THE QUALITY OF TRANSPORTATION SERVICES: CASE OF A GLASS MANUFACTURING COMPANY.

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Abstract: The purpose of this study was to study the satisfaction of truck transportation services at a glass manufacturing company. Quantitative research was used. The data was collected using a questionnaire. The sample group used in the research consisted of 37 customers. The statistics were descriptive statistics, and the analytical techniques were gap analysis and importance and performance analysis (IPA).

The study found that the customers had the highest expectations with the company's transportation service in all seven marketing mixes ($\bar{X}$ = 4.91 – 5.00) and the highest level of satisfaction in all seven marketing mixes (($\bar{X}$ = 4.34 – 4.92). The gap between the expectation and the performance of the product and the price aspect was the largest (0.59 and 0.4, respectively). When it was analyzed using IPA, it found that the customers had the opinion that transportation services were "keeping up good work" in 4 aspects (place, process, people, and physical evidence) and "low priority" in 3 aspects (product, price, and promotion). Overall, there is no need to improve any aspects. But if you want to improve, you should improve the quality of service and price.

Index Terms— Transportation Services, Glass Manufacturing, Gap Analysis, IPA

I. INTRODUCTION

This study aims to investigate the various factors that contribute to the quality of transportation services in the context of a glass manufacturing company. The study uses the 7P framework to analyze the different dimensions of service quality, including product, price, place, promotion, people, process, and physical evidence.

This research focuses on the transportation services provided by the glass manufacturing company, which is an essential component of its supply chain management. The study seeks to identify the factors that influence the quality of transportation services, such as the efficiency of the delivery process, the reliability of the delivery schedule, the responsiveness of the transportation service providers, the safety and security of the transportation services, and the overall customer satisfaction By applying the 7P framework, the research aims to provide a comprehensive analysis of the quality of transportation services in the glass manufacturing company. This analysis will help the company to identify areas of improvement and to develop strategies to enhance the quality of its transportation services. Additionally, the research findings will contribute to the existing literature on service quality and supply chain management, providing valuable insights for future research and practice..

II. REVIEW OF LITERATURE

a. Transportation

Transportation is crucial to the success of the industry, as it plays a vital role in moving goods and materials from one place to another. Here are some of the key reasons why transportation is important in the industry:

Access to Raw Materials: Transportation enables industries to access raw materials from different locations. Many industries require raw materials that are not available locally, and transportation provides the means to bring those materials to the manufacturing site.

Distribution of Finished Products: Once the products are manufactured, transportation facilitates the distribution of these products to their final destinations, whether it's a retail store, a warehouse, or directly to the end consumer.

Cost-Effective Production: Transportation plays a significant role in reducing the overall cost of production. It allows industries to source raw materials from the most cost-effective suppliers and to distribute finished products to the most profitable markets.

Flexibility and Efficiency: With a reliable and efficient transportation system, industries can quickly adapt to changes in demand and supply, thus increasing their overall flexibility and efficiency.

Globalization: Transportation has played a vital role in the globalization of industries. It has enabled industries to reach new markets and expand their customer base beyond national borders.

In summary, transportation is an essential component of the industry, and it helps to facilitate the movement of goods and materials throughout the supply chain. Without efficient and reliable transportation systems, the industry would struggle to operate effectively, and the cost of goods and services would likely increase.

b. 7P framework

The 7P framework is a widely used model in service marketing, which helps organizations to design, develop and deliver high-quality services to their customers. This model emphasizes seven key dimensions of service quality, including product, price, place, promotion, people, process, and physical evidence. In the following paragraphs, I will review the literature on the 7P framework and its applications in different contexts.

Product: The product dimension of the 7P framework refers to the core service or offering provided by the organization. In their study, O'Cass and Ngo [1] found that the product quality is the most significant determinant of customer satisfaction in the context of fast-food restaurants. Similarly, in the banking industry, the product quality is a crucial factor that influences customer loyalty and retention [2].

Price: The price dimension of the 7P framework refers to the amount charged by the organization for the services offered. In their study, Kattiyapornpong and Han [3] found that price perception is a significant factor that influences customer satisfaction and loyalty in the context of online travel agencies. Additionally, in the healthcare industry, the price dimension plays a crucial role in shaping patient satisfaction and healthcare service utilization [4].

Place: The place dimension of the 7P framework refers to the location and distribution channels used by the organization to deliver its services. In their study, Kim and Lee [5] found that the convenience of location and accessibility of services significantly influence customer satisfaction and loyalty in the context of fitness centers. Similarly, in the hospitality industry, the location and ambiance of the hotel significantly influence customer satisfaction and loyalty [6].

Promotion: The promotion dimension of the 7P framework refers to the marketing and communication strategies used by the organization to promote its services. In their study, Yang et al. [7] found that effective promotional strategies significantly influence customer satisfaction and loyalty in the context of online shopping platforms. Additionally, in the airline industry, effective communication and promotional strategies significantly influence customer satisfaction and loyalty [8].

People: The people dimension of the 7P framework refers to the personnel involved in delivering the services and their interaction with customers. In their study, Nguyen et al. [9] found that the behavior and competence of service providers significantly influence customer satisfaction and loyalty in the context of healthcare services. Similarly, in the restaurant industry, the quality of service provided by the wait staff significantly influences customer satisfaction and loyalty [10].

Process: The process dimension of the 7P framework refers to the procedures, systems, and technologies used by the organization to deliver its services. In their study, Mpinganjira and Roberts-Lombard [11] found that the efficiency and effectiveness of service delivery processes significantly influence customer satisfaction and loyalty in the context of mobile banking services. Similarly, in the automotive industry, the quality of the service delivery process significantly influences customer satisfaction and loyalty [12].

Physical Evidence: The physical evidence dimension of the 7P framework refers to the tangible elements that accompany the service delivery, such as the appearance and ambiance of the service environment. In their study, Sohail and Shaikh [13] found that the quality of physical evidence significantly influences customer satisfaction and loyalty in the context of shopping malls. Similarly, in the hotel industry, the quality of the physical environment significantly influences customer satisfaction and loyalty [14].

Overall, the 7P framework has been widely adopted and applied in the literature to analyze and improve service quality in various industries. It provides a comprehensive framework that covers all aspects of service delivery, including the intangible elements such as people, process, and physical evidence, which are often overlooked in traditional marketing frameworks. Studies have shown that organizations that apply the 7P framework can improve their service quality, increase customer satisfaction, and achieve better financial performance.

c. Gap analysis

Gap analysis is a framework that is commonly used in business and management to identify the differences or gaps between current performance and desired performance. The gap analysis can be used to identify areas of improvement and develop strategies to close the gaps. In the context of service quality, gap analysis is often used to identify gaps in customer expectations and perceptions of service quality.

In the literature, gap analysis has been applied to various fields, including service quality management, human resource management, and organizational performance. For example, Paraskevas and Buhalis [15] applied gap analysis to the tourism industry to identify gaps in customer expectations and perceptions of service quality. The study found that there were significant gaps between customer expectations and perceptions in several areas, including reliability, responsiveness, and empathy.

In the context of healthcare, gap analysis has been used to identify gaps in patient safety and quality of care. For instance, a study by Farsi et al. [16] used gap analysis to assess the quality of primary healthcare services in Saudi Arabia. The study identified several gaps in the quality of care, including access to care, communication, and patient-centeredness.

Gap analysis has also been applied to human resource management to identify gaps in employee skills and knowledge. For example, a study by Sharif and Hasan [17] used gap analysis to identify gaps in the skills and knowledge of employees in the banking sector in Bangladesh. The study found that there were significant gaps in several areas, including customer service, technical skills, and communication.

Overall, gap analysis is a useful framework for identifying gaps in performance and developing strategies to close those gaps. It has been applied to various fields and can be used to identify gaps in customer expectations and perceptions of service quality, patient safety and quality of care, and employee skills and knowledge.

d. IPA

The Importance-Performance Analysis (IPA) is a popular tool used in service marketing to evaluate the performance of service attributes and their importance to customers. IPA enables firms to identify areas of improvement and prioritize resource allocation based on customer needs and preferences. In this review, I will discuss the literature on IPA and its applications in different contexts.

The IPA model was first introduced by Martilla and James [18] and has since been widely used in service marketing. The model works by plotting the importance of a service attribute on the X-axis and its performance on the Y-axis. This creates four quadrants: high importance/fair performance (Concentrate here), high importance/excellent performance (Keep up the good work), low importance/fair performance (Low priority) and low importance/excellent performance (Possible overkill). Firms can use this information to prioritize areas for improvement.

Fig.1 IPA Matrix
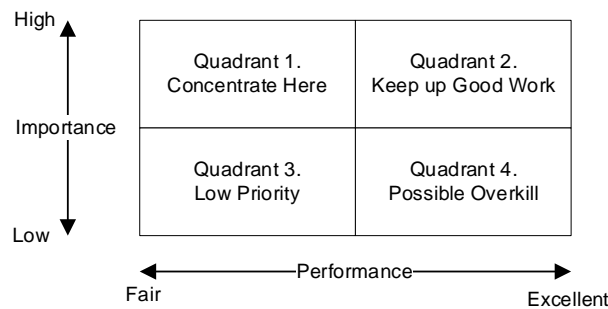
The literature on IPA provides ample evidence of its usefulness in different contexts. In the healthcare industry, IPA has been used to evaluate patient satisfaction with healthcare services [19]. The study found that patient satisfaction was significantly influenced by the performance of service attributes such as waiting time, communication with healthcare providers, and quality of care. Additionally, IPA has been used to evaluate customer satisfaction with banking services [20]. The study found that the performance of service attributes such as speed of service, friendliness of staff, and accuracy of information significantly influenced customer satisfaction and loyalty.

In the tourism industry, IPA has been used to evaluate customer satisfaction with hotel services [21]. The study found that the performance of service attributes such as cleanliness, comfort, and room amenities significantly influenced customer satisfaction and loyalty. Similarly, IPA has been used to evaluate customer satisfaction with airline services [22]. The study found that the performance of service attributes such as on-time arrival, baggage handling, and cabin comfort significantly influenced customer satisfaction and loyalty.

IPA has also been used in the context of public services. For example, in a study conducted in the public transportation sector, IPA was used to evaluate customer satisfaction with bus services [23]. The study found that the performance of service attributes such as frequency of service, cleanliness, and comfort significantly influenced customer satisfaction and loyalty. Additionally, IPA has been used to evaluate customer satisfaction with library services [24]. The study found that the performance of service attributes such as access to information, staff knowledge, and library facilities significantly influenced customer satisfaction and loyalty.

Overall, the literature on IPA provides ample evidence of its usefulness in different contexts. The model enables firms to identify areas for improvement and prioritize resource allocation based on customer needs and preferences. By using IPA, firms can improve their service quality, increase customer satisfaction and loyalty, and gain a competitive advantage in the marketplace.

III.   RESEARCH METHOD

This research is quantitative research. The data was collected using a questionnaire with 7P framework. The sample group used in the research consisted of 37 customers in central region. The statistics were descriptive statistics, and the analytical techniques were gap analysis and IPA.

IV. RESULTS

The samples has the characteristics as follow;

Table I Characteristics of respondents

Characteristics	Frequency	Percentage
Gender		
Male	22	59.46%
Female	15	40.54%
Type of Customer		
Regular	32	86.49%
Former	0	0.00%
New	5	13.51%
Firm Type		
Manufacturer	37	100.00%
Wholesaler	0	0.00%
Retailer	0	0.00%
Period to be customer		
< 5 years	5	13.51%
5-10 years	28	75.68%
> 10 years	4	10.81%

Most of the respondents are Male, regular customer from Manufacturer section and be the customer 5-10 years

Table II Characteristics

	Importance	Performance	GAP
Product	4.93	4.34	0.59
Price	4.93	4.53	0.40
Place	4.95	4.74	0.21
Promotion	4.91	4.68	0.23
People	4.95	4.82	0.13
Process	4.96	4.77	0.19
Physical Evidence	5.00	4.92	0.08
Overall Average	**4.95**	**4.69**	0.26

Looking at the table II, we can see that all aspects have very high importance scores (ranging from 4.91 to 5.00 out of 5) and relatively very high performance scores (ranging from 4.34 to 4.92). However, there are some differences in the GAP score. The highest positive GAP is for Product (0.59), indicating an opportunity for improvement in this aspect. On the other hand, Physical Evidence has the lowest positive GAP (0.08), indicating that it is performing relatively well compared to its perceived importance.

Overall, the analysis suggests that the product or service evaluated in this study is performing well in most aspects, but there is still room for improvement in some areas to meet consumer expectations and preferences.

Fig.2 IPA Matrix of this study
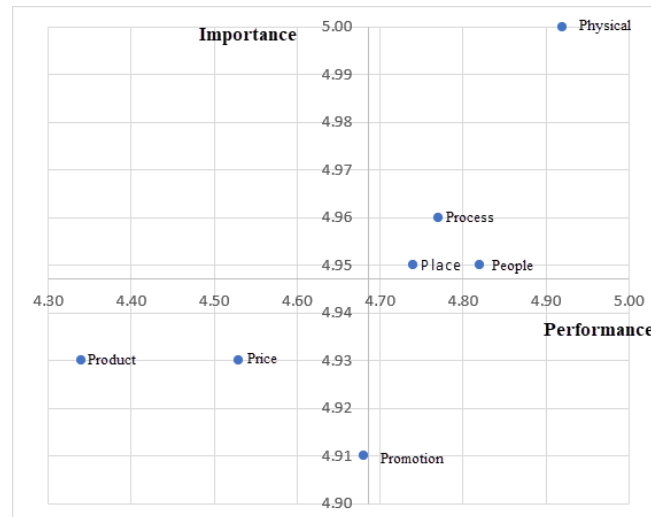
From fig.2, it found that the customers had the opinion that transportation services were "keeping up good work" in 4 aspects (place, process, people, and physical evidence) and "low priority" in 3 aspects (product, price, and promotion). Overall, there is no need to improve any aspects.

V. SUGGESTIONS

From the customer aspect, the quality of transportation services of this glass manufacturing company is very high. However, if this company needs to improve to higher quality, it can improve in aspects of Product, Price, and Product such as developing product packaging to always be in perfect condition, always following standard operation procedures, managing backhaul and/or milk run to optimize the transportation service (and it can decrease the transportation cost), offer the other channel to pay the bill, etc.

VI. ACKNOWLEDGEMENT

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