

# **An Evaluation of Customer Satisfaction in Omnichannel Logistics Service Quality by Revised Importance–Performance Analysis and Benchmarking.**

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## **Abstract**

Since logistics service quality has become a key strategic weapon for omnichannel success in the business-to-customer (B2C) retail sector. Therefore, it is essential that retailers have a deep understanding of customer satisfaction with the quality of logistics service and benchmark them with the best competitors. This study proposes a systematic framework to evaluate customer satisfaction with omnichannel logistics service quality (OCLQ) using revised importance–performance analysis (IPA) approach. One of an e-commerce retail companies in Thailand is used as a case study. In this study, twenty logistics service attributes are identified throughout the customer’s shopping journey. The research survey is conducted using a sample size of 411 clients. Revised IPA is applied to analyze the survey data, and then categorized the OCLQ in to 4 groups as “Keep up the good work”, “Possible overkill”, “Low priority”, and “Concentrate here”. The customer satisfaction benchmarking is performed with the best competitor of the case company. The findings of this study can help the case company enhance the customer satisfaction with OCLQ in order to maintain a competitive advantage.

## **Keywords**

Customer Satisfaction, Omnichannel Logistics, Service Quality, Revised IPA and Benchmarking.

## **1. Introduction**

The retail sector has continuously expanded from the past to the present in recent years. Customer satisfaction is a metric for measuring competition, allowing technology to become an essential component in preserving a competitive advantage. In particular given the serious issue that exists right now as a result of the COVID-19 epidemic threat. There have been constraints on interpersonal interactions, travel, consumer movement, and physical contact in public spaces, leading to restrictions on people's liberties (Schreiner and Baier 2021). As a result, numerous retail stores had to close (Akhtar et al. 2020). However, consumers' buying habits have started to change over time as technology has advanced. E-commerce is expanding quickly because it allows customers to purchase products limitlessly (Jena and Meena 2022). Companies and organizations must become more competitive by expanding their customer-reach channels by adding more options for goods purchase. Omnichannel Logistics (OL) is a new retail model that combines physical stores with online stores. Customers can research the information about items and services before making purchases or requesting after-sales care from many channels both online and offline without the need to restart the purchase process every time they change channels (Mosquera et al. 2019).

The customer experience, which offers customers a more convenient purchasing experience, also influences brand satisfaction, loyalty, and sales (Yin et al. 2022). The main purpose of omnichannel service is to facilitate the consumer, improve and enhance the quality of all omnichannel channels. This ensures that cross-channel integration results in increased customer satisfaction and building loyalty (Adivara et al. 2019). To develop marketing strategies, marketing professionals must comprehend how consumers feel about brands (Yin et al. 2022). In the study by Li et al. (2022) retailers are required to regularly monitor customer satisfaction with the quality of service of omnichannel so that customers have a good experience from buying products, and examining customer satisfaction helps spot the weaknesses of the business foundation, which assists in the real development of marketing. Studying customer satisfaction with Omnichannel quality is not yet very widespread. As a result, this study provides an evaluation of the

quality of Omnichannel Logistics and customer satisfaction to fill the gap left by earlier research. The purposes of this study are to examine the variables influencing customer satisfaction with Omnichannel Logistics service quality and evaluate customer satisfaction with the omnichannel quality of the business, a case study to improve the effectiveness of the business's omnichannel logistics. Customer satisfaction with the case study company's omnichannel quality was also compared to that of the best competitor to boost competitiveness. The results, obtained through IPA (Importance-Performance Analysis) and Benchmarking techniques, highlight the areas where case study companies need to make improvements.

## **1.1 Objectives**

The four purposes of this study are as follows:

1.1.1 To identify factors affecting customer satisfaction on the service quality of Omnichannel Logistics in retail stores.

1.1.2 To develop a customer satisfaction assessment framework using IPA techniques, implicitly derived importance-Performance Analysis and Benchmarking.

1.1.3 To compare the quality of Omnichannel Logistics services between the case study company and their best competitor.

1.1.4 To present a method for grouping factors affecting customer satisfaction on the service quality of Omnichannel Logistics as a guideline for improving and developing quality to create competitiveness and make customers more satisfied.

## **2. Literature Review**

This research has examined the factors that influence customer satisfaction with the omnichannel quality of retail establishments to improve the standard of Omnichannel so that customers are more satisfied. Pre-purchase, purchase and post-purchase customer journeys in a retail business are divided into several variables that would determine the quality of omnichannel logistics. The significance and satisfaction of customers who have actually utilized the services of retail stores in the case study were used to evaluate each component produced from each stage of the customer journey (Gao et al. 2019; Vakulenko et al. 2019; Mosquera et al. 2019)

### **2.1 Omnichannel Service Quality and Customer Satisfaction**

Technological advancement has created an increasing number of communication channels between buyers and sellers. It allows customers to be better informed and have a variety of options to shop independently from the available channels of retailers to suit their context (Tueanrat et al. 2021). As a result, many retailers are implementing an OL strategy to keep up with the evolving requirements and expectations of their customers. Retailers may feel confident in their transactions thanks to OL's integration of the storefront and the back end as it facilitates the return or exchange of products or services through whichever they used to make the purchase (Adivara et al. 2019). Additionally, OL is an essential strategy that makes the customer journey as seamless as possible without channel limitations. As a result, customers will have a great shopping experience, which will boost sales and increase customer loyalty and engagement where the customer experience of utilizing OL occurs during the customer journey across channels of retailers during purchase (Lemon and Verhoef 2016, Tueanrat et al. 2021). In addition, the service quality of OL is also an important part to create customer satisfaction. Customers expect good service throughout the customer journey to buy products before buying, during the buying process, and after buying products. There are many studies that show that the quality of service is directly proportional to customer satisfaction (Cui et al. 2022). In addition, service quality affects improvement strategy for customer satisfaction such as lean healthcare (Vanichchinchai 2022). OL's service quality is therefore crucial for increasing customer satisfaction. This study emphasizes on OL service quality factors throughout the customer's purchase journey.

### **2.2 Customer Journey Retailing**

Based on Lemon and Verhoef (2016) the customer journey concept stems from experience management. It describes the steps a buyer takes to make a purchase, including awareness, deliberation, searching, choosing, making a payment, using, and consuming the product, having extra service requests as well as participating. However, as technology advances, there are more websites, apps, and social media platforms created, and consumers now have more alternatives for contacting vendors through more contact channels. The customer journey has become more complex. Despite this, the primary shopping activity is still the same (Palazón et al. 2022) and from these activities, research has divided the stages of the customer journey into several patterns. Lemon and Verhoef (2016) divided the journey into three phases: pre-purchase, purchase, and post-purchase. Similarly, Scott (2022) has studied the customer journey

in retail based on customer decision theory, focusing on three stages in the consumer decision-making process: Finding Information, purchasing, and after-sales support. Customer journey research has been divided the journey into several phases. The study of Steinhoff and Zondag (2021) has identified customer journey awareness as the most important research priority. For this study, the researchers used a three-phase classification: pre-purchase, purchase, and post-purchase.

### 2.3 Importance–performance analysis (IPA)

Martilla and James (1977) created the IPA as a method to systematically study the relationship between key attributes and the performance of features in a product or service to ascertain the features' actual performance. It can help businesses assess the quality of their services and create marketing-related management strategies. Vanichchinchai (2021a) employed IPA to suggest strategies for hospital service Thailand. Vanichchinchai (2021b) further applied IPA to evaluate satisfaction on lean healthcare from care provider perspective. This includes the possibility for competitive advantage. The IPA is broken down into four categories for the analysis as depicted in Figure 1.

Performance	Quadrant II “Possible overkill” High Performance Low Importance	Quadrant I “Keep up the good work” High Performance High Importance
	Quadrant III “Low priority” Low Performance Low Importance	Quadrant IV “Concentrate here” Low Performance High Importance
	Important	

Figure 1. Traditional importance-performance analysis (IPA)

The horizontal (X) axis of the IPA matrix indicates the importance of an attribute and the vertical (Y) axis indicates the performance or customer satisfaction of that attribute and when: Attributes falling into quadrant (I) are meaning that high in both importance and performance. The attribute in quadrant (I) is defined as "Keep up the good work" for that attribute in order to remain competitive. The attributes contained in quadrant (II) mean high performance but low importance to customer The attribute in Quadrant (II) is defined as "Possible overkill" The resources allocated to improve these attributes are excessive and should be transferred to other attributes. Attributes contained in Quadrant (III) has low performance and important. The attributes in quadrant III are defined as "Low priority", these attributes do not require additional effort. The attributes contained in the (IV) quadrant are characterized by low performance and high important. This indicates that these features are critical weaknesses for the organization. The attributes contained in the (IV) quadrant are characterized by low performance and high priority. The attributes in the IV quadrant are defined as "Concentrate here", these attributes need immediate update action to close the gap for increase in consumer satisfaction. (Martilla and James 1977).

### 2.4 Three-factor theory of Customer satisfaction

The model created by Kano et al. (1984) classified service quality features into three categories: must-be, one-dimensional, and attractive, with each component delivering customer satisfaction being affected differently. However, Deng et al. (2011) found that when using the Kano’s model to assess customer satisfaction, the first type of factor, the Basic factor is a factor that, if unavailable or insufficient, will have an impact on the customer's dissatisfaction. On the other hand, there is no impact on customer satisfaction when fulfilled or overfilled. Next comes the performance factor. These types of factors can help increase customer satisfaction and cause dissatisfaction when this factor is not available or this factor is inadequately effective. The Excitement element is the final factor. When a factor contributes to competitiveness, customer satisfaction will rise even further as a result of that factor. But when customers don't receive it, it doesn't make them unhappy. This type of factor provides high positive performance which has a significant impact on overall customer satisfaction more so than performance factors, there is an asymmetrical and nonlinear link between factor performance and overall customer satisfaction (OCS). In conclusion, there are two important characteristics of the service attribute in the three-factor theory:

- (1) A Basic attribute is important when performance is low and not important when performance is high, while the Excitement attribute is important when performance is high. and it was not important when performance is low (Deng et al. 2011).
- (2) The relationship between attribute performance and overall customer satisfaction (OCS) is not always linear and symmetrical. Hence, enforcing the traditional IPA model that uses explicit customer-identified priorities requires a modification or development of the IPA model (Ting and Chen, 2002).

### 3. Methods

The research methodology was divided into three steps: identifying factors of omnichannel logistics service quality throughout the customer journey in retail through literature review methodology, collecting from questionnaires, and finally analyzing data from Explicitly IPA, Implicitly IPA, and benchmarking IPA among best case study companies and competitor.

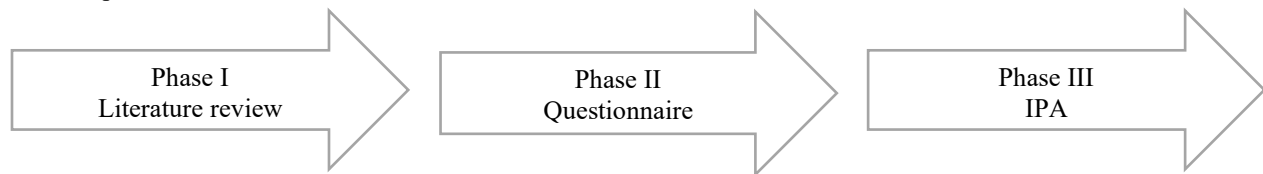


Figure 2. The research procedure

#### 3.1 Literature Review

The criteria used to assess the quality of Omnichannel Logistics services during the retail customer journey have been identified through a rigorous review of the literature. A total of 20 criteria have been evaluated throughout the retail customer journey as follows:

Table 1. Factors to Assess Customer Satisfaction in the Channel of Customer's Purchase Journey

Channel	Code	Omnichannel logistics service quality	Description	Reference
Pre-Purchase	A1	Information quality	The quality of information is based on the accuracy and completeness of the information. Customers should know about the actual performance of the purchased products as stated in the product quality description.	(Singh and Jang 2020; Verhoef et al. 2007)
Pre-Purchase	A2	Information availability	The up-to-date information that customers are searching for, sometimes with time pressures, customers carefully consider products and plan their purchases. Therefore, product information should always be adjusted to match reality.	(Singh and Jang 2020; Verhoef et al. 2007)
Pre-Purchase	A3	Search convenience	The convenience and speed that customers can collect information about their desired and unwanted products in a specific channel, independent of when and where to search for product information.	(Tuanrat et al. 2021; Verhoef et al. 2007; Xun and Jackson 2019)
Pre-Purchase	A4	Search effort	Finding and gathering information can take time and effort. Therefore, simplifying the search can increase the satisfaction of the shopping experience.	(Singh and Jang 2020; Tuanrat et al. 2021)
Pre-Purchase	A5	Shopping enjoyment	Pleasant shopping channels are attractive to purchase. From the point of view of customers, buying products is no longer just buying products, but it brings happiness and entertainment, so creating pleasure for	(Frasquet et al. 2015; Konus et al. 2014; Schröder and Zaharia, 2008)

			customers to buy products will help customers to be more satisfied.	
Pre-Purchase	A6	Compare the prices	The same product but different vendors may lead to price differences or different promotions. Having the ability to do price comparisons between the channels of various merchants will help customers make a purchase decision more easily.	(Konus et al. 2014; Singh and Jang 2020)
Purchase	A7	Purchase convenience	In terms of convenience and speed in purchasing products, it should allow independence of when and where to shop. customer has no time and places constraints. It will create flexibility in shopping time that is in line with the needs of customers.	(Konus et al. 2008; Singh and Jang, 2020; Verhoef et al. 2007)
Purchase	A8	Service quality of employees/automation	Seller interactions, as well as responses, restore customer satisfaction from disappointment. So better sellers can communicate with customers in terms of their availability and professionalism; this will make the customer assume that such sellers have the ability to solve problems and make it possible to reduce concerns about technical support.	(Konus et al. 2014; Schröder and Zaharia 2008; Verhoef et al. 2007)
Purchase	A9	Negotiate prices	The ability to negotiate prices with sellers across all channels can increase purchase enjoyment and increase customer satisfaction.	(Singh and Jang 2020; Verhoef et al., 2007)
Purchase	A10	Price and promotion	Customers tend to consider price as an important factor when purchasing products. Different pricing and promotions across different channels allow customers to shop in the channel that offers the most attractive and value-for-money deals.	(Konus et al., 2014; Verhoef et al. 2007)
Purchase	A11	Purchase risk	Customers should not be exposed to uncertainties and adverse financial consequences when purchasing goods and services. That may cause financial loss and lack of privacy.	(Frasquet et al. 2015; Schröder and Zaharia 2008; Verhoef et al. 2007)
Purchase	A12	Purchase effort	The speed and accuracy of the amount of money to be paid make customers not need to make a lot of effort to make a purchase which is an important factor influencing the customer's attitude and behavior in their next purchases.	(Schröder and Zaharia 2008)
Purchase	A13	After sales service	The expected quality of the service to be received after purchase, such as delivery or assistance when there is a problem with the installation of the product, builds customer confidence.	(Verhoef et al. 2007)
Post-Purchase	A14	Delivery/return expenses	The cost of shipping or returning the product is reasonable. There is a relief for more returns. For example, waiving the return shipping fee. This can have a huge impact on customers' purchase intentions and returns.	(Xun and Jackson 2019)

Post-Purchase	A15	Delivery risk	The risk of non-selected purchases is the possibility that the purchased product will not function properly or that the product received does not meet expectations. These will affect the choice of channels for returning products.	(Schröder and Zaharia 2008; Xun and Jackson 2019)
Post-Purchase	A16	Return Policy Flexibility	Channel flexibility in terms of duration, and where or how items can be returned can help drive positive customer perception. Convenience will increase customer satisfaction even more.	(Xun and Jackson 2019)
Post-Purchase	A17	Delivery efficiency	In the aspect of efficient delivery, products must be in perfect condition. No damage during delivery, customers will be satisfied if the ordered goods arrive in a perfectly safe condition.	(Min et al. 2013; Schröder and Zaharia 2008; Xun and Jackson 2019)
Post-Purchase	A18	Packaging	Packaging delivery is another thing that customers will consider when making a decision. Packaging that is consistent with the delivery method and suitable for the product will lead to customer satisfaction.	(Min et al. 2013)
Post-Purchase	A19	Lead time	The delivery time should be consistent with the reality and customer needs. Expectations and delivery efficiency determine satisfaction, so delivery times can be established based on the delivery information provided by sellers prior to purchase, with the sellers being on time as specified.	(Frasquet et al. 2015; Min et al. 2013; Xun and Jackson 2019)
Post-Purchase	A20	Payment method	In terms of the variety of return payment methods, if the payment is easy and the overall payment process is clear, customers can acknowledge that the transactions are successful.	(Min et al. 2013; Xun and Jackson 2019)

### 3.2 Questionnaire

The questionnaire was developed according to the omnichannel logistics service quality attributes in Table 1, Table 2, and Table 3. The first part contains screening questions to ensure that the respondents have experience using omnichannel logistics services in the case study companies and companies that are the best competitor.

The second part consisted of demographic factors such as age, gender, education level, occupational status, and frequency of use of omnichannel logistics service quality. In the third part, respondents were asked to rate the importance and satisfaction of twenty omnichannel logistics service quality attributes across the journey of purchasing goods or services in retail, including rating the overall satisfaction with the company's services with a five-point rating scale: "Very Satisfied" (5); "Satisfied" (4); "Moderate" (3); "Unsatisfied" (2); and "Very dissatisfied" (1). The questionnaire was assessed for its reliability (Reliability Test) by using Cronbach's alpha coefficient, which has an acceptable value of alpha ( $\alpha$ ) not less than 0.7, it is considered that the tool is at an acceptable level of confidence. The confidence value of the whole questionnaire has an alpha coefficient of 0.95. The questionnaires were of sufficient quality to be used to collect the sample data. In addition, all data collected from the questionnaire were carefully summarized by all 411 valid questionnaires for analysis. The researcher determined the sample size according to Taro Yamane's calculation method.

### 3.3 IPA and Three-Factor Theory Approach

#### 3.3.1 Revised Importance–Performance Analysis: Three-Factor Theory

As the importance that the customer clearly stated for each attribute was practically impossible, Deng et al. (2011) therefore, used the concept from three-factor theory to find the implicitly derived importance from performance score and OCS by using partial correlation analysis because multiple regression analysis often faces multicollinearity in

estimating regression coefficients. In addition, the dependent variables were converted to natural logarithms to detect a decrease or increase in the sensitivity of the dependent variable. This revised IPA consists of five steps:

Step 1: Collect data from the questionnaire.

Step 2: Convert all attribute performance (AP) to natural logarithmic form using

$$AP_i \rightarrow \ln(AP_i) \quad (1)$$

where  $i$  is attribute  $i = 1, 2, \dots, n$ .

Step 3: Set natural logarithmic AP ( $\ln(AP_i)$ ) as independent variables and overall customer satisfaction (OCS) as a dependent variable in a multivariate correlation model.

Step 4 Partial correlation analysis for each attribute between  $\ln(AP_i)$  and OCS by using

$$\rho_{12 \cdot 34 \dots n} = \frac{\sigma_{12 \cdot 34 \dots n}}{\sigma_{1 \cdot 34 \dots n} \sigma_{2 \cdot 34 \dots n}} \quad (2)$$

When OCS is  $X_1$ ,  $\ln(AP_1)$  is  $X_2$  and the rest are  $X_3$  to  $X_n$

Step 5: Plot all service attributes on the IPA matrix.

By using this method, the existing linear and symmetrical relationship between AP and OCS mentioned above was eliminated, since the implicitly derived importance by a relation of attribute performance to OCS included the characteristics of attribute categories. In the three-factor theory Furthermore, the potential problem of multicollinearity among the independent variables, when using multiple regression analysis to measure derive implicit importance of factors in omnichannel logistics service quality can also be ruled out because using partial correlation analysis and the natural logarithmic transformation of attributes also captured more sensitivity to correlation model variables (Deng et al. 2011).

### 3.3.2 Benchmarking with the Best Competitor

For today's highly competitive marketplace to increase competitiveness, it is necessary to know the capabilities of competitor in order to determine the direction to improve and develop the quality of their own products and services. Therefore, in this research, the "Performance ratio" (PR) method would be used by dividing the mean performance score of the case study company (focal firm) with the best competitor's average performance score (CP) (Garver, 2003) according to Equation (3).

$$PR_i = \frac{FP_i}{CP_i} \quad (3)$$

When  $PR_i$  is performance ratio of the  $i$  attribute,  $FP_i$  refers to the satisfaction score of the  $i$  attribute of a case study company and  $CP_i$  refers to the satisfaction score of the best competitor.

If  $PR_i > 1$  then in that attribute, the case study company is outperforming best. But if,  $PR_i < 1$ , it shows that in that attribute, the case study company performs worse than the best competitor company. and if the result is 1, that means in that attribute, the case study company is performing as equally effectively as a competitor company.

## 4. Data Collection

The case study company in this research is a well-known retail company in Thailand. Its best competitor are leading retailers with customers in many countries around the world. This is to expand the customer base and increase the competitiveness in the market by using OL to understand and perceive customer satisfaction towards the service quality of OL which helps the company to improve the quality of its own service. Comparing with the best competitor will help the case study company achieve specific goals to outperform its competitor. The framework presented in this research provides a guide for evaluating customer satisfaction and comparing them with the best competitor systematically.

### 4.1 Traditional IPA

From the answers to the questionnaire from 411 people, the average value of significance score and the average efficiency score as shown in Table 4. It can be seen that the A10 factor (Price and promotion) was the lowest significance score of 4.144 while the factor A1 (Information quality) had the highest importance score at 4.793. As for efficiency scores, factor A8 (Service quality of employees/automation) was the lowest scoring factor at 3.788, and

factor A12 (Purchase effort) was a high-performance factor. The order of precedence is as follows: A1 > A2 > A13 > A15 > A12 > A8 > A18 > A20 > A19 > A11 > A5 > A6 > A14 > A7 > A16 > A17 > A9 > A4 > A3 > A10.

Table 2. Shows the Average Value of the Importance and Effectiveness of Each Attribute.

CODE	Factor	Importance	Performance
A1	Information quality	4.793	4.394
A2	Information availability	4.569	4.370
A3	Search convenience	4.224	4.234
A4	Search effort	4.280	4.316
A5	Shopping enjoyment	4.440	4.268
A6	Compare the prices	4.438	4.287
A7	Purchase convenience	4.423	4.270
A8	Service quality of employees/automation	4.465	3.788
A9	Negotiate prices	4.338	4.338
A10	Price and promotion	4.144	4.273
A11	Purchase risk	4.448	4.355
A12	Purchase effort	4.472	4.428
A13	After sales service	4.521	4.350
A14	Delivery/return expenses	4.431	4.360
A15	Delivery risk	4.511	4.190
A16	Return Policy Flexibility	4.409	3.871
A17	Delivery efficiency	4.358	4.343
A18	Packaging	4.462	4.416
A19	Lead time	4.455	4.290
A20	Payment method	4.462	4.360
	<b>Average</b>	<b>4.432</b>	<b>4.275</b>

#### 4.2 Revised IPA and Benchmarking

The results of implicitly derived importance calculated from the average performance score and OCS using the coefficients of partial correlation changed the importance of the factors as shown in Table 5, with the lowest significance still being A10 (Price and promotion) with a significance of 0.004. The most important factor became A2 (Information availability) with a significance of 0.650. Unlike the Traditional IPA, the factor with the same significance was A9 (Negotiate prices) and A3 (Search convenience) by the order of importance of the factors derived from implicitly derived importance, arranged in descending order as follows: A2 > A7 > A6 > A12 > A1 > A5 > A8 > A9 = A3 > A20 > A14 > A18 > A13 > A17 > A11 > A4 > A19 > A16 > 15 > A10

Table 3. Results table of Implicitly Derived Importance and  $RP_i$

CODE	Factor	Implicitly derived importance	Performance		$RP_i$
			Focal firm	Best competitor	
A1	Information quality	0.409	4.394	4.270	1.029
A2	Information availability	0.650	4.370	4.353	1.004
A3	Search convenience	0.131	4.234	4.375	0.968
A4	Search effort	0.033	4.316	4.341	0.994
A5	Shopping enjoyment	0.270	4.268	4.292	0.994
A6	Compare the prices	0.450	4.287	4.307	0.995
A7	Purchase convenience	0.500	4.270	4.212	1.014
A8	Service quality of employees/automation	0.229	3.788	3.869	0.979
A9	Negotiate prices	0.131	4.338	4.367	0.993
A10	Price and promotion	0.004	4.273	4.307	0.992
A11	Purchase risk	0.040	4.355	4.331	1.006
A12	Purchase effort	0.427	4.428	4.411	1.004
A13	After sales service	0.053	4.350	4.294	1.013



<b>A14</b>	Delivery/return expenses	0.094	4.360	4.299	1.014
<b>A15</b>	Delivery risk	0.019	4.190	4.275	0.980
<b>A16</b>	Return Policy Flexibility	0.029	3.871	3.927	0.986
<b>A17</b>	Delivery efficiency	0.043	4.343	4.397	0.988
<b>A18</b>	Packaging	0.073	4.416	4.358	1.013
<b>A19</b>	Lead time	0.032	4.290	4.321	0.993
<b>A20</b>	Payment method	0.104	4.360	4.440	0.982
	<b>AVG</b>	<b>0.186</b>	<b>4.275</b>	<b>4.287</b>	<b>0.997</b>

Based on the performance score and indicated significance score values, the 20 elements are then plotted into the IPA matrix. The first model employs case study company satisfaction as the Y-axis performance and indicated significance scores as the X-axis. Figure 3 displays the findings, which can be summed up as follows.

- i. A1, A2, A6, and A12 fall into quadrant I "Keep up the good work ", meaning that organizations should maintain a high level of performance for said attributes to remain competitive.
- ii. Attributes A4, A9, A11, A13, A14, A17, A18, A19, and A20 are attributes in Quadrant II that are designated as "Possible overkill ", which means that organizations are capable of overkill. Less attention should be paid to these attributes. The resources allocated to improve these attributes should be excessive.
- iii. A3, A10, A15, and A16 are attributes in Quadrant III that are "Low Priority", meaning that these factors are of low efficiency. However, further development is not required.
- iv. A5, A7, and A8 are the attributes belonging to the IV quadrant and are defined as " Concentrate here ". In addition, these attributes need immediate improvement so as not to negatively affect customer satisfaction.

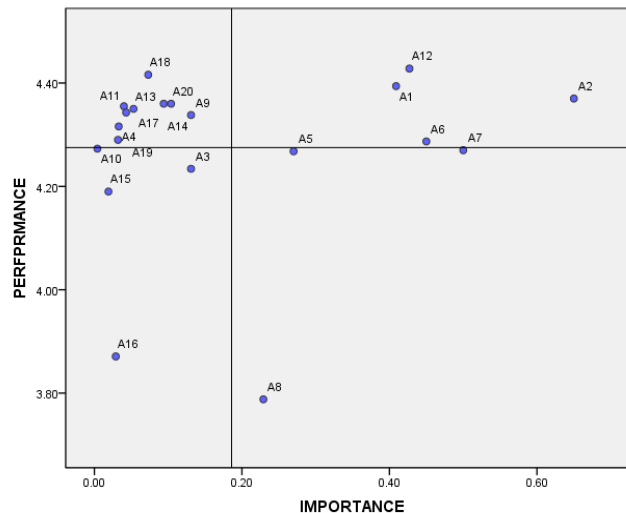


Figure 3. Implicitly Derived Importance – Performance Analysis Matrix

The second model used implied significance scores as the X-axis and the performance ratios as shown in Table 5 as the Y-axis efficiency. The results are shown in Figure 4, which can be summarized as follows:

- i. A1, A2, A7, and A12 fall into the I "Keep up the good work" quadrant, meaning organizations should maintain a high level of performance for such attributes to remain competitive.
- ii. A11, A13, A14, and A18 are attributes in Quadrant II that are defined as " Possible overkill ", which means that organizations should pay less attention to these attributes. The resources allocated to improve these attributes should be excessive.
- iii. A3, A4, A9, A10, A15, A16, A17, A19, and A20 are attributes in quadrant III that are "Low priority", which means that these factors are of low efficiency. However, further development is not required.

- iv. A5, A6, and A8 are the attributes belonging to the IV quadrant; they are defined as "Concentrate here". Therefore, these attributes need immediate improvement in order not to negatively affect customer satisfaction.

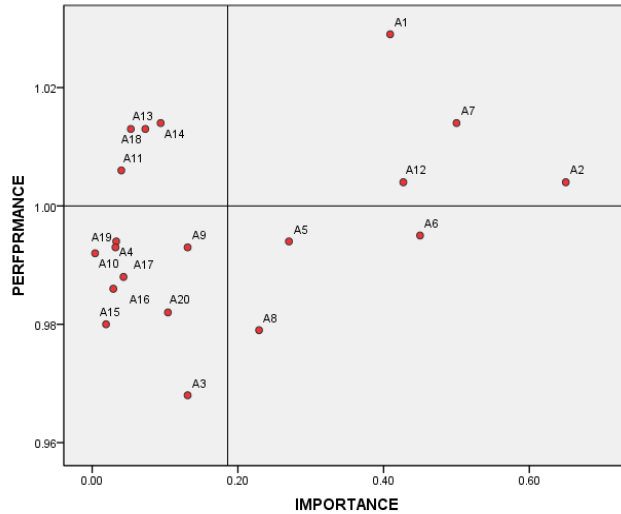


Figure 4. Implicitly Derived Importance – Performance Ratio Analysis Matrix

## 5. Results and Discussion

The parameters influencing customer satisfaction with the caliber of omnichannel logistics services were identified from the examination of the literature review's findings of 20 factors in total, broken down into 3 customer journey channels, which were examined using Benchmarking, Traditional IPA, and Revised IPA. All of the results presented above allow us to draw the conclusion that A1 Information Quality is the most significant factor from direct customer questions, while customer satisfaction and OCS have implied significance. It has been determined that A2 Information Availability is the most crucial factor. Even if there are various factors in the findings, however, if you consider them in terms of channels These two elements play a part in the pre-purchase funnel and are factors that have to do with product information; it denotes how important the information is to the customers. The benefits provided by the search funnel are more important to consumers than the costs realized when searching for the funnel. This is in line with the study by Verhoef et al. (2007) which found that the pre-purchase funnel was highly important, especially in the field of information when customers use the Internet to find the best products. Singh and Jang (2020) discussed the importance of the pre-purchase funnel as it made customers aware of the benefits to be received and the cost of expenses. Therefore, the service quality of this channel is the most important channel. From Figure 3. Implicitly derived importance – Performance Analysis Matrix, it shows that there are 3 attributes in Quadrant IV: A5 Shopping enjoyment from pre-purchase channels, A7 Purchase convenience, and A8 Service quality of employees/automation from the purchase channel while compared to the best competitor.

According to Figure 5. Implicitly derived importance – Performance ratio Analysis Matrix, it can be seen that three attributes, also in quadrant IV, are defined as "Concentrate here" A5 Shopping enjoyment, A6 Compare the prices from the pre-purchase channel, and A8 Service quality of employees/automation from the purchase channel. When comparing the results from the two matrices, it shows that the factors A5 Shopping enjoyment and A8 Service quality of employees/automation from the purchase channel are two factors in Quadrant IV, defined as "Concentrate here". Hence, the case study company should prioritize improving these two attributes in order to increase customer satisfaction and increase competitiveness. While in Quadrant I "Keep up the good work", there are duplicates of the two matrices, A1 Information Quality and A2 Information Availability from the pre-purchase channel and A12 Purchase Effort from the purchase channel. These three factors are the factors that customers expect and pay attention to. The performance of these factors of the case study company meets the expectations of customers. These three factors are key strengths for companies to maintain their service quality levels in order to maintain competitive advantage. As for the purchase channel, these two factors in Quadrant IV are defined as "Concentrate here". Therefore, the case study company should prioritize improving these two attributes in order to increase customer satisfaction and increase competitiveness. While in Quadrant I "Keep up the good work" has duplicates of the two

matrices, A1 Information Quality and A2 Information Availability from the pre-purchase channel, and A12 Purchase Effort from the purchase channel. These three factors are the components that customers expect and pay attention to. The performance of these factors of the case study company meets the expectations of customers. These three factors are key strengths for companies to maintain their service quality levels in order to maintain competitive advantage.

## **6. Conclusion**

This research offers guidelines for assessing satisfaction with the service quality of Omnichannel Logistics by using a three-factor theory relevance model, a benchmarking model that gauges the value of customer satisfaction and overall satisfaction, and a traditional IPA tool developed as a tool to facilitate the setting of priorities for improvement and resource allocation. It overrides the limitation of Traditional IPA out. Moreover, Performance Ratios were used when comparing with the best competitor to increase the chances of strategic planning to beat the strongest competitor in the market nowadays (Deng et al. 2011). This is to increase customer satisfaction. The findings of this study provide a way to improve and develop factors of the quality of services of Omnichannel Logistics throughout the customer journey. The prioritization of factors that need to be developed is divided into two types: development to increase the capability of the company itself to be superior to competitor by focusing on the factors that fall into Quadrant IV "Concentrate here" developing or improving those that fall into Quadrant IV will definitely increase customer satisfaction and also reduce the focus on factors that fall into Quadrant II "Possible overkill" as it wastes resources. At the same time, the standard of factors that fall into Quadrant I "Keep up the good work" must be maintained; this is because these factors are to become the strengths of the organization (Martilla and James 1977). There is, however, no research on how to spend resources to enhance and enhance the factors that fall into the Quadrant IV "Concentrate here". In addition, if one of the factors has been improved, the question raised is that 'will it affect the priority or order of factors that need to be improved or not?'. Therefore, in future research, it may be necessary to study how resources are allocated and the implications of the relationship between other additional factors.

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