with the physical and infrastructural aspects of Petro Retail services, including the layout of the stations, the quality of equipment, and adherence to industry standards and regulations. By recognising the importance of this specific gap, the study implies that OMCs have a significant opportunity to enhance overall service quality by investing in the design and standards of their fueling stations.

In practical terms, this might involve optimising the layout of fuel stations for customer convenience, ensuring the reliability and modernity of equipment, and aligning with industry standards to meet or exceed customer expectations. The study highlights that addressing the Design and Standards gap contributes to the tangible aspects of service quality and can positively impact

other dimensions, such as reliability, assurance, empathy, and responsiveness.

In essence, the findings of this study offer a nuanced and multi-dimensional understanding of service quality gaps in the Petro Retail sector. It calls for a holistic approach that considers the traditional SERVQUAL dimensions and strategically focuses on the Design and Standards gap. This insight provides valuable guidance for OMCs aiming to refine their service delivery and elevate the overall customer experience at Petro Retail stations. It emphasises the need for a balanced and comprehensive strategy that encompasses both customer perceptions and strategic improvements in the design and standards of fueling stations.

5.2.3. Research Objective 3

To explore & propose a bi-lateral approach to measure Customers' and OMC's perspectives of Petro retail service quality gap

Findings :

A bilateral methodology for assessing the Petro retail service quality gap from both Customers' and OMC's viewpoints has been identified and presented in **Figure 5.1** below.

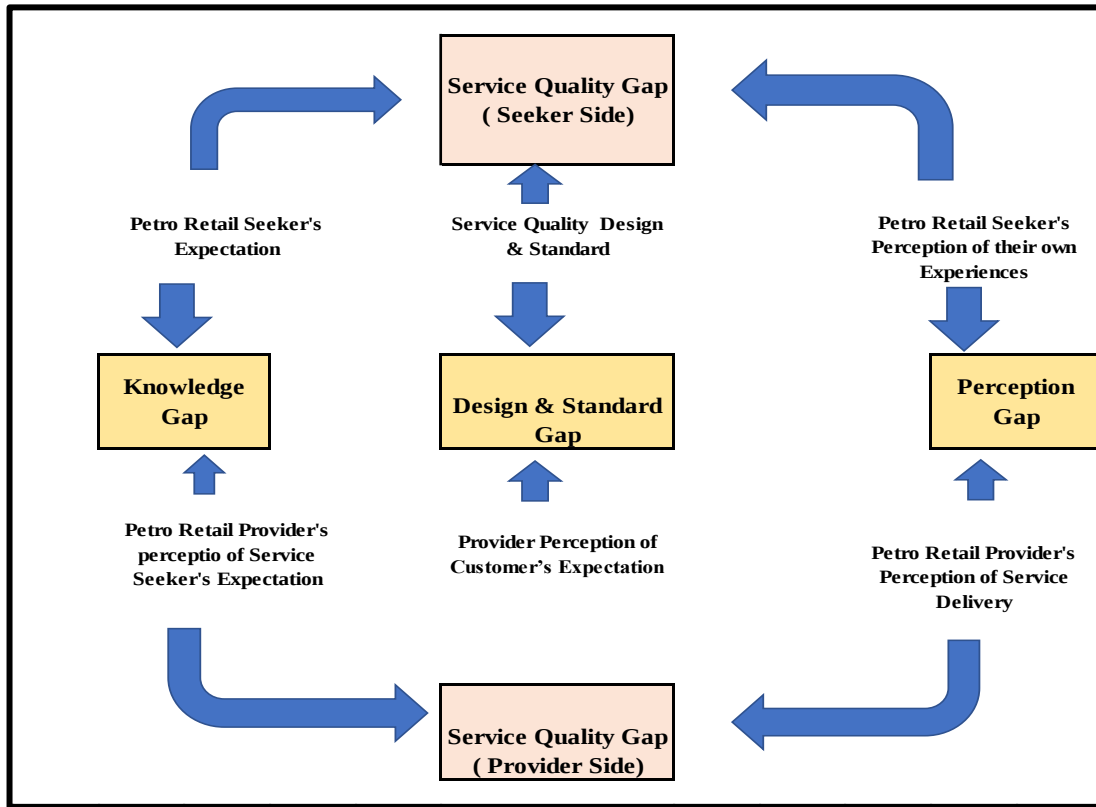


Figure 5.1: Bilateral approach for measuring service quality in Petro retail

The comprehensive elaboration and extension of the bilateral approach, as presented in Figure 5.1, probe into the exploration of various dimensions to measure both customers' and Oil Marketing Companies' (OMCs) perspectives on the Petro retail service quality gap.

1. Customers' Perspective:

- **Identification of Service Quality Gaps:** Customers' experiences and perceptions significantly influence Petro retail service quality. The bilateral approach involves collecting and analysing customer feedback on dimensions such as tangible factors, reliability, assurance, empathy, and responsiveness.
- **Technology Integration Assessment:** Customers' viewpoints include evaluating technology integration at Petro retail outlets, assessing transaction ease, fuelling process efficiency, and overall satisfaction with technology-driven service aspects.

- **Expectation and Experience Gap Analysis:** The bilateral approach allows intricate analysis of gaps by comparing customer expectations and actual experiences, providing insights into areas where services may fall short.

2. OMCs' Perspective:

- **Strategic Design and Standards Implementation:** OMCs focus on strategic planning and design standards at Petro retail outlets, setting service infrastructure, equipment quality, and compliance with industry regulations. The approach requires OMCs to align strategies with customer expectations.
- **Technology Adoption Evaluation:** OMCs assess the impact of technology adoption on Petro retail operations, evaluating its effectiveness in meeting customer expectations, enhancing operational efficiency, and contributing to revenue generation.
- **Performance Assessment:** The bilateral approach thoroughly examines the financial aspects linked to service quality for OMCs, investigating the correlation between “improved service quality”, “customer satisfaction”, and overall operational performance.

3. Comparison with Available Data:

1. **Existing Research:** The bilateral approach builds upon frameworks like SERVQUAL, adding a dual perspective by incorporating both customer and OMC viewpoints. It explicitly highlights the role of technology adoption and design standards in Petro retail service quality.
2. **Quantitative Data Analysis:** Available data is subject to a comparative analysis based on the identified dimensions in the bilateral approach. Quantitative metrics from customer surveys, OMC evaluations, and revenue data help assess the effectiveness of the approach in bridging service quality gaps.
3. **Continuous Improvement:** Comparing available data with the bilateral approach identifies areas of alignment and divergence, serving as a foundation for continuous

improvement initiatives. Adjustments can be made based on real-time feedback for more accurate measurements.

4. **Technology Impact Evaluation:** The approach emphasises technology's role in Petro retail service quality. Comparing available data on the impact of technology adoption allows a comprehensive evaluation of technology's role in addressing service quality gaps.

The illustrated bilateral approach provides a comprehensive and integrated framework for measuring Petro retail service quality from customers' and OMCs' perspectives. Through meticulous data analysis and continuous refinement, this approach aims to bridge gaps, enhance customer satisfaction, and contribute to the sustainable growth of Petro retail operations.

5.3. Interpretation Of Major Findings

In customer-processing services such as Petro retail, the simultaneous production and delivery of service are of utmost importance. Fuel stations depend on Oil Marketing Companies (OMCs) to drive the process of creating value, which is heavily influenced by service standards, settings, and the environment. Service seekers, the customers, evaluate the value created through their service experience. The essence of “simultaneous value creation and consumption” underscores the importance of a shared perspective between service providers and seekers in the context of Petro retail services. Hence, this research proposes a bilateral approach to measuring Petro retail service quality, considering viewpoints from both OMCs and customers.

Lack of awareness about the anticipated level of service of Petro retail service seekers can result in the destruction of value. Petro retail customers, often laymen, are typically unaware of what to expect in their service experiences. The technical complexity of Petro retail service delivery and inherent customer anxiety during service consumption make it challenging for them to assess the service accurately. Consequently, Petro retail customers rely on outcome-based or easily evaluable substitute measures for quality assessments. Although outcome-based assessments expose OMCs to vulnerabilities, consumers' judgements of service quality are based on alternative criteria such as amenities, physical infrastructure, and the image of the fuel station, which all have their shortcomings.

OMCs hold a dominant position in producing and delivering services, giving them an

advantageous position in assessing quality. Traditional quality measurement methods, such as quality & quantity checks, grievance redressal, and staff behaviour assessments, are well-established. However, effectively overseeing fuel stations and comprehending client expectations require service standards and design adjustments. This research strives to reconcile dissenting perspectives into a common understanding of Petro retail service quality and proposes a bilateral approach for measurement.

Enhancing service quality from an organisational viewpoint increases OMCs' profitability and provides a competitive edge. The research introduces a bilateral strategy that provides managerial insights into detecting service deficiencies from the viewpoints of OMC and customers. The study presents a questionnaire designed to measure the quality of Petro retail services in the Indian setting. It introduces a comprehensive approach that assesses service, knowledge, perception, and design & standard gaps. It is imperative to acknowledge that the constituents of service quality are context-specific and may vary in retail petroleum environments.

This study presents a comprehensive framework consisting of thirteen dimensions for evaluating the level of service quality in Petro retail, considering both perspectives. The adoption of technology, management of fuel stations, grievance redressal systems, prompt services, quality & quantity delivered, and professional knowledge and competence significantly impact the outcome of Petro retail services. The core dimensions, the heart of the delivery system, encompass people, processes, and organisational structure. Additionally, service availability communication, staff behaviour, the process of service delivery, and the fueling cycle experience constitute essential dimensions falling under the core attributes of Petro retail services. In order to distinguish one service from another, it is crucial to have other features or embellishments that are not the main focus. These supplementary characteristics in Petro retail services include amenities, physical structures, methods of payment and arrangements, and overall reputation.

The research sheds light on the transformative impact of technology implementation in bridging service quality gaps. The adoption of IoT-based technological solutions influences various Petro retail service dimensions, including the adoption of technology, management of fuel station

operation, promptness in service delivery, service availability communication, process, fueling cycle experience, and image. Moreover, technology adoption in backend tech infrastructure enables OMCs to conduct AI & ML-based analyses, understand customer purchase patterns and bridge service quality gaps related to design & standard.

The study presents compelling findings that explore significant service quality attributes within the Petro retail sector utilising the PCP model. Pivotal attributes, representing the end product or outcome, encompass dimensions such as technology adoption, grievance redressal, efficient management of fuel station operations, staff knowledge and competence, promptness in service delivery, and quality and quantity assurance. These dimensions align with advancements in banking and e-commerce, emphasising technology integration, operational excellence, and customer satisfaction.

Core attributes constituting the delivery system emphasise clear communication on service availability, positive staff behaviour, streamlined service delivery processes, and the fueling cycle experience. These dimensions align with practices observed in industries like airlines, hospitality, and banking, focusing on customer convenience and positive interactions.

Peripheral attributes, considered differentiators or frills, enhance the Petro retail experience with well-maintained facilities, diverse payment methods, and a positive overall image. These dimensions cater to varied customer preferences in e-commerce and dining.

The PCP model provides a comprehensive framework for analysing Petro retail service quality, emphasising technology adoption, operational efficiency, and positive customer experiences. A 55-item bilateral instrument has been established to measure Petro retail service quality, demonstrating high content validity and reliability. The instrument includes pivotal, core, and peripheral attributes, each exhibiting strong internal consistency.

Challenging the traditional focus on customer perceptions, the study introduces a bilateral approach that considers both customer and OMC perspectives. It identifies a critical Design and Standards gap, emphasising planning, layout, and adherence to industry standards at fueling stations to enhance overall service quality.

Comparisons with existing research highlight the uniqueness of Petro retail service quality and the importance of the proposed bilateral approach. The study underscores the impact of technology adoption on bridging service quality gaps, especially in dimensions like technology adoption, fuel station operation management, promptness in service delivery, and image. The study calls for a balanced and comprehensive strategy considering customer perceptions and expectations.

5.4. Contribution To Literature

A study's contribution is considered significant if it (i) broadens the theoretical boundaries of measuring metrics, such as service quality, (ii) enhances the existing methodology or research used, and (iii) employs innovative perspectives by providing relevant approaches for the topic at hand. Assessing the quality of petro retail services is challenging because of their considerable intangibility and variability. Fuel stations are a service industry that involves people processing, and the active involvement of the service provider and the service seeker is crucial. Limiting quality assessment to a customer-centric perspective will result in evaluations that underestimate the “significance of the provider's expertise, proficiency, abilities, service procedures, and procedural guidelines”. The recipient of the generated value, precisely the result of the service, is the client seeking Petro retail services. Nevertheless, to evaluate their experiences in creating value, it is necessary to examine the mutual exchanges during this process (Osei-Frimpong, 2017). The service quality approach, which is production-centric at the core, often neglects the critical aspects of petro retail. This can be seen in fuel station management, technology adoption and fuelling cycle experience. These aspects are often disregarded from the standpoint of the service providers. To fully comprehend the quality of oil retail services, it is essential to reconcile the divergent viewpoints of customers and providers in professional interactions.

5.5. Literature & Theoretical Contribution

Achieving consensus on the definition of petro retail service quality proves to be a formidable challenge, underscoring the widely acknowledged notion that it is inherently context-specific and subject to varied interpretations among stakeholders (Parasuraman, Zeithaml, & Berry, 1985b). The diverse service needs of stakeholders, encompassing providers and receivers, further complicates the evaluation of petro retail service quality, which is inherently dominated by

provider performances (Brown & Swartz, 1989). This recognition of the diversity of customer expectations prompts the consideration of substitute service quality measures, which go beyond conventional metrics and include aspects such as people, processes, organisational structure, and the frills associated with petro retail services (Dagger & Sweeney, 2007; Gilmore, 1998).

Key dimensions of service quality, including tangibility, reliability, responsiveness, empathy, and assurance, have been widely studied and are acknowledged to be context-specific, with each dimension holding relative importance solely from the customer's viewpoint (Ladhari, 2008; Otani et al., 2010; Singh & Prasher, 2019). This study takes a unique approach by adopting a professional bilateral exchange perspective between petro retail seekers and providers. It incorporates three critical attributes derived from Philip and Hazlett's (1997) model: pivotal, core, and peripheral. The study employs a mixed-method research approach to confirm the dimensionality of each attribute and proposes thirteen specific dimensions of service quality.

The pivotal attributes encompass crucial elements such as the Adoption of Technology, Grievance Redressal, Management of Fuel Stations, Staff Knowledge and Compliance, Promptness in Services, and Quality and quantity. The core attributes focus on the Process, Fueling Cycle Experience, Staff Behavior, and Service Availability of Communication. In contrast, the peripheral attributes include Facilities and Physical Infrastructure, Payment Methods and Arrangements, and Image. This comprehensive framework offers a nuanced and multifaceted view of petro retail service quality from both the seekers' and providers' perspectives.

Each identified attribute holds the potential to serve as a sub-scale for a thorough service quality assessment, thereby contributing to theoretical advancements in the field. The proposed fifty-five-item scale exhibits robust reliability and validity, providing a versatile tool for evaluating petro retail service quality. This instrument addresses the unique challenges of the petro retail sector. It can be adapted for application in other service sectors, making it a valuable contribution to the broader field of service quality research.

Furthermore, this study aligns with recent research that introduces trustworthiness as an additional dimension alongside the traditional SERVQUAL dimensions (Singh et al., 2020). The proposed

model's comprehensive nature is evident in its adequate addressing of trustworthiness within the pivotal, core, and peripheral service quality attributes.

The findings from the study also resonate with existing research on hospital service quality, where dimensions of pivotal, core, and peripheral attributes have been identified (Upadhay et al., 2021). However, this study on Petro retail emphasises the context-specific nature of service quality dimensions, highlighting the unique characteristics distinguishing Petro retail from other sectors. Despite the shared attributes under pivotal, core, and peripheral classifications, the dimensions exhibit distinctiveness, reflecting the unique challenges and nuances of the Petro retail environment.

The study offers a novel and comprehensive perspective on petro retail service quality, proposing a nuanced classification of thirteen identified dimensions under the PCP model. This innovative approach contributes to the theoretical foundations of service quality research and provides a practical instrument for assessing and improving service quality in the Petro retail sector. Recognising context-specific dimensions underscores the need for industry-specific considerations, offering valuable insights for researchers and practitioners.

5.6. Methodological Contributions

Prior research in the field of Petro retail service quality has been critiqued for its limited depth in incorporating the perspectives of both Oil Marketing Companies (OMCs) and customers when identifying relevant dimensions (Chahal & Kumari, 2010; Duggirala et al., 2008; Ramsaran-Fowdar, 2008; Singh & Prasher, 2019). These studies often fall short of comprehensively exploring the indirect psychology of individuals, which can only be unveiled through qualitative methodologies. Qualitative approaches involve individuals sharing their experiences, enabling researchers to derive nuanced meanings from these narratives. The absence of such studies adopting qualitative methods to delve into the feelings and experiences of petro retail customers and OMCs regarding service quality evaluations highlights a research gap. Consequently, many researchers have leaned towards survey-based approaches, yielding repetitive dimensions predominantly from the customers' perspective.

This study utilises an exploratory sequential mixed-method research methodology to develop a tool for assessing the quality of service in the oil retail industry, incorporating a two-sided viewpoint. The methodological approach aims to build a shared understanding and consensus on criteria for measuring service quality between OMCs and customers. Semi-structured interviews were conducted with a diverse group, including customers, fuel station staff, OMC officers, and managers, in alignment with the research objectives. Template analysis was then applied to extract meaning from the textual data obtained through these interviews. The items determined to reflect different aspects of petro retail service quality were then presented to a panel comprising petro retail consumers and OMC personnel. This stakeholder panel played a crucial role in identifying the underlying dimensions of petro retail service quality, incorporating both customer and OMC perspectives. The semi-structured interviews with customers provided insights into the seekers' viewpoint.

Conversely, the study also sought the providers' perspective by interviewing fuel station managers, staff, and OMC officers. The Modified Delphi technique, utilising an authoritative panel consisting of providers and seekers, was employed to triangulate and validate qualitative findings. This robust methodology ensured a holistic exploration of petro retail service quality by incorporating the viewpoints of both service seekers and providers. The qualitative insights gathered were validated through Confirmatory Factor Analysis, aligning with the thirteen identified Petro Retail service quality dimensions. This comprehensive approach enhances the reliability and validity of the study findings, contributing to a more nuanced understanding of petro retail service quality from both customers' and OMCs' perspectives.

5.7. Managerial Implications and Contribution to Industry

The traditional method of assessing service quality in Petro retail, commonly known as the service quality gap analysis, has primarily focused on understanding the disparity between “customer expectations and their perceptions of the delivered service”. This approach, often facilitated through surveys conducted by fuel station managers, tends to concentrate solely on the demand

side of the service delivery process, overlooking the crucial perspectives of service providers on the supply side and the vital role of participants, especially customers.

In response to this limitation, the Bilateral Approach proposed by this study takes a pioneering step towards a more comprehensive evaluation of Petro retail service quality. This innovative approach seeks to bridge two critical gaps by recognising the importance of integrating the service equation's demand and supply sides. The first is the discrepancy between the service's actual performance and the expectations of its customers. The second is the gap between the providers' perception of customers' expectations and their self-assessment of the service delivered. By addressing these gaps, fuel stations and Oil Marketing Companies (OMCs) gain a more holistic understanding of service quality from both customer and provider perspectives.

The Bilateral Approach is a diagnostic tool that provides insights into customer expectations and service performance discrepancies. If these discrepancies arise from a contradictory understanding of customer expectations by service providers, it indicates potential excess or shortfall in the effort exerted by them. Addressing this knowledge gap, which predominantly focuses on demand, becomes crucial. The proposed “Bilateral Instrument of Service Quality Evaluation (BISQE)” can be administered to uncover customer and provider expectations in advance. By closing this knowledge gap, petro retail managers and OMCs can align their strategies more effectively with customer needs, improving service quality.

On the other hand, the Bilateral Approach also encompasses the measurement of the perception gap, concentrating on service outcome measures. This involves assessing OMCs' perception of customers' expectations and the design & standard development of service quality. Specifically, it looks at the availability of facilities and processes to meet customer needs. Additionally, the Design and Standard gap diagnosis identifies any shortfall in service design against OMCs' perception of customers' expectations. This gap analysis is invaluable as it guides managers in designing appropriate service protocols and infrastructure, including technology adoption. The Bilateral Approach offers a more nuanced understanding of service quality determinants by addressing these gaps.

The proposed fifty-five-item Bilateral Instrument of Service Quality Evaluation (BISQE) is a comprehensive tool to investigate service quality gaps from Petro retail's supply and demand sides. The instrument not only identifies gaps but also aids in understanding the root causes, facilitating a more strategic and targeted approach to address these issues. With its inclusion of pivotal, core, and peripheral attributes, the BISQE enables a detailed examination of various dimensions affecting service quality.

To effectively address these gaps, the Bilateral Approach should be seen as an ongoing process rather than a one-time evaluation. Continuous surveys and feedback mechanisms using the BISQE will help in monitoring changes in customer and provider perceptions over time. This iterative process ensures that the identified gaps are not only addressed but also that improvements are sustained.

Thus, the Bilateral Approach to Petro retail service quality evaluation represents a paradigm shift from the traditional customer-centric focus to a more holistic perspective that includes both providers and customers. By closing knowledge and perception gaps, and with the aid of the comprehensive BISQE, fuel stations and OMCs can make informed decisions, implement targeted improvements, and ultimately enhance the overall service quality in the Petro retail sector. This approach contributes to a more sustainable and customer-centric service delivery model.

5.8. Societal Implication

In the contemporary business landscape, the advent of technology has significantly transformed the dynamics of customer buying behaviour. As consumers become increasingly tech-savvy, their expectations and preferences have undergone a paradigm shift. In this context, the PRSQ Instrument emerges as a valuable tool for comprehending and analysing the evolving customer landscape, explicitly aiming to bridge gaps and enhance the overall customer experience.

The PRSQ Instrument serves as a crucial mechanism for businesses to gain insights into the intricacies of customer interactions in the digital era. By leveraging technology exposure,

companies can now delve deeper into understanding the nuances of customer behaviour, preferences, and expectations.

One of the primary functions of the PRSQ Instrument is to identify gaps in the current customer experience. This could range from shortcomings in user interface design to communication channels, response times, or the overall efficacy of the customer support system. The instrument acts as a diagnostic tool, allowing businesses to pinpoint areas that require improvement in order to align with the ever-evolving expectations of the tech-savvy consumer.

Furthermore, the use of the PRSQ Instrument facilitates a comprehensive understanding of customer expectations beyond the immediate transactional aspects. It goes beyond merely meeting customers' basic needs; it delves into understanding the desires, aspirations, and preferences that drive purchasing decisions. This holistic comprehension is crucial for businesses to meet customer expectations, exceed them, and provide a differentiated and superior customer experience.

The insights derived from the PRSQ Instrument also play a pivotal role in identifying emerging trends and customer demands. By gauging these requirements, businesses can proactively innovate and tailor their offerings to meet customer expectations. This proactive approach enhances customer satisfaction and positions the business as a forward-thinking and customer-centric entity in the marketplace.

Ultimately, implementing the PRSQ Instrument is geared towards ensuring the business's and its customers' mutual benefit. By understanding and addressing gaps in the customer experience, businesses can enhance customer loyalty, foster positive word-of-mouth, and create a sustainable competitive advantage. In the rapidly changing landscape of customer expectations and technology integration, tools like the PRSQ Instrument have become indispensable for businesses striving to thrive in the digital age.

5.9. Limitations Of the Study

In providing a comprehensive understanding of the study's context, it is essential to acknowledge the specific lens through which participants expressed their views, beliefs, and feelings, focusing on the Petro retail sector within the confines of India. While caution is advised in generalising the study's findings to similar contexts, both within India and abroad, the data collected underwent rigorous scrutiny to meet established criteria for reliability and validity. It is worth acknowledging the potential for respondent bias in qualitative and quantitative data collection phases despite carefully considering sample size adequacy and adherence to procedural and statistical guidelines. Recognising that analysis techniques have inherent strengths and limitations, steps were taken to ensure that the applied techniques met the necessary assumptions.

While often practical, convenience sampling can introduce significant biases and limit the generalisability of research findings. This sampling method typically selects participants based on their ease of access rather than through a process that ensures the representativeness of the broader population. As a result, the sample may not reflect the full diversity of relevant characteristics of the target group, potentially skewing the results and undermining the study's external validity. However, keeping in mind the Petro retail customer touch points, the sampling process is more relevant.

The Bilateral Approach for measuring service quality explicitly addresses the knowledge gap, encompassing measuring customer expectations and Oil Marketing Companies (OMCs) perceptions of these expectations. However, it is essential to recognise the nuanced nature of customer expectations, which may vary across different contexts, such as urban, rural, or highway settings. This variability implies that comparing fuel stations solely based on consumer expectations using the proposed instrument may not be advisable. Instead, the questionnaire is better suited for comparing customer experiences within different fuel stations and assessing OMCs' perceptions of their performances. This consideration underscores the need for a tailored approach that aligns with the diverse expectations prevalent in various Petro retail settings.

5.10. Future Research Opportunities

In India, there is a significant discrepancy in how individuals seek out Petro retail services, posing issues for both clients and the Petro retail system. Customers have challenges related to knowledge, availability, and cost, while the Petro retail system itself encounters difficulties with responsibility and a lack of competent workforce. Despite these challenges, there has been a noticeable absence of substantial efforts in recent times to address these critical areas, underscoring the need for increased attention. Additionally, tackling the know-how gap and enhancing the overall efficiency of the Petro retail delivery system emerges as a significant and pressing challenge.

Amidst these challenges, customer satisfaction is a central concern in the Petro retail landscape. Customers, often in a state of haste, encounter anxiety during their visits to fuel stations, making it imperative to establish proper service design and delivery standards. The seamless integration of these elements is crucial to ensuring a positive and satisfactory experience for customers navigating the Petro retail environment. Addressing these multifaceted challenges requires a concerted effort to bridge the existing gaps and elevate the Petro retail system to meet its diverse customer base's evolving needs and expectations.

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List Of Publications:

1. Purohit, S., Jain A K (2023), *Technological transition to the Internet of Things (IoT) in the Indian Oil & Gas Business & Economy*. Empirical Economics Letters, vol 22, special issue 1, July 2023, pp 263-276 (ABDC)
2. Purohit, S., Jain A K (2023), *Commodity to service-based offering: A Petro retail service quality journey*. Empirical Economics Letters, Vol 22, Special Issue 2 (November 2023), pp 379-398 (ABDC)
3. Purohit, S., Jain A K (2023), *Participants' Perspectives on Petro Retail Service Quality in India: A Qualitative Approach*. Empirical Economics Letters, Accepted (ABDC)
4. Purohit, S., Jain A .K. (2024), *Development and validation of a scale for measuring petro retail service quality: a bilateral approach*. European Economics Letters, Vol 14, Issue 1 (2024), pp 213-227 (ABDC)
5. Purohit, S., Jain A .K., Purohit,S. (2024), *Tech-Infused Customer Service: A Journey of Evolution in Indian Petro Retail*. Korean Review of International Studies, Volume 16, Special issue 10. November 2023 pp 202-212 (ABDC)
6. Purohit, S., Jain A .K., Purohit,S. (2022), *Drivers of Customer Experience in Petro Retailing in India*. AIMS International Journal of Management, Volume 16, Number 2, May 2022, pp. 105- 119 (Peer Reviewed, UGC Approved)
7. Purohit, S., Jain A .K., Purohit,S. (2022), *RFID: The Silver Bullet for Seamless Indian Petro Retail Customer Service*. Indian Journal of Science and Technology, Volume: 15, Issue: 43, Pp: 2290-2296 (WOS, UGC Care-II)
8. Purohit, S., Jain A .K., Purohit,S. (2021), *Evaluation Of The Efficacy Of Iot Deployment On Petro retail Operations*. Turkish Journal of Computer and Mathematics Education,

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10. Purohit, S., Jain A .K. (2020), *Technological transition from analogue to internet of things (IoT) on Indian Petro retail's customer service*. Indian Journal of Science and Technology, Volume: 13, Issue: 42, Pp: 4364-4368 (WOS, UGC Care-II)
11. Purohit, S., Jain A .K. (2020), *Evolution of Fuel Retail in India Vis-à-vis Indian Customers: Shift in Customer Behaviour*. International Journal of Management (IJM), Volume: 11, Issue: 8, Pp: 199-207 (SCOPUS, UGC Care-II)

Paper Presentation International / National Conferences

1. " Mitigating Covid Impact on Fuel Retail Services using Technology " at the *18th AIMS International Conference on Management* organised by AIMS and Jaipuria Institute of Management, Indore, in March 2021
2. " RFID: The Silver Bullet for Seamless Indian Petro Retail Customer Service " at the *19th AIMS International Conference on Management* organised by AIMS and Jaipuria Institute of Management in January 2022
3. "Experience v/s Expectations in the Digital Era In Petro retail" at *International Conference in Management (IIM-BG)*, April 2023
4. "Eliminating Deceits And Enhancement of Customer Satisfaction in Petro Retail" at the *21st AIMS International Conference on Management* organised by AIMS and Symbiosis Institute of Management, Indore in March 2024

Annexures:

(i) Annexure I: List of Journals Consulted for Literature Review on Petro Retail Service Quality

Sr no	Journal Name	Selected Items
1	Applied Economics	1
2	Asia Pacific Journal of Marketing and Logistics	2
3	Asian Journal of Management	3
4	Australian Economic Papers	1
5	Benchmarking: An International Journal	2
6	Clinical Governance: An International Journal	1
7	Communications of the ACM	1
8	Energy Policy	2
9	Engineering Economics	1
10	European Journal of Business and Management	1
11	European Journal of Marketing	1
12	Harvard Business Review	1
13	Health Services Research	2
14	Innovative Marketing	1
15	International Journal for Quality in Health Care	2
16	International Journal of Business and Management	3
17	International Journal of Business and Social Science	2
18	International Journal of Business Information Systems	4
19	International Journal of Consumer Studies	2
20	International Journal of Energy Production & Management	2
21	International Journal of Engineering and Management Research	2
22	International Journal of Entrepreneurship and Management Practices	2
23	International Journal of Health Care Quality Assurance	1
24	International Journal of Humanities and Social Science	2
25	International Journal of Pharmaceutical and Healthcare	1
26	International Journal of Quality & Reliability Management	2
27	International Journal of Quality in Healthcare	1
28	International Journal of Technology Intelligence and Planning	2
29	Journal of Advertising Research	1
30	Journal of Business Research	2

31	Journal of Consumer Research	2
32	Journal of Contemporary Management	1
33	Journal of Economics & Management Strategy	2
34	Journal of Energy and Economic Development	1
35	Journal of Facilities Management	1
36	Journal of Global Information Technology Management	1
37	Journal of Health Management	2
38	Journal of Indian Business Research	2
39	Journal of International Management studies	1
40	Journal of Marketing	5
41	Journal of Marketing & Communication	1
42	Journal of Marketing Research	3
43	Journal of Methods and Measurement in the Social Sciences	1
44	Journal of Retailing and Consumer Services	2
45	Journal of Retailing	2
46	Journal of Service Research	4
47	Journal of Services Marketing	3
48	Journal of Services Research	3
49	Journal of the Academy of Marketing Science	1
50	Managing Service Quality: An International Journal	2
51	Procedia Economics and Finance	2
52	RAND Journal of Economics	1
53	Research Journal of Commerce & Behavioural Science	1
54	Research Journal of Business Management	2
55	Social Science & Medicine	1
56	Sustainability	1
57	The Energy Journal	1
58	The IUP Journal of Marketing Management	1
59	The Journal for Decision Makers	2
60	The Quality Management	1
61	The XIMB Journal of Management – Vilakshan	1
62	Total Quality Management & Business Excellence	2
Total		107

Source: Author's literature review

(ii) **Annexure II: A Literature Review on themes (for customer expectations) with contributions along with inferences and gap**

Author (Year)	Contribution	Inferences	Finding / Gap
Kotler et al., 2004	Significant deregulation has been observed in major manufacturing and service industries globally, such as communication, transportation, energy and banking which has resulted in intense competition in these industries	Service firms can differentiate themselves by delivering consistently higher service quality than their competitor	i. De-regularisation is across industries ii. Increase usage of social media to connect with customers for personalisation iii. Usage of modern algorithms and digital technologies for customer targeting iv. Customer relation-building using VR and other modern technologies in the customer buying journey
Gilbert & Veloutsou, 2006	Consumer satisfaction is derived from the customer's comparison of the customer's experience with a service episode, contrasted with the customer's service expectation. Service quality varies within industries	Organisations competing are obliged to keep an eye on comparable market niches - both the practices of their competitors and their behaviour to attract and retain their customers	
Moran et al., 2014	Social media is becoming increasingly pivotal in marketing strategies, with companies leveraging these platforms to enhance their brand presence and cultivate more enduring customer relationships.	Companies increasingly leverage social media in contemporary business to engage with their customers more personally and directly.	
HCM Sales, Marketing & Alliance Excellence Essentials, 2017	Global retail has significantly changed due to technological advancements in customer habits and expectations.	Empathy and active listening are vital for elevating customer service. Moreover, technological advancements and the digital space have profoundly impacted consumer decision-making.	

Bigelow,2019	There is a rising trend of exchanging customer information among different service industries to analyse purchasing patterns. This practice enables the design and delivery of tailored services to target segments, ultimately enhancing the customer experience and improving service offerings.	Increasingly sophisticated customer targeting algorithms of major digital firms like Google and Facebook	
Farah et al., 2019	Virtual reality (VR) is positioned at the convergence of consumer experience, shopping journeys, and traditional retail environments. However, a disparity exists between the expectations fostered by VR usage and the actual in-store experience.	The shopping journey demonstrates a transition from a linear to a nonlinear trajectory concerning brand interactions. Moreover, integrating VR into the customer shopping journey presents risks and potential rewards.	
Ajayi, 2017	Efficiency at the forecourt of fuel stations holds significant importance in shaping customer perceptions and satisfaction. Inadequate staffing, inefficient fuel pumps, and long queues are frequent causes of the poor service provided at Nigerian Petrol stations	Adequate staffing and efficiency in fuelling are essential for creating customer perception & satisfaction	

- i. Introduction of technology impacted customer buying behaviour.
- ii. Customer services improved over time to meet customer choices & preferences.
- iii. Customers are better served to meet their expectation

Emek <i>et al.</i> , 2017	Self-service pump adoption dramatically reduced the number of personnel at petrol stations in the United States, transferring their responsibilities to customers. This change has contributed to distinguishing the customer purchasing journey and increasing productivity.	Introduction of technology impacting customer buying behaviour	via adequate staffing and efficiency.
<i>White paper on Oil and Gas Industry Digital Transformation Initiatives, World Economic Forum, 2017</i>	Oil and gas firms have heavily invested in incorporating mobile devices into their daily operations. This involves using specialised software for real-time data monitoring, which enhances workflow efficiency, facilitates better group communication, boosts worker productivity, and improves field data recording.	Technology adaptation in the upstream oil & gas industry, however, few on the downstream side	Low adaptation of technology in Petro retailing
Jens <i>et al.</i> , 2018	In a deregulated environment, fuel prices, particularly for diesel, tend to be lower in highly competitive local markets within Austria.	Competitive pricing in a de-regularised scenario in the local market	Countries adopted digital platform as national policy to support companies to meet customer preferences and choice
Stokkeland, Reinert, 2019	To capitalise on the advantages of the traditional industry, governments in numerous nations have developed digital platforms, with an emphasis on bolstering and assisting small and medium-sized businesses within their borders. The strategy is the source of large economies with a wide range of diverse economies, such as the USA, China, Germany, Japan, and Sweden.	Adaptation of Digital platform as a national strategy towards support of the companies in the respective countries	
Jens <i>et al.</i> , 2018	In a de-regularized scenario, the price of fuel, especially diesel, is lower in more competitive	Competitive pricing in a de-regularized scenario in the local	Countries adopted digital platform as

	local markets in the Austrian context.	market	national policy to support companies to meet customer preferences and choice
Stokkeland, Reinert, 2019	Many governments worldwide have implemented digital platforms as part of their national strategies to bolster traditional industries, mainly supporting and fortifying small and medium enterprises (SMEs). This strategy, pioneered by significant economies such as the USA, China, Germany, Japan, and Sweden, has garnered attention from diverse economies globally.	Adaptation of Digital platform as a national strategy towards support of the companies in the respective countries	
Pandey & Rai, 2014	As organised retail gains popularity, small retailers have adopted various strategies to remain competitive. These include offering value-added services such as competitive Pricing, ensuring high-quality fresh produce and a wide range of exotic fruits and vegetables, maintaining clean and hygienic store displays, providing home delivery and credit facilities, offering a diverse product variety, delivering excellent customer service, and creating an inviting in-store ambience.	Introduction Value-added services for survival by small retailers	i. Attributes like price, trend, and market conditions greatly influence purchase decisions. ii. Quality of services is a factor for customer loyalty. iii. Existence of a meaningful relationship between customer loyalty & satisfaction iv. Rapid change in customer buying behaviour in the retail sector in

			India. v. Customers prefer organised retailing in Tier 1 and Tier 2 cities over unorganised retailing vi. Modern lifestyle enhanced shopping expectations and buying behaviour.
Menaka & Chandramana, 2014, Atkinson et.al., 2019	Modern lifestyles significantly impact modern retailing despite its cost-effectiveness. Hence, to understand customer buying behaviour, it is required to identify different lifestyles, socioeconomic strata, and shopping patterns. Consumers anticipate an improved shopping experience, leisure activities, cordial exchanges, and an extensive selection of goods and services..	Due to the modern lifestyle, customer shopping expectations have been enhanced, and a change in buying behaviour has also been observed.	
Sahney, 2016	International exposure, product availability, and brand communication are the attributes that drive India's organised retail market. Convenience and variety make organised retail the favoured option.	India's retail industry is growing due to a number of factors, including urbanisation, rising income, demographic changes, and the internet revolution.	

Kumari &Devi, 2016	Consumers also prioritise related services like vehicle wash, air pressure checks, and convenience stores, so fuel retailers must plan ahead and provide services appropriately to keep customers.	Value-added & allied services are also prime customer needs and play an essential role in customer retention	i. Competition enhances the promotional program by OMCs.
Kaushik et al.,2017	Installing a biometric verification system in fuel stations to guarantee a safe and cashless system and prevent cash theft	Introduction of technology for increasing fuel stations' efficiency	ii. Increasing demand at petrol stations for non-fuel sales. The needs of customers vary by area, population, etc.
Arokkiasamy, & Sumathi ,2017	The installation of a solid-state controller to record each transaction made at the petrol station, and it can be tracked & monitored at a later time as well to help bring transparency	Introduction of automation for tracking & monitoring of transactions	iii. Allied services are also prime customer needs and play an essential role in customer retention
Rao & Prasad, 2017	The management of fuel stations has been automated centrally. Fuel stations can operate automatically thanks to automated tank gauging systems for fuel level indicators and automated fuelling linked to quantity available in RFID and GSM-based petro-cards		iv. Technology adaptation and advancement w.r.t customer service, experience & satisfaction
Kavitha & Mary,2018 , Patel & Yadav ,2020	The two most important factors to consumers are fuel quality and quantity. Customers also need related services, including air pressure checks, windscreen cleaning, maintenance, and rest areas. Consumers anticipate that the amount and quality of fuel will		ii. Gap in Customer expectation and OMCs service offering

	determine their satisfaction, and extra amenities like air pressure, ATMs, and toilets are crucial for keeping consumers coming back.		
Priyadharshini & Divya, 2019	The two most important factors to consumers are fuel quality and quantity. Customers also need related services, including air pressure checks, windscreen cleaning, maintenance, and rest areas. Consumers anticipate that the amount and quality of fuel will determine their satisfaction, and extra amenities like air pressure, ATMs, and toilets are crucial for keeping consumers coming back.		ii. Technology adaptation and advancement w.r.t customer service, experience & satisfaction
Suresh & Krithika, 2019; Ali & Fatima, 2023	Refuelling with petrol or oil and the services provided in retail establishments are closely related. One commodity is petroleum or “product with the same price” in India under the jurisdiction of the Indian government. Petroleum products, however, have undergone a significant metamorphosis from a low-engagement, homogenous commodity to a high-engagement brand that encompasses consumer satisfaction through a wide range of offerings in petroleum retail outlets, ranging from several gateway counters to Automated Teller Machines (ATMs).		Petro retail is a service-based commodity, and Customer happiness and the services provided are significantly correlated

Das, 2019	In the Indian retail petroleum sector, implementing technology like the Internet of Things (IoT) will benefit five areas: people, technologies, processes, data security, and competitive advantage.	Using cutting-edge technologies will contribute to converting the current fuel retail locations into “smart pumps” and fully realise the expected benefits from the technology investment.	Customer expectation vs OMCs offering/perception w.r.t product & services in the light of technological advancement
World Economic Forum, white paper on Digital Transformation Initiatives of Oil and gas industry, 2017	Oil and gas companies have invested heavily in the integration of mobile devices into their everyday operations. This includes the use of specialised software for real-time data monitoring, which enhances workflow and improves group communications, worker productivity, and field data recording	Oil and gas companies have invested heavily in back-end infrastructure for collecting & analysing data	i. Oil companies invest heavily in technology on the upstream side.
Tech Trends, Deloitte Insights, 2018	Cloud computing, automation, and other technologies are being utilised by oil and gas businesses to revolutionise their back-office processes, operations, and platform and product offerings. Cloud, cognitive, and other digital disruptors play a major role in enabling innovative products, novel customer experiences, and rewired industry ecosystems.	Oil companies made advancements in technology usage for back-office systems	ii. They have also invested in the backend office system in the downstream
GEO ExPro: Article – Digital Technology Trends in Oil and Gas Industry by Dean Baker,	Upstream, global oil majors are utilising big data and artificial intelligence. There are very few downstream applications, and even those are restricted to		iii. The fuel station is at the last mile of the point of sale.

RISC (UK), July 2019	governance and data availability.		
Automation Industry Association: Automation in Petroleum Retailing, 2020	Fuel stations are the last "point of sale" in the petroleum supply chain. Because they interact with the ultimate customer, they take on a key role in the chain's overall functionality. In order to maintain competitiveness, technology implementation in the areas of transaction data, sales volumes, market prices, pricing regulations, asset utilisation patterns, usage patterns, and customer and retail network demographics Optimism and mechanised retail processes, Outward demonstration of appropriate product quantity and quality, Numerous retail offers at the point of sale, loyalty programs based on consumption patterns, remote operations monitoring, and providing different payment and filling alternatives at the forecourt are all necessary to investigate.	The last mile of a supply chain is the fuel station, and in the Indian context, technology adoption is required to be on a competitive edge and to provide better customer service	iv. Adoption of technology at fuel stations seems marginal.
			v. Gaps in technology adaptation to meet Customer expectations exist.

Das Sudip, Kumar Pokhriyal Shailendra, Fernandez Geo Jos, and Patra Debesh Chandra. 2016	By merging IT (Information Technology) and OT (Operations Technology), IoT can contribute to the development of a dynamic and flourishing ecosystem. IoT is a revolutionary, networked technology that is redefining business and opening up new avenues for generating cash. Additionally, it contributes to increased pipeline integrity and operational efficiency.	IoT is the way of doing business.	i. The upstream industry uses IOT more frequently, mostly for production and exploration. The IOT systems installed at the Wells & Rigs are handling remote service, predictive & preventive maintenance, asset tracking & monitoring, health & safety issues, as well as data management.
https://www.sierawireless.com/applications/energy/oil-and-gas/ , 2018	By collecting real-time sensor data and conditions, connected IOT solution companies can: (i) reduce costs by increasing automation and monitoring of remote processes; (ii) improve workplace safety and environmental protection; (iii) increase operational efficiency through more accurate billing, loss prevention, and better maintenance strategies, including off-shore equipment; and (iv) increase equipment reliability and longevity through remote monitoring and data collection.	IoT brings efficiency and lowers costs.	
Das Sudip. 2019	Multiple factors have contributed to the adoption of IoT at Indian Oil Marketing Companies (OMC) fuel stations. Of these, 5 factors - People, Technologies, Processes. To fully reap the anticipated benefits from the investment in IoT and to convert the current retail outlets (RO) into "smart pumps," data security and	Oil companies made advancements in technology usage for back-office systems	ii. In the Indian Petro retailing scenario, IoT solutions are needed to fulfil customer expectations through improved service quality, which maximises return

	competitive advantage are required		on investments and results in benefit realisation
Kodali Rekha,2020	Scalability and security should be considered when architecting the IOT solution. Cloud-based architecture can help eliminate the constraints posed by future user and data growth.	IoT can eliminate constraints and enhance efficiency.	

(iii) Annexure III: Dimensionality of Service Quality

1	2	Hansen et.al. 2008; Wongrukmit & Thawesaengkulthai, 2014
2	1	Butler et.al. 1996
3	3	Choi et.al., 2004; Pai & Chary, 2015; Senic & Marinkovic ,2012
4	7	Baltussen et.al., 2002; Chahal & Kumari, 2010, Dagger et.al., 2007; Duong et.al., 2004, Mostafa, 2006; Narang, 2010, Satsanguan, 2015
5	25	Arasli et.al., 2008; Bakar, 2008;, Hasin et.al., 2008; Irfan et.al., 2001; Otani, 2010; Purcarea et.al., 2013; Rao et.al., 2006; Sohail, 2006; Thawesaengkulthai et.al., 2015: <i>Babakus & Mangold ,1992; Taylor & Cronin,1992; Sohail,2003; Kilbourne et.al.,2004; Rohini & Mahadevappa,2006; Chowdhury,2008; Sivakumar & Srinivasan,2010; Altuntas et.al.,2012; Zarei et.al.,2012; Ramez,2012; Irfan et.al.,2012; Dheepa et.al.,2015; Venkateshwarlu et.al.,2015; Bahadori et.al.,2015; Jandavnath & Byram,2016; Pramanik,2016</i>
6	4	Gabbott & Hogg, 1994; Jabnoun & Chaker, 2003; Mohamed & Azizan, 2015; Teng et.al., 2007
7	4	Chang et.al., 2013; Duggirala et.al., 2008; Fowda et.al., 2008; Lim & Tang, 2000
8	3	Kondasani et.al., 2015; Prakash & Mohanty, 2015; Rose et.al. 2004
10	2	Krishnamoorthy & Srinivasan, 2014; Pakdil & Harwood, 2005

(iv) **Annexure IV: Steps in Template Analysis**

Step 1: Become familiar with the accounts to be analysed. <i>(Read through the complete data set.)</i>
Step 2: Carry out preliminary coding of data <i>(use of a priori themes in identifying codes)</i>
Step 3: Organise the emerging themes into clusters and define how they relate to each other within and between the groups <i>(from a subset of data, hierarchical, parallel, and integrative codes are identified).</i>
Step 4: Define the initial coding template <i>(capture a cross-section of issues and experiences covered in the data).</i>
Step 5: Apply the initial template to further data and modify as necessary <i>(modify and revise successive versions of the template for insertion of new themes, refinement of existing themes and deletion of redundant themes)</i>
Step 6: Finalise the template and apply the final template to the complete data set <i>(form the template as the base for interpretation of data and writing research findings)</i>

(v) **Annexure V: Contrasting components of PRSQ (Providers' View)**

Component 1		Component 2
Customer service	Vs	Fuel station service
Service part	Vs	Administrative part
Fuel quality (Legal aspects)	Vs	Service quality (Complaints)
Service Outcome (for providers)	Vs	Behavioural problem (for seekers)
Service indicators	Vs	Productivity indicators
Technical aspect	Vs	Behavioural aspect
Product offering (Assortment)	Vs	Service
Quality and quantity part	Vs	Service part

(vi) Annexure VI: Seeker being Layman (Sample Quotes)

The customer doesn't know the technical aspect of the fuel and fuel delivery, so the customer looks for infrastructure, behaviour, etc. (Provider)
It isn't easy to judge the Quality because you do not know what has gone into the vehicle since it is not visible. (Seeker)
It is tough to tell what the Quality is in the petro retail as we do not know what is happening inside the machine, and nothing is visible besides reading. (Seeker)
Once everything is done, the attendant should provide a bill or confirmation message. We, being laymen, do not have any idea about petro retail terms and technicality, etc. (Seeker)

(vii) Annexure VII: Views in Customer's Expectations

From the fuel station, the expectation is straightforward: quantity and Quality are delivered. From the staff, promptness in attending to and delivering to the customer is expected to be managed when customers are in the fuel station. (Seeker)
When we visited for the first time, we had no expectations. If you have already experienced or seen in the past, the expectations would be different. (Seeker)
It is essential to judge customers' expectations. (Provider)
We should move according to the customers. Customers want to get serviced in their own way. It is essential to grasp customers' expectations. (Provider)
Every customer is different and has different expectations. Everyone wants a different service and treatment. Some give importance to promptness, some to the attendant's behaviour, and some to available services. (Provider)
Sometimes, a customer comes with great expectations that he will get the expected services without information on the non-availability of the service at the fuel station. In that case, he may be dissatisfied. (Provider)
If the customer is not satisfied, he will not assess it right. (Provider)

(viii) **Annexure VIII: Authoritative Coefficient and Panelist Profile in Modified Delphi***

	OMC Officers	Dealer & Fuel Station Staff	Customers
Number of panelists (N =32)	15	12	5
Age (yrs)			
20–30	3	1	1
31–45	5	5	3
>45	2	4	1
Educational qualification			
12 th or less		5	
Diploma	1	2	
Graduate	6	2	2
Masters	7	3	2
Doctorate	1		1
Avg work experience	10.66 yrs (SD = 6.48)	21 yrs (SD = 5.62)	14.2 yrs (SD = 5.72)
Recency of Hospital visit (weeks)			
<3	8	12	1
4–6	4	***	2
>6	3	***	2
Authoritative coefficient	0.825	0.768	0.821

Source: Authors

(ix) Annexure IX: Consensus Items - After Round 2 of Delphi

S no	Statement	I-CVI
1	Availability of digital payment and billing system	0.8596
2	SMS/email confirmation of fuelling	0.8312
3	Technology platform for interaction by the customers	0.9153
4	Customer identification & recognition	0.9211
5	Technology-driven personalised attention	0.9325
6	Staff respond promptly to customers' grievances	0.9565
7	The established mechanism for the collection of feedback/grievances available at the fuel station	0.9132
8	Management of the fuel station is keen to address the customer grievances and enhance service delivery performance	0.9153
9	When a customer has a problem, the fuel station shows sincere interest in solving it	0.8672
10	Staff can handle customer grievances directly and immediately	0.8673
11	Is Cleanliness at the fuel station maintained	0.8561
12	does the Queue Management properly follow in peak hours to handle crowds at the fuel station	0.8723
13	Does the fuel station Operate at Convenient Hours	0.8674
14	The staff of the fuel station have the knowledge to answer customers' questions	0.9565
15	The behaviour of staff instils confidence in customers	0.9867
16	Customers feel safe in their transactions at the fuel station	0.9231
17	Staff are well aware of any promotional campaign for customers (ongoing/upcoming)	0.9354

18	Staff have knowledge of fuel usage in vehicles in different make	0.9342
19	The staff of the fuel station should tell customers the exact time of service and give prompt service	0.9565
20	The staff of the fuel station should never be too busy to respond to customers' requests	0.9761
21	Faster fuelling and payment process to reduce fuelling & waiting time	0.9436
22	Fuel stations ensure the availability of different-grade fuels	0.9721
23	Fuel stations deliver the exact fuel quantity in every transaction	0.9565
24	Fuel stations deliver proper Quality fuel for vehicles	0.9576
25	Fuel station has signages on the availability of services & their location there	0.8879
26	Use of different communication mediums/protocols to make customers aware of the availability of services being offered at the fuel station	0.8797
27	Staff are trustworthy	0.9413
28	Customers feel safe in dealing	0.8561
29	Staffs are polite	0.9761
30	Staff willing to help	0.9565
31	Employees provide individualised attention	0.9413
32	Fuel station staff and Management show professional integrity towards their work	0.9565
33	Fuel station conducts timely investigations on fuel quality and quantity delivery	0.9565
34	Fuel station and company capture all transactions for any audit and grievance redressal purpose	0.9761
35	The customer is given immediate attention whenever needed	0.9761

36	How easy was it for customers to identify the aisle?	0.9761
37	Did any staff provide aisle guidance?	0.9761
38	Customer's response to guidance	0.9761
39	No. of vehicles ahead in the queue	0.9413
40	Wait Time Discomfort	0.9565
41	Was the customer speaking on mobile while in the queue?	0.9454
42	Did the customer have to call staff for attention at the fuelling point?	0.9565
43	Greetings from staff at the fuelling point	0.9231
44	Customer's action post reaching fuelling point (Cars only)	0.9453
45	Fuel station has modern-looking equipment	0.8854
46	The physical facilities at the fuel station are visually appealing	0.9562
47	Materials associated with the fuel station are visually appealing	0.9565
48	The layout of the fuel station makes it easy for customers to find what they want	0.9656
49	Customers are attended to immediately on arrival	0.8261
50	The fuel station has a clean, attractive and convenient public area.	0.9232
51	showing zero before commencing fuelling	0.8786
52	Payment options available with Cash, Card, UPI, etc. mode	0.9878
53	Equipment available at the fuelling point for acceptance of Digital payments	0.9878
54	Is the payment process smooth	0.8751
55	Is the Fuel station's History/heritage clean and reputed	0.9687
56	Is approach to the fuel station smooth	0.8561

57	Is the appearance of the fuel station appealing	0.8845
58	fuel rate is important and properly charged to customers	0.8388
59	Lighting at night time is appealing	0.9012
60	Ease of entry to the fuel station	0.8275
61	Availability of rest room - clean and hygienic	0.8587
Scale Content validity (SCVI/Ave)		0.9087
Source: Author		

(x) Annexure X: Indices of Good Fit *

Fit index	Limit *	Pivotal Attributes		Core Attributes		Peripheral attributes	
		No items before CFA	No items after CFA	No items before CFA	No items after CFA	No items before CFA	No items after CFA
		25 items	24 items	22 items	20 items	14 items	11 items
Absolute fit indices							
χ^2		239.874	190.763	534.699	178.537	217.694	118.392
Df		78	77	158	72	72	52
p-value	>0.05	0	0	0	0	0	0
χ^2 / df	1.00-5.00	3.075	2.477	3.384	2.480	3.024	2.277
RMR	<0.08	0.068	0.057	0.078	0.062	0.079	0.052
GFI	>0.90	0.932	0.934	0.911	0.946	0.931	0.975
AGFI	>0.80	0.902	0.917	0.901	0.923	0.879	0.932
Relative fit indices							
NFI	>0.80	0.916	0.942	0.901	0.921	0.911	0.945
PNFI	>0.50	0.701	0.721	0.699	0.732	0.711	0.715
IFI	>0.90	0.951	0.962	0.907	0.962	0.913	0.943
TLI	>0.90	0.937	0.9520	0.904	0.9410	0.934	0.9680
Non-centrality-based indices							
CFI	>0.90	0.956	0.968	0.919	0.962	0.924	0.968
PGFI	>0.50	0.608	0.624	0.682	0.731	0.612	0.634
RMSEA	<0.08	0.061	0.058	0.078	0.052	0.087	0.059

(χ^2 / df) (Joseph F Hair et al., 2006); RMR (Hu & Bentler, 1999); GFI, AGFI (Joe et al., 2011)

Source: Author

(xi) **Annexure XI: Content Validation Index for the Questionnaire 's Statements**

Attribute / Dimension and item code	Item	I-CVI
<i>A. 1 Pivotal: Adoption of Technology [AT]</i>		
Q32	Availability of digital payment and billing system	0.8596
Q33	SMS/email confirmation of fuelling	0.8312
Q34	Technology platform for interaction by the customers	0.9153
Q35	Customer identification & recognition	0.9211
Q36	Technology-driven personalised attention	0.9325
<i>A.2 Pivotal: Grievance Redressal [GR]</i>		
Q42	Staff respond promptly to customers' grievances	0.9565
Q43	The established mechanism for the collection of feedback/grievances available at the fuel station	0.9132
Q44	Management of the fuel station is keen to address the customer grievances and enhance service delivery performance	0.9153
Q45	When a customer has a problem, the fuel station shows sincere interest in solving it	0.8672
Q56	Staff can handle customer grievances directly and immediately	0.8673
<i>A.3 Pivotal: Management of Fuel Station Operation MFSO]</i>		
Q16	Is Cleanliness at the fuel station maintained	0.8561
Q17	does the Queue Management properly follow in peak hours to handle the crowd at the fuel station	0.8723
Q18	Does the fuel station Operate at Convenient Hours	0.8674
<i>A.4 Pivotal: Staff Knowledge and Competence [SKC]</i>		
Q37	The staff of the fuel station have the knowledge to answer customers' questions	0.9565
Q38	The behaviour of staff instils confidence in customers	0.9867
Q39	Customers feel safe in their transactions at the fuel station	0.9231
Q40	Staff are well aware of any promotional campaign for customers (ongoing/upcoming)	0.9354
Q41	Staff have knowledge of fuel usage in vehicles in different make	0.9342
<i>A.5 Pivotal: Promptness in Service Delivery [PSD]</i>		

Q24	The staff of the fuel station should tell customers the exact time of service and give prompt service	0.9565
Q25	The staff of the fuel station should never be too busy to respond to customers' requests	0.9761
Q26	Faster fuelling and payment process to reduce fuelling & waiting time	0.9436
<i>A.6 Pivotal: Quality & Quantity [Q&Q]</i>		
Q47	Fuel stations ensure the availability of different-grade fuels	0.9721
Q48	Fuel stations deliver the exact fuel quantity in every transaction	0.9565
Q58	The fuel station delivers proper Quality fuel for the vehicles	0.9576
<i>B.1 Core: Service Availability Communication [SAC]</i>		
Q50	Fuel station has signages on the availability of services & their location there	0.8879
Q51	Use of different communication mediums/protocols to let customers aware of the availability of services being offered at the fuel station	0.8797
<i>B.2 Core: Staff Behaviour [SB]</i>		
Q19	Staff are trustworthy	0.9413
Q20	Customers feel safe in dealing	0.8561
Q21	Staffs are polite	0.9761
Q22	Staff willing to help	0.9565
Q23	Employees provide individualised attention	0.9413
<i>B.3 Core: Process [PROC]</i>		
Q52	Fuel station staff and Management show professional integrity towards their work	0.9565
Q53	Fuel station conducts timely investigations on fuel quality and quantity delivery	0.9565
Q54	Fuel station and company capture all transactions for any audit and grievance redressal purpose	0.9761
Q57	The customer is given immediate attention whenever needed	0.9761
<i>B.4 Core: Fuelling Cycle Experience (Entry, Waiting, Fuelling, exit) [FCE]</i>		
Q1	How easy was it for customers to identify the aisle?	0.9761
Q2	Did any staff provide aisle guidance?	0.9761
Q3	Customer's response to guidance	0.9761
Q4	No. of vehicles ahead in the queue	0.9413
Q5	Wait Time Discomfort	0.9565

Q6	Was the customer speaking on mobile while in the queue?	0.9454
Q7	Did the customer have to call staff for attention at the fuelling point?	0.9565
Q8	Greetings from staff at the fuelling point	0.9231
Q9	Customer's action post reaching fuelling point (Cars only)	0.9453
<i>C.1 Peripheral: Facilities and physical infrastructure [FPI]</i>		
Q27	Fuel station has modern-looking equipment	0.8854
Q28	The physical facilities at the fuel station are visually appealing	0.9562
Q29	Materials associated with the fuel station are visually appealing	0.9565
Q60	The layout of the fuel station makes it easy for customers to find what they want	0.9656
Q59	The fuel station has a clean, attractive, and convenient public area.	0.9232
<i>C.2 Peripheral: Payment Methods & Arrangement [PMA]</i>		
Q10	Payment options available with Cash, Card, UPI, etc mode	0.9878
Q11	Equipment available at the fuelling point for acceptance of Digital payments	0.9878
Q12	Is the payment process smooth	0.8751
<i>C.3 Peripheral: Image [IMG]</i>		
Q61	Is the Fuel station's History/heritage clean and reputed	0.9687
Q14	Is approach to the fuel station smooth	0.8561
Q15	Is the appearance of the fuel station appealing	0.8845
Scale Content validity (SCVI)/Ave		0.9312

Source : Author

(xii) **Annexure XII: Demographic Profile of the Respondent: The GAP Analysis stage**

Classification	Service Seeker	Service Provider
Gender		
Male	127	174
Female	84	29
Age Group		
<20 yrs	8	
21-30 yrs	31	76
31-40 yrs	71	57
41-50 yrs	52	46
51-60 yrs	28	19
>60 yrs	21	5
Highest Qualification		
Doctorate	3	2
Post-Graduate	68	82
Graduate	116	94
Diploma	15	17
Intermediate	9	8
Employment Status		
Self Employed	53	***
Salaried	105	***
Homemaker	21	***
Student	16	***
Retired	9	***
Others	7	***
Role in Organisation		
OMC officer (HQ)	***	21
OMC officer (field)	***	47
Dealers (franchisee)	***	68
DSM (Delivery person)	***	67
Total Work Experience		
less than 5 years	***	38
6-10 years	***	52
11-15 years	***	31
greater than 15 years	***	82
Purpose of Fuel Station Visit		
Fuelling the Car	165	***
Availing other services	28	***
with a friend / relative	18	***
Time of Last Visit		
<3 weeks	184	***
4-6 weeks	23	***
>6 weeks	4	***

Appendices:

(i) Appendix A: Interview Protocol for Petro Retail Providers:

Hello Sir/Madam, I am Santanu Purohit. I work for the University of Petroleum & Energy Studies as a PhD research scholar. My scholarly pursuits involve measuring service quality in petro retail.

We are grateful that you agreed to this interview so that you could express your ideas and points of view. We are meeting here today because of your experience working in the Petro retail sector. I would appreciate your full involvement to better understand the components of service quality at your place of employment. Nonetheless, you can remain silent on any question posed throughout the interview.

I promise that whatever you tell me in this interview will remain private and will be combined with information from other interviews I have done. The responses won't be linked to names or personally identifiable information, nor will they be mentioned in any reports or presentations.

I will record our interview to get your insightful thoughts and viewpoints.

Are there any questions you would like to ask?

(If permission to record is not granted: *"I will rely on note-taking exclusively during this interview"*)

(The respondents' demographics will be recorded before the start of the interview.)

People's demographics

Name:

Age Group: 20-30; 31-45; > 45

Highest Qualification

Specialisation (if any):

Respondent Profile

What position do you have in the company or industry?
Are you employed by a company or organisation, or are you a part-owner? For what duration have you been employed here?

How long have you been working in this field of Petro retail services?

Tell me about your experiences of working with this industry/organisation.

Probe:

Tell me about some situations that you think I should know about. What is quality in petro retail, according to you?

How can quality be delivered in the service delivery process in petro retail?

Tell me about some petro retail service quality-related protocols and initiatives your industry/organisation took.

To what extent have these initiatives been successfully implemented in your industry/organisation

Probe:

Tell me about a few situations that you think I should know about. When presented with a chance, what other quality-related actions can be taken?

Would you be willing to discuss the procedures and initiatives you took in your prior organisations linked to Petro Retail?

Would you be willing to discuss any notable distinctions between the quality-related protocols about retail quality in the petroleum industry from your prior and current organisations?

Aspects of petro retail services

What do you think of the expertise, abilities, and judgement of professionals providing services in the Petro retail industry?

Which quality criteria can be applied to evaluate the Petro retail service's result? Tell me how information sharing, friendliness, attentiveness, and building understanding and relationships with customers affect the quality of Petro retail service.

Please describe the physical surroundings and amenities of the Petro retail location and the level of service provided.

Give your opinions on how different procedures, such as checking in at the petrol station, filling up, verifying the amount delivered, paying, air filling, etc., affect the quality of Petro retail.

What was the relationship between financial affordability and the quality of retail petroleum? What are your thoughts on the relationship between the quality of Petro retail and fundamental human requirements like cleanliness, seclusion, and confidentiality?

Assessment of petro retail

What metrics should be used to assess Petro Retail's service level?

On a scale of 1-10 (1 being the least and 10 being the highest), how would you rate current fuel stations regarding petro retail service quality?

Do you think that there is low consumer satisfaction at petrol stations? Do you believe that poor service quality in fuel stations? (1 being the least and 10 being the highest)?

How reasonable of a gauge of service quality in Petro retail is "customer satisfaction," with 1 being the lowest and 10 being the highest?

Gap

What, according to you, are the expectations of customers from the petro retail service providers?

On a scale of 1-10 (1 being the least and 10 being the highest), do you think petro retail service providers are able to assess customers' needs?

On a scale of 1 to 10 (1 being the least and 10 being the highest), does the customer receive the service as intended by the providers?

Are there any other details you think would be useful to me? Are there any questions you would like to ask?

I appreciate you taking the time to speak with me and giving your opinions, sir or madam.

(ii) Appendix B: Interview Protocol for Petro Retail Service Seekers (customers)

Hello Sir/Madam, I am Santanu Purohit. I work for the University of Petroleum & Energy Studies as a PhD research scholar. My scholarly pursuits involve measuring service quality in petro retail.

We are grateful that you agreed to this interview so that you could express your ideas and points of view. We are meeting here today because of your experience in the Petro retail sector. I would appreciate your full involvement in understanding the components of service quality better. Nonetheless, you can remain silent on any question posed throughout the interview.

I promise that whatever you tell me in this interview will remain private and will be combined with information from other interviews I have done. The responses won't be linked to names or personally identifiable information, nor will they be mentioned in any reports or presentations.

I will record our interview to get your insightful thoughts and viewpoints.

Are there any questions you would like to ask?

(If permission to record is not granted: *"I will rely on notetaking exclusively during this interview"*)

(The respondents' demographics will be recorded before the start of the interview.)

Name:

Age Group: < 20, 20-30; 31-40, 41-50, 51-60, >60

Profession: Salaried/Self-Employed/Homemaker/ Student / Retired / Others

Highest Qualification:

Last visit to fuel station: <3 Weeks: 4-6 months, > 6 weeks

Purpose of Visit: fueling the car, availing of other services, and working with friends/relatives.

Quality in Petro retail

Tell me about your experiences of visiting a fuel station.

Probe:

Tell me about some situations that you think I should know about. What is quality in petro retail, according to you?

How can quality be delivered in petro retail service? Tell me about some Quality-related initiatives taken by the service providers /OMCs you visited.

Probe:

Share some incidents that you would like me to know about.

Given an opportunity, what else can be done about this fuel station's quality?

Would you like to share your experiences of petro retail service-related initiatives taken by any other service providers / OMCs you have visited?

Would you like to share some salient differences (if any) in the petro retail during the most recent visit to the petrol station with quality-related initiatives?

Aspects of petro retail

What are your views on Petro retail service providers' experience, skills, and beliefs when delivering service?

What quality parameters can be used to assess the outcome of petro retail service?

Tell me about the effect of information exchange, friendliness, attentiveness, and developing understanding and collaboration with the customer on the quality of petro retail service.

Tell me something about the facilities and physical environment of the petro retail setting and the quality of services given.

Share your views regarding the effect of various processes, such as entering the fuel station, fueling, confirmation of quantity delivered, payment, air filling, etc., on the quality of petro retail.

How are the quality of petro retail service and financial affordability related to each other?

What are your views regarding linking essential human needs like cleanliness, privacy, confidentiality, and good amenities with the quality of Petro retail service?

Assessment of care

In your opinion, what are or should be indicators for measuring service quality in petro retail?

On a scale of 1-10 (1 being the least and 10 being the highest), how would you rate current fuel stations regarding petro retail service quality?

On a scale of 1-10 (1 being the least and 10 being the highest), do you believe that poor service quality in fuel stations leads to low customer satisfaction?

On a scale of 1-10 (1 being the least and 10 being the highest), how good is “customer satisfaction”

as an indicator of service quality in petro retail?

Gap

What, according to you, are the expectations of customers from the petro retail service providers?

On a scale of 1-10 (1 being the least and 10 being the highest), do you think petro retail service providers can assess customers' needs?

On a scale of 1-10 (1 being the least and 10 being the highest), do you think customers experience the service in the same way as the service providers intended?

Are there any other details you think would be useful to me? Are there any questions you would like to ask?

I appreciate you taking the time to speak with me and giving your opinions, sir or madam.

(iii) Appendix C: Questionnaire for Delphi Round 1

These claims about service quality in fuel stations are listed in this round of Delphi based on research that is currently accessible and on in-person interviews I did with consumers, dealers and attendants at petrol stations and professionals in the petro retail industry. A scale will be seen next to each statement. The scale contains five points: 1 for "strongly disagree" (low priority, insignificantly relevant, has little impact, not a decisive element to big issue) and 5 for "strongly agree" (highest priority, most relevant point, has a direct effect on significant issues).

Please indicate which statement best represents the service quality you believe Petro Retail in India to be by circling any number between 1 and 5.

S no	Statement	Ratings				
		<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Don't Know</i>	<i>Agree</i>	<i>Strongly Agree</i>
1	<i>Availability of digital payment and billing system</i>	1	2	3	4	5
2	<i>SMS/email confirmation of fueling</i>	1	2	3	4	5
3	<i>Technology platform for interaction by the customers</i>	1	2	3	4	5
4	<i>Customer identification & recognition</i>	1	2	3	4	5
5	<i>Technology-driven personalised attention</i>	1	2	3	4	5
6	<i>Staff respond promptly to customers' grievances</i>	1	2	3	4	5
7	<i>The established mechanism for the collection of feedback/grievances available at the fuel station</i>	1	2	3	4	5
8	<i>Management of the fuel station is keen to address the customer grievances and enhance service delivery performance</i>	1	2	3	4	5
9	<i>When a customer has a problem, the fuel station shows sincere interest in solving it</i>	1	2	3	4	5
10	<i>Staff can handle customer grievances directly and immediately</i>	1	2	3	4	5
11	<i>Is Cleanliness at the fuel station maintained</i>	1	2	3	4	5
12	<i>does the Queue Management properly follow in peak hours to handle the crowd at the fuel station</i>	1	2	3	4	5
13	<i>Does the fuel station Operate at Convenient Hours</i>	1	2	3	4	5
14	<i>The staff of the fuel station know how to</i>	1	2	3	4	5

	<i>answer customers' questions</i>					
15	<i>The behaviour of staff instils confidence in customers</i>	1	2	3	4	5
16	<i>Customer feel safe in their transactions at the fuel station</i>	1	2	3	4	5
17	<i>Staff are well aware of any promotional campaign for customers (ongoing/upcoming)</i>	1	2	3	4	5
18	<i>Staff have knowledge of fuel usage in vehicles in different make</i>	1	2	3	4	5
19	<i>The staff of the fuel station should tell customers the exact time of service and give prompt service</i>	1	2	3	4	5
20	<i>The staff of the fuel station should never be too busy to respond to customers' requests</i>	1	2	3	4	5
21	<i>Faster fueling and payment process to reduce fueling & waiting time</i>	1	2	3	4	5
22	<i>Fuel stations ensure the availability of different-grade fuels</i>	1	2	3	4	5
23	<i>Fuel stations deliver the exact fuel quantity in every transaction</i>	1	2	3	4	5
24	<i>Fuel stations deliver proper quality of fuel for vehicles</i>	1	2	3	4	5
25	<i>Fuel station has signages on the availability of services & their location there</i>	1	2	3	4	5
26	<i>Use of different communication mediums/protocols to make customers aware of the availability of services being offered at the fuel station</i>	1	2	3	4	5
27	<i>Staff are trustworthy</i>	1	2	3	4	5
28	<i>Customers feel safe in dealing</i>	1	2	3	4	5
29	<i>Staffs are polite</i>	1	2	3	4	5
30	<i>Staff willing to help</i>	1	2	3	4	5
31	<i>Employees provide individualised attention</i>	1	2	3	4	5
32	<i>Fuel station staff and management show professional integrity towards their work</i>	1	2	3	4	5
33	<i>Fuel station conducts timely investigations on fuel quality and quantity delivery</i>	1	2	3	4	5
34	<i>Fuel station and company capture all transactions for any audit and grievance redressal purpose</i>	1	2	3	4	5
35	<i>The customer is given immediate attention whenever needed</i>	1	2	3	4	5

36	<i>How easy was it for customers to identify the aisle?</i>	1	2	3	4	5
37	<i>Did any staff provide aisle guidance?</i>	1	2	3	4	5
38	<i>Customer's response to guidance</i>	1	2	3	4	5
39	<i>No. of vehicles ahead in the queue</i>	1	2	3	4	5
40	<i>Wait Time Discomfort</i>	1	2	3	4	5
41	<i>Was the customer speaking on mobile while in the queue?</i>	1	2	3	4	5
42	<i>Did the customer have to call staff for attention at the fueling point?</i>	1	2	3	4	5
43	<i>Greetings from Staff at the fueling point</i>	1	2	3	4	5
44	<i>Customer's action post reaching fueling point (Cars only)</i>	1	2	3	4	5
45	<i>Fuel station has modern-looking equipment</i>	1	2	3	4	5
46	<i>The physical facilities at the fuel station are visually appealing</i>	1	2	3	4	5
47	<i>Materials associated with the fuel station are visually appealing</i>	1	2	3	4	5
48	<i>The layout of the fuel station makes it easy for customers to find what they want</i>	1	2	3	4	5
49	<i>Customers are attended to immediately on arrival</i>	1	2	3	4	5
50	<i>The fuel station has a clean, attractive and convenient public area.</i>	1	2	3	4	5
51	<i>showing zero before commencing fueling</i>	1	2	3	4	5
52	<i>Payment options available with Cash, Card, UPI, etc mode</i>	1	2	3	4	5
53	<i>Equipment available at the fueling point for acceptance of Digital payments</i>	1	2	3	4	5
54	<i>Is the payment process smooth</i>	1	2	3	4	5
55	<i>Is the Fuel station's History/heritage clean and reputed</i>	1	2	3	4	5
56	<i>Is approach to the fuel station is smooth</i>	1	2	3	4	5
57	<i>Is the appearance of the fuel station appealing</i>	1	2	3	4	5
58	<i>fuel rate is important and properly charged to customers</i>	1	2	3	4	5
59	<i>Lighting at night time is appealing</i>	1	2	3	4	5
60	<i>Ease of entry to the fuel station</i>	1	2	3	4	5
61	<i>Availability of rest room - clean and hygienic</i>	1	2	3	4	5

62	<i>Does the fuel station get things right the first time?</i>	1	2	3	4	5
63	<i>Does the fuel station insist on error-free records?</i>	1	2	3	4	5
64	<i>Does the fuel station have a car wash and vehicle service facilities?</i>	1	2	3	4	5
65	<i>Does the fuel station run promotional schemes?</i>	1	2	3	4	5
66	<i>Does the fuel station offer a credit facility to customers?</i>	1	2	3	4	5
67	<i>Does the fuel station clean the vehicle windshield regularly?</i>	1	2	3	4	5
68	<i>Does the fuel station have an adequate position to serve customers?</i>	1	2	3	4	5
69	<i>Does the fuel station offer services at a justified cost?</i>	1	2	3	4	5
70	<i>Does fuel station encourage peer learning?</i>	1	2	3	4	5
71	<i>Does the fuel station advertise to customers on available offerings/ promotional schemes?</i>	1	2	3	4	5
72	<i>Does the attendant insist on billing customers?</i>	1	2	3	4	5
73	<i>Does the fuel station conduct/ demonstrate regular quality & quantity checks?</i>	1	2	3	4	5
74	<i>Does the customer get the desired product from the fuel station?</i>	1	2	3	4	5
75	<i>Is the fuel station overcrowded and is the queue there always?</i>	1	2	3	4	5
76	<i>Is a manned air facility available at the fuel station?</i>	1	2	3	4	5
77	<i>Is the fuel station selected for proximity?</i>	1	2	3	4	5
78	<i>Does the fuel station have a process to reward managers and employees for attaining goals?</i>	1	2	3	4	5

(iv) Appendix D: Cover Letter Delphi Round 2

Round 2

We appreciate you returning the Delphi questionnaire from the previous round. The next round of the Delphi Questionnaire, which includes information on the research subjects you have been involved in identifying and ranking in terms of importance, is now enclosed. Kindly carefully read the instructions and complete the Delphi Questionnaire as thoroughly as possible.

Beside each statement are a few columns that you will notice. Your unique response (Your Rating) to each statement from round one is displayed in column one.

The group response (group median rating) to the statement is displayed in column two.

With column three left blank, you can reevaluate your initial response (or revised rating, if applicable) in light of the collective reaction to each statement. Please be aware that you are not obligated to modify your initial response if you so choose.

If you would like to modify your response, please select the option most accurately reflects how crucial you believe the statement is to maintaining service quality in Petro Retail in India. This will show up as a number that matches the prior round's scale, as described below.

Not at all Important, Slightly Important, Somewhat Important, Very Important, Extremely Important.

You must indicate in column four if the statement directly affects how Indian petrol stations judge the quality of their retail petroleum services.

In the fifth column, you must indicate if the statement is necessary to measure the quality of petro retail services in Indian petrol stations.

(v) Appendix E: Questionnaire for CFA Round
Petro Retail Service Quality Questionnaire

This survey is a component of my Petro Retail Service Quality research project. This survey aims to create a questionnaire that can be used to measure the quality of petro retail service in Indian petrol stations. The information gathered from this survey will only be utilised for scholarly purposes. Your answers will be combined with other responses, and respondents' anonymity will be guaranteed. You are not obligated to answer this survey, and you can withdraw from it anytime. Filling out the form completely won't take longer than fifteen to twenty minutes. I appreciate you taking the time to complete this questionnaire. I will happily assist over the phone if you have any questions or doubts.

Thanks !

Santanu Purohit (9717094396)

THE SET OF PRIORLY IDENTIFIED STATEMENTS BELOW MAY BE CONNECTED WITH FUEL STATION SERVICE QUALITY MEASUREMENT.

(I) A score of 1 denotes that the quality of Ptero Retail services provided by this statement CANNOT be measured.

(ii) A score of seven suggests that this statement can measure the quality of Petro Retail services.

(iii) You can select any number between 1 and 7.

Section A

S no	Statement	Statement: Can not measure petro retail service quality						Statement: Can measure petro retail service quality.
1	Availability of digital payment and billing system	1	2	3	4	5	6	7
2	SMS/email confirmation of fueling	1	2	3	4	5	6	7
3	Technology platform for interaction by the customers	1	2	3	4	5	6	7
4	Customer identification & recognition	1	2	3	4	5	6	7
5	Technology-driven personalised attention	1	2	3	4	5	6	7
6	Staff respond promptly to customers' grievances	1	2	3	4	5	6	7
7	The established mechanism for the collection of feedback/grievances available at the fuel station	1	2	3	4	5	6	7
8	Management of the fuel station is keen to address the customer grievances and enhance service delivery performance	1	2	3	4	5	6	7
9	When a customer has a problem, the fuel station shows sincere interest in solving it	1	2	3	4	5	6	7
10	Staff can handle customer grievances directly and immediately	1	2	3	4	5	6	7
11	Is Cleanliness at the fuel station maintained	1	2	3	4	5	6	7
12	does the Queue Management properly follow in peak hours to handle crowds at the fuel station	1	2	3	4	5	6	7
13	Does the fuel station Operate in convenient Hours	1	2	3	4	5	6	7

14	<i>The staff of the fuel station have the knowledge to answer customers' questions</i>	1	2	3	4	5	6	7
15	<i>The behaviour of staff instils confidence in customers</i>	1	2	3	4	5	6	7
16	<i>Customer feel safe in their transactions at the fuel station</i>	1	2	3	4	5	6	7
17	<i>Staff are well aware of any promotional campaign for customers (ongoing/upcoming)</i>	1	2	3	4	5	6	7
18	<i>Staff have knowledge of fuel usage in vehicles in different make</i>	1	2	3	4	5	6	7
19	<i>The staff of the fuel station should tell the customer the exact time of service and give prompt service</i>	1	2	3	4	5	6	7
20	<i>The staff of the fuel station should never be too busy to respond to customers' requests</i>	1	2	3	4	5	6	7
21	<i>Faster fueling and payment process to reduce fueling & waiting time</i>	1	2	3	4	5	6	7
22	<i>Fuel stations ensure the availability of different-grade fuels</i>	1	2	3	4	5	6	7
23	<i>Fuel stations deliver the exact fuel quantity in every transaction</i>	1	2	3	4	5	6	7
24	<i>Fuel stations deliver proper quality fuel for vehicles</i>	1	2	3	4	5	6	7
25	<i>Fuel station has signages on the availability of services & their location there</i>	1	2	3	4	5	6	7
26	<i>Use of different communication mediums/protocols to make customers aware of the availability of services being offered at the fuel station</i>	1	2	3	4	5	6	7
27	<i>Staff are trustworthy</i>	1	2	3	4	5	6	7
28	<i>Customers feel safe in dealing</i>	1	2	3	4	5	6	7
29	<i>Staffs are polite</i>	1	2	3	4	5	6	7
30	<i>Staff willing to help</i>	1	2	3	4	5	6	7
31	<i>Employees provide individualised attention</i>	1	2	3	4	5	6	7

32	<i>Fuel station staff and management show professional integrity towards their work</i>	1	2	3	4	5	6	7
33	<i>Fuel station conducts timely investigations on fuel quality and quantity delivery</i>	1	2	3	4	5	6	7
34	<i>Fuel station and company capture all transactions for any audit and grievance redressal purpose</i>	1	2	3	4	5	6	7
35	<i>The customer is given immediate attention whenever needed</i>	1	2	3	4	5	6	7
36	<i>How easy was it for customers to identify the aisle?</i>	1	2	3	4	5	6	7
37	<i>Did any staff provide aisle guidance?</i>	1	2	3	4	5	6	7
38	<i>Customer's response to guidance</i>	1	2	3	4	5	6	7
39	<i>No. of vehicles ahead in the queue</i>	1	2	3	4	5	6	7
40	<i>Wait Time Discomfort</i>	1	2	3	4	5	6	7
41	<i>Was the customer speaking on mobile while in the queue?</i>	1	2	3	4	5	6	7
42	<i>Did the customer have to call staff for attention at the fueling point?</i>	1	2	3	4	5	6	7
43	<i>Greetings from Staff at the fueling point</i>	1	2	3	4	5	6	7
44	<i>Customer's action post reaching fueling point (Cars only)</i>	1	2	3	4	5	6	7
45	<i>Fuel station has modern-looking equipment</i>	1	2	3	4	5	6	7
46	<i>The physical facilities at the fuel station are visually appealing</i>	1	2	3	4	5	6	7
47	<i>Materials associated with the fuel station are visually appealing</i>	1	2	3	4	5	6	7
48	<i>The layout of the fuel station makes it easy for customers to find what they want</i>	1	2	3	4	5	6	7
49	<i>Customers are attended to immediately upon arrival</i>	1	2	3	4	5	6	7
50	<i>The fuel station has a clean, attractive and convenient public</i>	1	2	3	4	5	6	7

	area.							
51	<i>showing zero before commencing fueling</i>	1	2	3	4	5	6	7
52	<i>Payment options available with Cash, Card, UPI, etc mode</i>	1	2	3	4	5	6	7
53	<i>Equipment available at the fueling point for acceptance of Digital payments</i>	1	2	3	4	5	6	7
54	<i>Is the payment process smooth</i>	1	2	3	4	5	6	7
55	<i>Is the Fuel station's History/heritage clean and reputed</i>	1	2	3	4	5	6	7
56	<i>Is approach to the fuel station is smooth</i>	1	2	3	4	5	6	7
57	<i>Is the appearance of the fuel station appealing</i>	1	2	3	4	5	6	7
58	<i>fuel rate is important and properly charged to customers</i>	1	2	3	4	5	6	7
59	<i>Lighting at night time is appealing</i>	1	2	3	4	5	6	7
60	<i>Ease of entry to the fuel station</i>	1	2	3	4	5	6	7
61	<i>Availability of rest room - clean and hygienic</i>	1	2	3	4	5	6	7
62	<i>Are you associated with Fuel stations or OMCs?</i>	Yes			No			
		(Please answer Questions in Section C Only)			(Please answer Questions in Section B Only)			

Section B

S1	When was the last time you visited a Fuel Station?	< 3weeks	4-6 weeks	> 6 weeks			
S2	You visited the Fuel station	Fueling the Car	Availing other services	with a friend / relative			
S3	Name of the City where you visited fuel station						
S4	Age Group to which you belong	<20 yrs	21-30 yrs	31-40 yrs	41-50 yrs	51-60 yrs	>60 yrs
S5	Your Occupation	Self Employed	Salaried	Homemaker	Student	Retired	Others
S6	Your Highest Qualification						

Section C

P1 Associated with/Employing in fuel stations and OMCs in the capacities of Dealers, DSM, OMC Officer (HQ), and OMC Officer (Field).

P2 Your Department, Area, or Specialty (Only applicable to OMC employees) (If "NA" does not apply to you, please state it.)

P3 Your total number of years spent in a professional capacity

P4 The name of the city where the OMCs or fuel stations where you are employed are situated.

P5 Age Group: <20 years old / 21–30 years old / 31–40 years old / 41–50 years old / 51–60 years old / >60 years old

P6: Your Highest Eligibility

Your email address:

Thank you for completing this questionnaire.

(vi) Appendix F: Petro Retail Seekers' Questionnaire

		Think about the kind of fuel station in which you would like to fuel. Please show the extent to which you think such a fuel station would possess the features described by each statement. If you feel a feature is not essential for an excellent fuel station such as the one you have in mind , circle the number 1. If you feel a feature is absolutely essential for an excellent fuel station, circle 7. if you are less strong, circle one of the numbers in between.							The following statements relate to your feelings about the fuel station you have attended. For each statement, please show the extent to which you believe the fuel station has the feature described in the statement. Once again circling a 1. mean that you strongly disagree that the fuel station you have attend has this feature and circling a 7. means you are strongly agree. If your feelings are less strong, circle one of the numbers in between.							
Id	Statement	Your expectation Score							Your perception of service experience							
		1	2	3	4	5	6	7		1	2	3	4	5	6	7
1	How easy was it for customers to identify the aisle?	1	2	3	4	5	6	7		1	2	3	4	5	6	7
2	Did any staff provide aisle guidance?	1	2	3	4	5	6	7		1	2	3	4	5	6	7
3	Customer's response to guidance	1	2	3	4	5	6	7		1	2	3	4	5	6	7
4	No. of vehicles ahead in the queue	1	2	3	4	5	6	7		1	2	3	4	5	6	7
5	Wait Time Discomfort	1	2	3	4	5	6	7		1	2	3	4	5	6	7
6	Was the customer speaking on mobile while in the queue?	1	2	3	4	5	6	7		1	2	3	4	5	6	7
7	Did the customer have to call staff for	1	2	3	4	5	6	7		1	2	3	4	5	6	7

	attention at the fueling point?															
8	Greetings from Staff at the fueling point	1	2	3	4	5	6	7		1	2	3	4	5	6	7
9	Customer’s action post reaching fueling point (Cars only)	1	2	3	4	5	6	7		1	2	3	4	5	6	7
10	Payment options available with Cash, Card, UPI, etc mode	1	2	3	4	5	6	7		1	2	3	4	5	6	7
11	Equipment available at the fueling point for acceptance of Digital payments	1	2	3	4	5	6	7		1	2	3	4	5	6	7
12	Is the payment process smooth	1	2	3	4	5	6	7		1	2	3	4	5	6	7
13	Is the Fuel station's History/heritage clean and reputed	1	2	3	4	5	6	7		1	2	3	4	5	6	7
14	Is approach to the fuel station is smooth	1	2	3	4	5	6	7		1	2	3	4	5	6	7
15	Is the appearance of the fuel station appealing	1	2	3	4	5	6	7		1	2	3	4	5	6	7
16	Is Cleanliness at the fuel station maintained	1	2	3	4	5	6	7		1	2	3	4	5	6	7
17	does the Queue Management properly follow in peak hours to handle crowds at the fuel station	1	2	3	4	5	6	7		1	2	3	4	5	6	7
18	Does the fuel station Operate in convenient Hours	1	2	3	4	5	6	7		1	2	3	4	5	6	7
19	Staff are trustworthy	1	2	3	4	5	6	7		1	2	3	4	5	6	7
20	Customers feel safe in dealing	1	2	3	4	5	6	7		1	2	3	4	5	6	7
21	Staffs are polite	1	2	3	4	5	6	7		1	2	3	4	5	6	7
22	Staff willing to help	1	2	3	4	5	6	7		1	2	3	4	5	6	7
23	Employees provide	1	2	3	4	5	6	7		1	2	3	4	5	6	7

	individualised attention															
24	The staff of the fuel station should tell the customer the exact time of service and give prompt service	1	2	3	4	5	6	7		1	2	3	4	5	6	7
25	The staff of the fuel station should never be too busy to respond to customers' requests	1	2	3	4	5	6	7		1	2	3	4	5	6	7
26	Faster fueling and payment process to reduce fueling & waiting time	1	2	3	4	5	6	7		1	2	3	4	5	6	7
27	Fuel station has modern-looking equipment	1	2	3	4	5	6	7		1	2	3	4	5	6	7
28	The physical facilities at the fuel station are visually appealing	1	2	3	4	5	6	7		1	2	3	4	5	6	7
29	Materials associated with the fuel station are visually appealing	1	2	3	4	5	6	7		1	2	3	4	5	6	7
30	The layout of the fuel station makes it easy for customers to find what they want	1	2	3	4	5	6	7		1	2	3	4	5	6	7
31	The fuel station has a clean, attractive and convenient public area.	1	2	3	4	5	6	7		1	2	3	4	5	6	7
32	Availability of digital payment and billing system	1	2	3	4	5	6	7		1	2	3	4	5	6	7
33	SMS/email confirmation of fueling	1	2	3	4	5	6	7		1	2	3	4	5	6	7
34	Technology platform	1	2	3	4	5	6	7		1	2	3	4	5	6	7

	for interaction by the customers															
35	Customer identification & recognition	1	2	3	4	5	6	7		1	2	3	4	5	6	7
36	Technology-driven personalised attention	1	2	3	4	5	6	7		1	2	3	4	5	6	7
37	The staff of the fuel station know how to answer customers' questions	1	2	3	4	5	6	7		1	2	3	4	5	6	7
38	The behaviour of staff instils confidence in customers	1	2	3	4	5	6	7		1	2	3	4	5	6	7
39	Customer feel safe in their transactions at the fuel station	1	2	3	4	5	6	7		1	2	3	4	5	6	7
40	Staff are well aware of any promotional campaign for customers (ongoing/upcoming)	1	2	3	4	5	6	7		1	2	3	4	5	6	7
41	Staff have knowledge of fuel usage in vehicles in different make	1	2	3	4	5	6	7		1	2	3	4	5	6	7
42	Staff respond promptly to customers' grievances	1	2	3	4	5	6	7		1	2	3	4	5	6	7
43	The established mechanism for the collection of feedback/grievances available at the fuel station	1	2	3	4	5	6	7		1	2	3	4	5	6	7
44	Management of the fuel station is keen to address the customer grievances and enhance service delivery	1	2	3	4	5	6	7		1	2	3	4	5	6	7

	performance															
45	When a customer has a problem, the fuel station shows sincere interest in solving it	1	2	3	4	5	6	7		1	2	3	4	5	6	7
46	Staff can handle customer grievances directly and immediately	1	2	3	4	5	6	7		1	2	3	4	5	6	7
47	Fuel stations ensure the availability of different-grade fuels	1	2	3	4	5	6	7		1	2	3	4	5	6	7
48	Fuel stations deliver the exact fuel quantity in every transaction	1	2	3	4	5	6	7		1	2	3	4	5	6	7
49	Fuel stations deliver proper quality fuel for vehicles	1	2	3	4	5	6	7		1	2	3	4	5	6	7
50	Fuel station has signages on the availability of services & their location there	1	2	3	4	5	6	7		1	2	3	4	5	6	7
51	Use of different communication mediums/protocols to make customers aware of the availability of services being offered at the fuel station	1	2	3	4	5	6	7		1	2	3	4	5	6	7
52	Fuel station staff and management show professional integrity towards their work	1	2	3	4	5	6	7		1	2	3	4	5	6	7
53	Fuel station conducts timely investigations on fuel quality and	1	2	3	4	5	6	7		1	2	3	4	5	6	7

	quantity delivery															
54	Fuel station and company capture all transactions for any audit and grievance redressal purpose	1	2	3	4	5	6	7		1	2	3	4	5	6	7
55	The customer is given immediate attention whenever needed	1	2	3	4	5	6	7		1	2	3	4	5	6	7

Gender	Male	Female				
Age group	<20 yrs	21-30 yrs	31-40 yrs	41-50 yrs	51-60 yrs	>60 yrs
Your Highest Qualification	<i>Doctorate</i>	<i>Post-Graduate</i>	<i>Graduate</i>	<i>Diploma</i>	<i>Intermediate</i>	
Employment status	Self Employed	Salaried	Homemaker	Student	Retired	Others
When did you last visit a fuel station	< 3weeks	4-6 weeks	> 6 weeks			

(vii) Appendix G: Petro Retail Providers' Questionnaire

		Think about the kind of fuel station like this and the customers you handle who would like to fuel. Please show the extent to which you think such a fuel station would possess the features described by each statement. If you feel a feature is not at all essential for an excellent fuel station such as the one you have in your mind, circle the number 1. If you feel a feature is absolutely essential for an excellent fuel station, circle 7. if you are less strong, circle one of the numbers in between.								The following statements relate to your feelings about the fuel station, like the one you work at or handle. For Each statement, please show the extent to which you believe tht fuel station has the feature described by the statement. Once again, circling a 1. means that you strongly disagree that the fuel station you have attended has this feature, and circling a 7. means you strongly agree. If your feelings are less strong, circle one of the numbers in between.						
Id	Statement	Your Perception of Petro Retail Seekers' Expectations								Your perception of service delivery						
		1	2	3	4	5	6	7		1	2	3	4	5	6	7
1	How easy was it for customers to identify the aisle?	1	2	3	4	5	6	7		1	2	3	4	5	6	7
2	Did any staff provide aisle guidance?	1	2	3	4	5	6	7		1	2	3	4	5	6	7
3	Customer's response to guidance	1	2	3	4	5	6	7		1	2	3	4	5	6	7
4	No. of vehicles ahead in the queue	1	2	3	4	5	6	7		1	2	3	4	5	6	7
5	Wait Time Discomfort	1	2	3	4	5	6	7		1	2	3	4	5	6	7
6	Was the customer speaking on mobile while in the queue?	1	2	3	4	5	6	7		1	2	3	4	5	6	7
7	Did the customer have to call staff for attention at the	1	2	3	4	5	6	7		1	2	3	4	5	6	7

	fueling point?															
8	Greetings from Staff at the fueling point	1	2	3	4	5	6	7		1	2	3	4	5	6	7
9	Customer's action post reaching fueling point (Cars only)	1	2	3	4	5	6	7		1	2	3	4	5	6	7
10	Payment options available with Cash, Card, UPI, etc. mode	1	2	3	4	5	6	7		1	2	3	4	5	6	7
11	Equipment available at the fueling point for acceptance of Digital payments	1	2	3	4	5	6	7		1	2	3	4	5	6	7
12	Is the payment process smooth	1	2	3	4	5	6	7		1	2	3	4	5	6	7
13	Is the Fuel station's History/heritage clean and reputed	1	2	3	4	5	6	7		1	2	3	4	5	6	7
14	Is approach to the fuel station is smooth	1	2	3	4	5	6	7		1	2	3	4	5	6	7
15	Is the appearance of the fuel station appealing	1	2	3	4	5	6	7		1	2	3	4	5	6	7
16	Is Cleanliness at the fuel station maintained	1	2	3	4	5	6	7		1	2	3	4	5	6	7
17	does the Queue Management properly follow in peak hours to handle crowds at the fuel station	1	2	3	4	5	6	7		1	2	3	4	5	6	7
18	Does the fuel station Operate in convenient Hours	1	2	3	4	5	6	7		1	2	3	4	5	6	7
19	Staff are trustworthy	1	2	3	4	5	6	7		1	2	3	4	5	6	7
20	Customers feel safe in dealing	1	2	3	4	5	6	7		1	2	3	4	5	6	7

21	Staffs are polite	1	2	3	4	5	6	7		1	2	3	4	5	6	7
22	Staff willing to help	1	2	3	4	5	6	7		1	2	3	4	5	6	7
23	Employees provide individualised attention	1	2	3	4	5	6	7		1	2	3	4	5	6	7
24	The staff of the fuel station should tell the customer the exact time of service and give prompt service	1	2	3	4	5	6	7		1	2	3	4	5	6	7
25	The staff of the fuel station should never be too busy to respond to customers' requests	1	2	3	4	5	6	7		1	2	3	4	5	6	7
26	Faster fueling and payment process to reduce fueling & waiting time	1	2	3	4	5	6	7		1	2	3	4	5	6	7
27	Fuel station has modern-looking equipment	1	2	3	4	5	6	7		1	2	3	4	5	6	7
28	The physical facilities at the fuel station are visually appealing	1	2	3	4	5	6	7		1	2	3	4	5	6	7
29	Materials associated with the fuel station are visually appealing	1	2	3	4	5	6	7		1	2	3	4	5	6	7
30	The layout of the fuel station makes it easy for customers to find what they want	1	2	3	4	5	6	7		1	2	3	4	5	6	7
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33	SMS/email	1	2	3	4	5	6	7		1	2	3	4	5	6	7

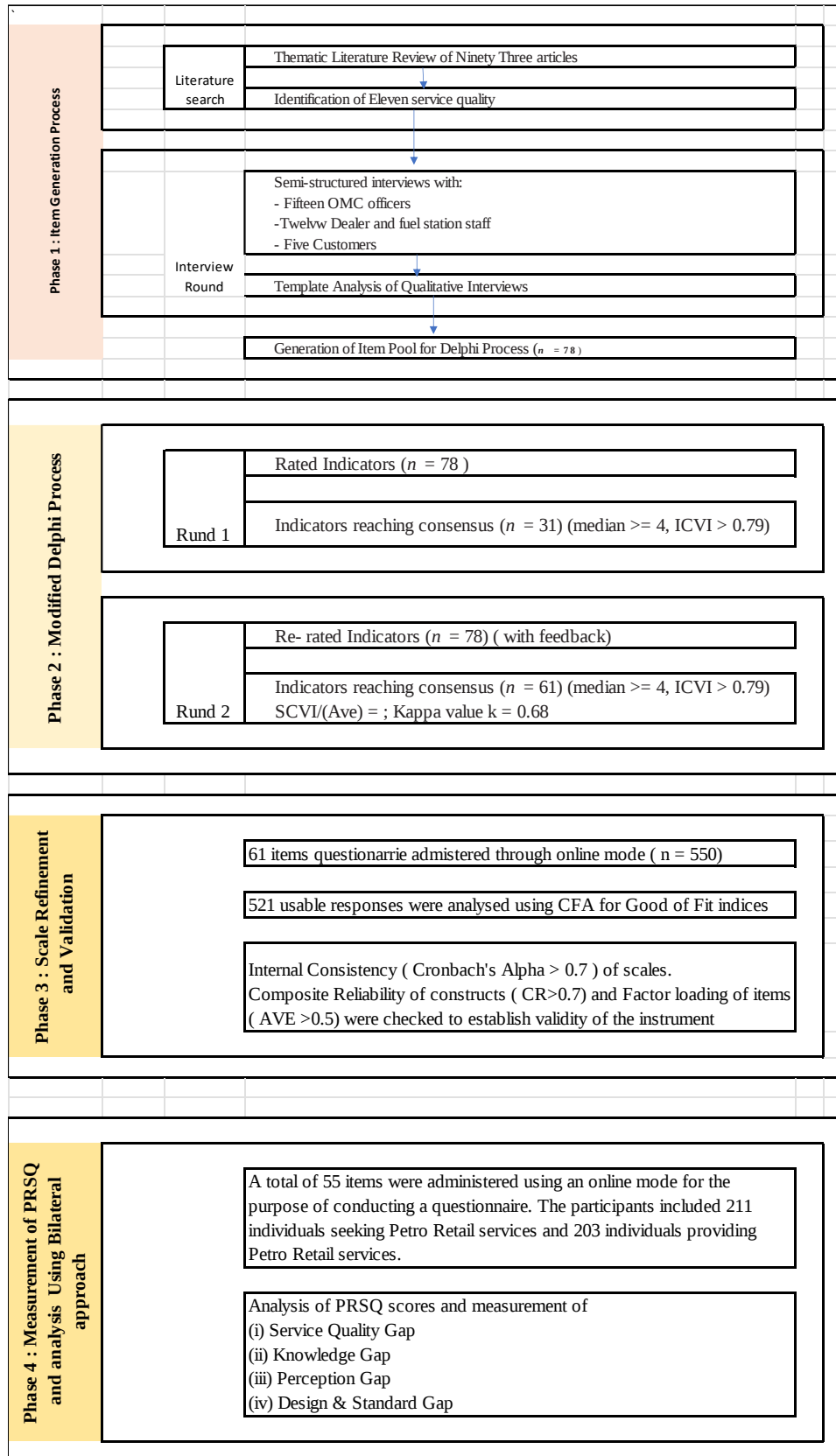
	confirmation of fueling															
34	Technology platform for interaction by the customers	1	2	3	4	5	6	7		1	2	3	4	5	6	7
35	Customer identification & recognition	1	2	3	4	5	6	7		1	2	3	4	5	6	7
36	Technology-driven personalised attention	1	2	3	4	5	6	7		1	2	3	4	5	6	7
37	The staff of the fuel station have the knowledge to answer customers' questions	1	2	3	4	5	6	7		1	2	3	4	5	6	7
38	The behaviour of staff instils confidence in customers	1	2	3	4	5	6	7		1	2	3	4	5	6	7
39	Customers feel safe in their transactions at the fuel station	1	2	3	4	5	6	7		1	2	3	4	5	6	7
40	Staff are aware of any promotional campaign for customers (ongoing/upcoming)	1	2	3	4	5	6	7		1	2	3	4	5	6	7
41	Staff have knowledge of fuel usage in vehicles in different make	1	2	3	4	5	6	7		1	2	3	4	5	6	7
42	Staff respond promptly to customers' grievances	1	2	3	4	5	6	7		1	2	3	4	5	6	7
43	The established mechanism for the collection of feedback/grievances available at the fuel station	1	2	3	4	5	6	7		1	2	3	4	5	6	7

44	Management of the fuel station is keen to address the customer grievances and enhance service delivery performance	1	2	3	4	5	6	7		1	2	3	4	5	6	7
45	When a customer has a problem, the fuel station shows sincere interest in solving it	1	2	3	4	5	6	7		1	2	3	4	5	6	7
46	Staff can handle customer grievances directly and immediately	1	2	3	4	5	6	7		1	2	3	4	5	6	7
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50	Fuel station has signages on the availability of services & their location there	1	2	3	4	5	6	7		1	2	3	4	5	6	7
51	Use of different communication mediums/protocols to make customers aware of the availability of services being offered at the fuel station	1	2	3	4	5	6	7		1	2	3	4	5	6	7
52	Fuel station staff and management show professional integrity towards	1	2	3	4	5	6	7		1	2	3	4	5	6	7

	their work															
53	Fuel station conducts timely investigations on fuel quality and quantity delivery	1	2	3	4	5	6	7		1	2	3	4	5	6	7
54	Fuel station and company capture all transactions for any audit and grievance redressal purpose	1	2	3	4	5	6	7		1	2	3	4	5	6	7
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Gender	Male	Female				
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Your Highest Qualification	<i>Doctorate</i>	<i>Post-Graduate</i>	<i>Graduate</i>	<i>Diploma</i>	<i>Intermediate</i>	
Employment status	Self Employed	Salaried	Homemaker	Student	Retired	Others
When did you last visit a fuel station	< 3weeks	4-6 weeks	> 6 weeks			
Role in organisation	<i>OMC officer (HQ)</i>	<i>OMC officer (field)</i>	<i>Dealers (franchisee)</i>	<i>DSM (Delivery person)</i>		
Work Experience	<i>less than 5 years</i>	<i>6-10 years</i>	<i>11-15 years</i>	<i>greater than 15 years</i>		

(Viii) Appendix H: Schema of Complete Research Process



Author's Biography



Mr. Santanu Purohit is a Professional in the Oil & Gas industry with a rich and diversified experience of more than 25 years. During this tenure, he has effectively handled administrative and strategic responsibilities at different levels in eminent organisation Bharat Petroleum Corporation Ltd. He is qualified for MBA, PGEMP, B.Tech (Instrumentation & Electronics Engg), and B. Sc (Physics -Honors) and is currently pursuing PhD in Management from UPES, Dehradun. He has published fourteen papers in peer-reviewed national and international journals, including those indexed in SCOPUS, ABDC, and Web of Science journals, apart from attending and presenting papers at national and international conferences. He has also been adjudged with the awards “International Best Researcher Award “by ISSN International Science & Technology Award 2022 (IISTA-2022) and “Best Researcher Award” in “International Scientist Award 2022 on Engineering Science and Medicine”.

PLAGIARISM CERTIFICATE

1. We Dr. Arvind Kumar Jain (Internal Guide), - _____ (Co Guide/
External Guide) certify that the Thesis titled: Measurement of Service Quality Gap In Petro
Retail in India: A Bilateral Approach to Bridge Expectation and Experience

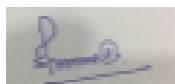
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