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Strategies for developing competitive advantage to increase customer satisfaction in the logistics business in Indonesia

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis strategi pengembangan keunggulan bersaing dalam meningkatkan kepuasan pelanggan pada bisnis logistik di Indonesia. Persaingan yang semakin ketat menuntut perusahaan logistik untuk mampu menciptakan nilai unggul melalui kualitas layanan dan nilai pelanggan. Penelitian ini menggunakan pendekatan kuantitatif dengan metode survei terhadap pengguna jasa logistik, dengan pengumpulan data melalui kuesioner berbasis *online*. Variabel yang diteliti meliputi kualitas layanan, nilai pelanggan, keunggulan bersaing, dan kepuasan pelanggan. Analisis data dilakukan menggunakan metode *Structural Equation Modeling (SEM)* untuk menguji hubungan antarvariabel. Hasil penelitian menunjukkan bahwa kualitas layanan dan nilai pelanggan berpengaruh positif dan signifikan terhadap keunggulan bersaing. Selain itu, kualitas layanan, nilai pelanggan, dan keunggulan bersaing juga berpengaruh positif dan signifikan terhadap kepuasan pelanggan. Temuan ini menunjukkan bahwa peningkatan kualitas layanan dan penciptaan nilai pelanggan secara efektif dapat meningkatkan keunggulan bersaing perusahaan. Keunggulan bersaing yang kuat akan berdampak pada meningkatnya kepuasan pelanggan terhadap jasa yang diterima. Oleh karena itu, perusahaan logistik perlu terus mengembangkan strategi yang berfokus pada peningkatan kualitas layanan dan nilai pelanggan guna mempertahankan daya saing serta meningkatkan kepuasan pelanggan secara berkelanjutan.
Kata Kunci: kualitas layanan; nilai pelanggan; keunggulan bersaing; kepuasan pelanggan; bisnis logistik

ABSTRACT

This study aims to analyze competitive advantage development strategies to improve customer satisfaction in the logistics business in Indonesia. Increasingly fierce competition demands logistics companies to be able to create superior value through service quality and customer value. This study uses a quantitative approach with a survey method of logistics service users, with data collection through an online questionnaire. The variables studied include service quality, customer value, competitive advantage, and customer satisfaction. Data analysis was conducted using the Structural Equation Modeling (SEM) method to test the relationship between variables. The results show that service quality and customer value have a positive and significant effect on competitive advantage. In addition, service quality, customer value, and competitive advantage also have a positive and significant effect on customer satisfaction. These findings indicate that improving service quality and creating customer value can effectively enhance a company's competitive advantage. A strong competitive advantage will impact on increasing customer satisfaction with the services received. Therefore, logistics companies need to continue to develop strategies that focus on improving service quality and customer value to maintain competitiveness and increase customer satisfaction sustainably.
Keyword: service quality; customer value; competitive advantage; customer satisfaction; logistics business

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1. INTRODUCTION

The logistics business is an essential sector that cannot be separated from Indonesia's economic activities. As is well known, Indonesia is an archipelagic country, where an efficient logistics system is crucial to support the equitable distribution of commodities across regions, including remote areas. Currently, the demand for logistics services in Indonesia has been increasing significantly from year to year. This can be evidenced by the rise in the Consumer Confidence Index (*CCI*). Based on data obtained from the official website of Bank Indonesia, in June 2020, Indonesia's *CCI* reached 83.8, an increase from 77.8 in May 2020. This increase reflects an improvement in both domestic and international trade activities in Indonesia. As a result, competition among logistics businesses has become inevitable and increasingly intense, prompting companies to continuously improve the quality of their services.

Along with the rapid growth of *e-commerce* in Indonesia, the demand for logistics services has also surged. The Chairman of the Indonesian E-commerce Association (*IDEA*), Ignatius Untung, stated that the logistics business has enormous potential due to its close relationship with the expansion of *e-commerce* in Indonesia. According to data from Statistics Indonesia (*BPS*), the contribution of the logistics sector to the *Gross Domestic Product (GDP)* in the second quarter of 2019 reached IDR 220.6 trillion, or 5.57% of the total GDP of IDR 3,963.5 trillion. Meanwhile, the Head of the E-commerce Division of the Indonesian Logistics and Forwarders Association (*ALFI*), Yan Henry Joewana, predicted that the logistics business could grow by more than 30% in 2020, with a potential value reaching IDR 40 trillion annually.

Table 1. Logistic Performance Index (2018)

Economy	2018 Rank	2018 Score	2016 Rank	2016 Score	2014 Rank	2014 Score	2012 Rank	2012 Score
Vietnam	39	3.27	64	2.98	48	3.15	53	3.00
India	44	3.18	35	3.42	54	3.08	46	3.08
Indonesia	46	3.15	63	2.98	53	3.08	59	2.94
Côte d'Ivoire	50	3.08	95	2.60	79	2.76	83	2.73
Philippines	60	2.90	71	2.86	57	3.00	52	3.02
Ukraine	66	2.83	80	2.74	61	2.98	66	2.85
Egypt, Arab Rep.	67	2.82	49	3.18	62	2.97	57	2.98
Kenya	68	2.81	42	3.33	74	2.81	122	2.43
Lao PDR	82	2.70	152	2.07	131	2.39	109	2.50
Jordan	84	2.69	67	2.96	68	2.87	102	2.56

Based on the *Logistics Performance Index (LPI)* issued by the World Bank, Indonesia's logistics performance showed improvement in 2018 after experiencing a decline in 2016. According to the *LPI*, Indonesia ranked 46th in 2018, compared to 63rd in 2016. This indicates that the logistics sector in Indonesia has been continuously improving over the years. In addition, the government has targeted a reduction in logistics costs from 23.5% to 17%, recognizing that logistics costs in Indonesia are higher compared to other countries such as Singapore and Malaysia. The Minister of Finance, Sri Mulyani, emphasized that reducing logistics costs involves improvements across the entire *supply chain*, from upstream to downstream, thereby enhancing the ease of doing business by shortening the time required for business processes.

One of the companies operating in the logistics sector in Indonesia is PT Tiki Jalur Nugraha Ekakurir (*JNE*). PT JNE was established in 1980 and is headquartered in Jakarta. In carrying out its business activities, PT JNE provides services including international document and package delivery, import shipment handling, and *customs clearance*. The company has more than 150 locations connected through an integrated *online system*, enabling customers to easily track the status of their shipments. Currently, PT JNE operates over 6,000 locations and employs more than 40,000 staff across Indonesia.

The vision of PT JNE is to become a leading global *supply chain* company, while its mission is to consistently deliver the best experience to customers. From 2012 to 2020, PT JNE received more than 100 awards, including the *Millennial's Top Brand Award 2020*, *Indonesia Top Digital Public Relations Award 2019*, and *Contact Center Service Excellence Award 2018*. PT JNE has also obtained ISO 9001:2008 certification, demonstrating its strong commitment to quality and reliability.

According to JNE's Vice President of Marketing, Eri Palgunadi, the company experienced a performance increase of 30% in 2020 compared to the previous year. This growth was driven by the pandemic situation, during which the logistics sector was relatively less affected. In fact, JNE benefited from changes in consumer behavior, as people shifted from *offline* to *online* transactions to reduce the spread of COVID-19. As a result, optimism in the logistics sector remains strong, contributing to the support of Indonesia's economic growth.

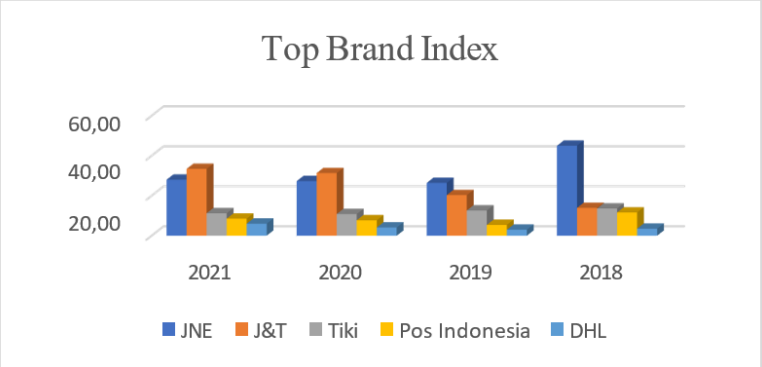

Figure 1. Top Brand Index 2021

Although PT JNE experienced a 30% performance increase as previously stated, data from the *Top Brand Award* survey shows a different trend. This survey evaluates brands based on *last usage*, *mind awareness*, and *future intention* as perceived by customers. The increase achieved by PT JNE from 2019 to 2020 was only 1%, rising from 26.40% to 27.30%, while growth from 2020 to 2021 was merely around 0.3%, increasing from 27.30% to 28%. In addition, PT JNE experienced a significant decline from 2018 to 2019, dropping from 45% to 26.4%.

Furthermore, PT JNE launched an application called *My JNE*, which can be downloaded via the Play Store for Android users and the App Store for iOS users. However, customer ratings for JNE's services on both platforms are lower compared to its competitors. JNE only received a rating of 2.7 out of 5 stars, while competitors such as J&T obtained a rating of 3, TIKI achieved 3.9, and DHL reached 3.6.

This phenomenon indicates that PT JNE must promptly address its existing issues to avoid disappointing its customers. Otherwise, competitors may capture a significant portion of JNE's market share. When customers choose a company as the best brand or provide positive evaluations, it reflects their perception that the products or services have met their satisfaction standards. This is supported by Kotler and Armstrong (2001), who state that customers feel satisfied when the products or services they receive match their expectations. Similarly, Tjiptono (2012) argues that customer satisfaction is achieved when their needs and desires are adequately fulfilled. Therefore, customer satisfaction is a crucial factor that must be prioritized by every company, including PT JNE.

The primary determinant of customer satisfaction is service quality (Fornell et al., 1996). Consumers evaluate product quality based on two indicators: *extrinsic* and *intrinsic* indicators (Collins-Dodd & Lindley, 2003). *Extrinsic* indicators refer to attributes outside the physical product, such as price, brand, packaging, and seller, while *intrinsic* indicators relate to attributes inherent in the product itself, such as production processes, raw materials, composition, and warranties. The concept of service quality is closely linked to the concept of value (Alex & Thomas, 2011), and both have become key factors in understanding consumer behavior in the market (Hwang & Kandampully, 2015). In the logistics service industry, delivering value to customers as a unique competitive advantage through superior service quality is essential, particularly from a *sustainability* perspective. *Sustainability* has the potential to create competitive advantages and improve financial returns (Lins, Servaes, & Tamayo, 2017), making it important for companies to enhance perceived service quality.

In addition to service quality, customer value is another important factor influencing customer satisfaction. Customer value can be defined as the overall evaluation by customers of the net benefits of a product or service based on their perceptions (Bolton & Drew, 1991). Wang (2015) emphasizes that consumers' perceptions of value play a crucial role in determining purchasing decisions. Dorai and Varshney (2012) also state that the concept of customer value is closely related to customer satisfaction.

To enhance competitive advantage, companies must focus on key factors such as customer value—reflecting the *trade-off* between what customers give (price, sacrifice) and what they receive—and service quality, which must be carefully managed. When these factors are fulfilled, companies can achieve competitive advantages that lead to higher customer satisfaction. Barney (1995) defines competitive advantage as the strength a company gains through successful strategies to attract customers. Wang (2015) further explains that competitive advantage is achieved when companies develop attributes or actions that enable them to outperform competitors. Zhou et al. (2009) classify competitive advantage into two dimensions: innovation and market differentiation, both of which can enhance customer satisfaction. This is supported by Tsao (2014), who found that competitive advantage increases customer satisfaction within organizations. Vorhies and Morgan (2005) also found that marketing capabilities contributing to competitive advantage have a positive

impact on customer satisfaction. Similarly, Milfelner and Korda (2011) concluded that customer satisfaction is closely related to sustainable competitive advantage.

Ciu et al. (2014) define satisfaction as the result of evaluating past experiences. Satisfaction is a crucial factor in encouraging *repurchase intention* and building long-term relationships between companies and customers, particularly in *online* transactions (Wen et al., 2011). Furthermore, Wen et al. (2011) highlight that satisfaction has both direct and indirect effects on consumers' intention to continue using a service.

Several studies support these arguments. Garcia-Fernandez et al. (2018) found that perceived customer value significantly influences customer satisfaction. Similarly, Chou et al. (2019) concluded that customer value has a positive and significant effect on customer satisfaction. However, contrasting results were reported by Yulisetiarini et al. (2018), who found that customer value does not significantly affect customer satisfaction. Sri Wahyuni (2019) found that service quality positively influences customer satisfaction, a finding supported by Carraza et al. (2018), who also concluded that customer satisfaction is affected by service quality. On the other hand, Ali et al. (2015) reported that service quality has a negative effect on customer satisfaction.

2. RESEARCH METHOD

A. Research Design

The method used in this study is a quantitative method, which is a scientific approach to managerial and economic decision-making. This approach is *data-driven*, where the processing and manipulation of raw data into meaningful information form the core of quantitative analysis (Kuncoro, 2013).

This study aims to analyze the effect of service quality (X1) on competitive advantage (Y1) and customer satisfaction (Y2), the effect of customer value (X2) on competitive advantage (Y1) and customer satisfaction (Y2), as well as the effect of competitive advantage (Y1) on customer satisfaction (Y2).

The research design employed in this study is a causal relationship design. A causal relationship refers to a cause-and-effect relationship, involving *exogenous variables* (independent variables) and *endogenous variables* (dependent variables) (Ghozali, 2014). In this study, a descriptive approach is also utilized through a survey method to obtain clear information regarding:

a) the effect of service quality on customer satisfaction,
b) the effect of service quality on customer trust and customer loyalty,
c) the effect of customer satisfaction on customer trust and customer loyalty, and
d) the effect of customer trust on customer loyalty in a logistics company, namely PT Tiki Jalur Eka Nugraha (JNE).

According to Ghozali (2014), *descriptive statistical analysis* is used to analyze the collected data as it is, without the intention of making generalizations. The data and information in this study were collected using *closed-ended questionnaires* to maintain respondent confidentiality and minimize subjectivity.

B. Unit of Analysis

According to Arikunto (2010), the unit of analysis is a specific entity considered as the subject of the study. In other words, it refers to the component being analyzed in the research. The unit of analysis in this study is individual consumers of PT Tiki Jalur Nugraha Ekakurir (JNE).

C. Population

According to Ghozali (2014), population is a generalization area consisting of objects or subjects that have certain qualities and characteristics determined by researchers to be studied and from which conclusions are drawn. In other words, a population is a group of individuals capable of providing information for a study. The population in this research consists of consumers of PT Tiki Jalur Nugraha Ekakurir (JNE).

D. Research Sample

According to Ghozali (2014), a sample is a subset of the population that represents its characteristics. This means that the attributes or conditions of the population must be reflected in the sample. This study employs a *non-probability sampling* technique, as the exact population size is unknown (Ferdinand, 2014). The sampling technique used is *purposive sampling*, where samples are selected based on specific considerations and criteria.

The criteria used in this study are as follows:

a) individuals residing in the Greater Jakarta (*Jabodetabek*) area,
b) individuals who are aware of PT JNE,
c) individuals who have used JNE services at least once, and
d) individuals aged between 15–65 years.

To obtain the sample, questionnaires were distributed randomly using *Google Forms*, which contained a set of statements designed to measure respondents' perceptions of variables such as service quality, customer value, competitive advantage, and customer satisfaction. Prospective respondents were provided with a link

directing them to an initial screening questionnaire. This initial section ensured that respondents met the required criteria. Responses that did not meet the criteria were excluded from the analysis.

The sample size was initially calculated using a formula proposed by Ferdinand (2014). Based on this calculation, the required sample size was 90 respondents. However, considering the minimum sample requirement for *AMOS* analysis, which is at least 100 samples, the sample size was rounded up to 100 respondents. Within the two-week data collection period, a total of 135 responses were obtained. After removing outliers, the final sample size used in the analysis was 122 respondents.

E. Hypothesis

There are various factors that can influence a company's competitive advantage. However, this study focuses on several key factors, namely customer loyalty, customer satisfaction, perceived value, and perceived quality.

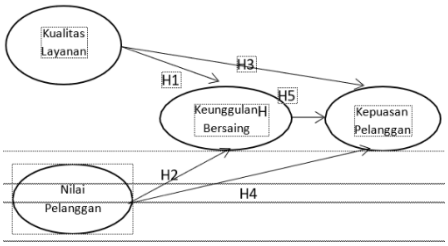

Figure 2. Top Brand Index 2021

Hypothesis is a temporary answer to the research problem formulation. It is considered temporary because the answer is based only on theory and has not yet been tested using empirical evidence. Therefore, further research is required to determine whether the hypothesis can be accepted or rejected. Based on the conceptual framework described above, the hypotheses in this study are as follows:

1) The Relationship between Service Quality and Competitive Advantage

Quality is defined as a dynamic condition related to products, services, human resources, processes, and the environment that meets or exceeds expectations (Goetsch, 2000). Quality is also considered an important indicator of competitive advantage (Ward & Duray, 2000). The *Sandcone Model* suggests that quality advantage forms the foundation for other operational competitive advantages (Ferdows & DeMeyer, 1990). Chen (2008) emphasizes that to achieve competitive advantage and higher profitability in a highly competitive environment, companies must provide high-quality services. Good service quality not only creates competitive advantage but also enhances customer retention, leading to increased market share (Park et al., 2004).

Parasuraman et al. (1988) also argue that service quality can serve as a source of competitive advantage. This is supported by Sandra Jelcic (2014), who found that high service quality leads to sustainable competitive advantage. Gupta and Randhawa (2008) further state that quality service is an effective way for companies to differentiate themselves from competitors. Several empirical studies, such as Rashid et al. (2019) and Syapsan (2019), confirm that service quality has a significant effect on competitive advantage. Based on these theories and prior studies, this research proposes:

H1: Service quality has a positive and significant effect on competitive advantage.

2) The Relationship between Customer Value and Competitive Advantage

Holbrook (1999) states that perceived value is a fundamental concept in marketing. The higher the value perceived by customers, the greater their intention to continue using a company's products or services (Naumann, 1995). Perceived value contributes to both customer satisfaction and customer loyalty (Brodie et al., 2009). Creating superior customer value increases trust and commitment, which ultimately leads to customer loyalty (Javed & Cheema, 2017). According to Porter (1985), competitive advantage originates from the value created for customers. Studies by Huang et al. (2013) and Yasri et al. (2019) also confirm that customer value has a significant relationship with competitive advantage.

Thus, the proposed hypothesis is:

H2: Customer value has a positive and significant effect on competitive advantage.

3) The Relationship between Service Quality and Customer Satisfaction

Service quality is a primary determinant of customer satisfaction (Fornell et al., 1996). Customer satisfaction is often described as a feeling of fulfillment when expectations are met (Wheelen & Hunger, 2010). It is also a key driver of productivity, loyalty, and service performance (Matzler & Renzl, 2006). Han and Hyun (2017) state that quality directly affects satisfaction. Empirical studies by Carranza et al. (2018) and García-Fernández et al. (2018) found that service quality has a significant effect on customer satisfaction.

Therefore, the hypothesis is:

H3: Service quality has a positive and significant effect on customer satisfaction.

4) The Relationship between Customer Value and Customer Satisfaction

The *expectation-disconfirmation theory* (Oliver, 1980) explains that satisfaction occurs when post-purchase experiences meet or exceed expectations. *Equity theory* (Oliver & Swan, 1989) suggests that satisfaction is based on the perceived fairness between what customers give (cost, time, effort) and what they receive.

Perceived value is one of the main determinants of customer satisfaction (Fornell et al., 1996). Dorai and Varshney (2012) also highlight the close relationship between customer value and satisfaction. Studies by Chou et al. (2019) and García-Fernández et al. (2018) confirm that perceived value significantly affects customer satisfaction.

Thus, the hypothesis is:

H4: Customer value has a positive and significant effect on customer satisfaction.

5) The Relationship between Competitive Advantage and Customer Satisfaction

Customer satisfaction is a crucial construct in marketing (McQuitty et al., 2000). It plays an important role in increasing *repurchase intention* and building long-term relationships, especially in *online transactions* (Wen et al., 2011). Satisfaction also has both direct and indirect effects on customer *continuance intention*.

Research by Tsao (2014) and Bakti et al. (2018) shows that competitive advantage has a significant impact on customer satisfaction. Based on these findings, the hypothesis is:

H5: Competitive advantage has a positive and significant effect on customer satisfaction.

3. RESULTS AND DISCUSSION

PT Tiki Jalur Nugraha Ekakurir (*JNE*) was established in 1980 and is headquartered in Jakarta. In conducting its business operations, JNE provides services such as international document and package delivery, import shipment handling, and *customs clearance* activities.

JNE has more than 150 locations connected through an integrated *online system*, enabling customers to easily track the status of their shipments. Currently, JNE operates over 6,000 partners and employs more than 40,000 staff across Indonesia.

The vision of JNE is to become a leading global *supply chain* company, while its mission is to consistently deliver the best customer experience. From 2012 to 2020, JNE received more than 100 awards, including the *Millennial's Top Brand Award 2020*, *Indonesia Top Digital Public Relations Award 2019*, and *Contact Center Service Excellence Award 2018*.

JNE is also certified with ISO 9001:2008, indicating its strong commitment to quality and reliability. According to JNE's Vice President of Marketing, Eri Palgunadi, the company experienced a 30% performance increase in 2020 compared to the previous year. This growth was driven by changes in consumer behavior during the COVID-19 pandemic, where people shifted from *offline* to *online* transactions, thereby supporting the logistics sector and contributing to Indonesia's economic resilience.

A. Gender of Respondents

Based on the descriptive analysis, the distribution of respondents by gender is as follows:

Table 2. Classification of Respondents by Gender

Gender	Frequency	Percentage
Male	24	20%
Female	98	80%
Total	**122**	**100%**

The data show that the majority of respondents are female (80%). This indicates that most users of JNE services for shipping and *e-commerce* activities are women. This finding is supported by research from Kredivo and Katadata Insight Center (*KIC*), which shows that women engage in *e-commerce* transactions more frequently than men, averaging 26 transactions per year compared to 14 for men.

B. Age of Respondents

The distribution of respondents by age is as follows:

Table 3. Classification of Respondents by Age

Age Group	Frequency	Percentage
<17 years	–	–
17–24 years	14	11%
25–30 years	18	15%
30–40 years	80	66%
40–50 years	10	8%
50–65 years	–	–
Total	**122**	**100%**

The majority of respondents fall within the 30–40 age group (66%), indicating that JNE users are predominantly in the productive age range. This group is often associated with the millennial generation, which,

according to APJII (2018), tends to be highly consumptive, especially in *online shopping*. This behavior contributes to increased logistics activities.

C. Occupation of Respondents

The distribution of respondents by occupation is as follows:

Table 4. Classification of Respondents by Occupation

Occupation	Frequency	Percentage
Student	6	5%
Government Employee	32	26%
Private Employee	55	45%
Entrepreneur	11	9%
Others	18	15%
Total	**122**	**100%**

The data indicate that the majority of respondents are employees, both in the private sector (45%) and government sector (26%). Individuals with full-time jobs tend to spend more time at work, leading them to prefer *online shopping* over *offline shopping*. This behavior increases logistics activities, particularly for delivery services such as JNE.

D. Income of Respondents

The distribution of respondents by income is as follows:

Table 5. Classification of Respondents by Income

Income Level	Frequency	Percentage
<2,000,000	16	13%
2,000,000–4,000,000	23	19%
4,000,000–5,000,000	21	17%
>5,000,000	62	51%
Total	**122**	**100%**

The majority of respondents (51%) have an income above IDR 5,000,000. Income level significantly influences consumption behavior. Higher income increases purchasing power, especially for *online shopping*, which in turn boosts logistics activities related to product delivery.

E. Respondent Region

Table 6. Classification of Respondents by Region

Region	Number of Main Branch Offices	Number of Respondents
Jakarta	12	84
Depok	1	12
Bogor	1	7
Bekasi	1	11
Tangerang	1	8
Total		**122**

Based on the data above, the highest distribution of respondents is in Jakarta, with 84 respondents. As the capital city, Jakarta is the most densely populated area and serves as the main business center, where most offices are located, including JNE. According to JNE's official website, Jakarta has the highest number of main branch offices, totaling 12, while other regions only have one main branch office each.

F. Descriptive Analysis

The attributes in this study were measured using a scale with the lowest score of 1 (*strongly disagree*) and the highest score of 10 (*strongly agree*). To determine the criteria for consumer assessment of the variables studied, the following formula can be used (Ferdinand, 2014):

$$\text{Nilai Indeks} = \frac{(\%F_1 \times 1)+(\%F_2 \times 2)+\cdots+(\%F_{10} \times 10)}{10} \quad (1)$$

Where:

F1 = frequency of respondents who answered 1

F2 = frequency of respondents who answered 2

…

F10 = frequency of respondents who answered 10

After calculating the index value, the results are grouped and interpreted based on the following interval scale:

Table 7. Interval Measurement

No	Index Value	Interpretation
1	10.00–40.00	Low
2	40.01–70.00	Moderate
3	70.01–100.00	High

G. Data Analysis Using SEM Testing

1) Path Diagram

The theoretical model developed in the hypotheses is illustrated using a *path diagram*. This diagram helps researchers visualize the causal relationships to be tested. The rectangular shapes in the diagram represent the number of observed variable indicators measured through questionnaires.

For example:

a) there are 10 indicators for service quality represented by variable X1,
b) 8 indicators for customer value represented by variable X2,
c) 10 indicators for competitive advantage represented by variable Y1, and
d) 6 indicators for customer satisfaction represented by variable Y2.

2) SEM Assumption Testing

Parameter estimation in this study uses the *Maximum Likelihood (ML)* method. This estimation technique requires several assumptions, as outlined below:

a) Sample Size

The initial sample collected in this study consisted of 135 respondents. However, some data were excluded because they did not meet the predetermined criteria. Therefore, the final sample used in this study was 122 respondents. This number meets the minimum requirement for *SEM* analysis using the *Maximum Likelihood* method.

b) Normality Test

The normality test aims to determine whether the data in the model are normally distributed. In this study, normality testing was conducted using *AMOS* with the *skewness* value approach.

According to Ghozali (2014), data are considered normally distributed if the *critical ratio (c.r.)* value is less than ±2.58. Conversely, if the *critical ratio* exceeds ±2.58, the data are not normally distributed.

Based on the results presented in Table 8:

a) all variables show *critical ratio (c.r.)* values for *skewness* and *kurtosis* within the range of ±2.58,
b) the multivariate *c.r.* value is 1.806, which is also below the threshold of ±2.58.

Therefore, it can be concluded that the data in this study are normally distributed both univariately and multivariately. This indicates that the data meet the normality assumption required for *SEM* analysis using the *Maximum Likelihood* method.

Table 8. Data Normality Test

Variable	Min	Max	Skew	c.r.	Kurtosis	c.r.
Y2_32	1.000	10.000	-0.387	-1.747	-0.408	-0.919
Y2_31	3.000	10.000	-0.326	-1.469	-0.799	-1.802
Y2_22	2.000	10.000	-0.249	-1.124	-0.734	-1.655
Y2_21	1.000	10.000	-0.424	-1.911	-0.540	-1.218
Y2_12	1.000	10.000	-0.411	-1.853	-0.414	-0.933
Y2_11	1.000	10.000	-0.475	-2.140	-0.394	-0.889
Y1_52	1.000	10.000	-0.424	-1.912	-0.383	-0.863
Y1_51	2.000	10.000	-0.428	-1.932	-0.630	-1.420
Y1_42	2.000	10.000	-0.547	-2.468	-0.316	-0.712
Y1_41	1.000	10.000	-0.366	-1.649	-0.742	-1.673
Y1_32	1.000	10.000	-0.318	-1.434	-0.730	-1.646
Y1_31	2.000	10.000	-0.284	-1.281	-0.910	-2.051
Y1_22	1.000	10.000	-0.509	-2.295	-0.281	-0.633
Y1_21	2.000	10.000	-0.266	-1.198	-0.824	-1.859
Multivariate					16.181	1.806

Based on the table above, it can be concluded that all variables have *critical ratio (c.r.)* values within the range of ±2.58, both for *skewness* and *kurtosis*. Additionally, the multivariate *c.r.* value is 1.806, which is also below the threshold. Therefore, the data are normally distributed and meet the assumptions required for *SEM* analysis.

c) Validity and Reliability Test

The validity test is conducted to determine whether a questionnaire is valid and capable of accurately measuring the intended variables. A questionnaire is considered valid if the *loading factor* or *standardized loading estimate* is greater than 0.50.

Meanwhile, the reliability test is used to assess the consistency of the measurement instrument. A variable is considered reliable if it meets the following criteria:

a) *Construct Reliability (C.R.)* > 0.70
b) *Average Variance Extracted (AVE)* > 0.50

Table 9. Validity and Reliability Test Results

No	Variabel	Indikator	Loading Factor	Squared Loading	Measurement Error	CR	AVE
1	X1	X1_11	0.725	0.526	0.474	0.978	0.762

No	Variabel	Indikator	Loading Factor	Squared Loading	Measurement Error	CR	AVE
		X1_12	0.714	0.510	0.490		
		X1_21	0.913	0.834	0.166		
		X1_22	0.936	0.876	0.124		
		X1_31	0.917	0.841	0.159		
		X1_41	0.910	0.828	0.172		
		X1_42	0.911	0.830	0.170		
		X1_51	0.916	0.839	0.161		
		X1_52	0.920	0.846	0.154		
		Sigma²	78.702	7.620	2.380		
		Sigma²	75.725				
2	X2	X2_11	0.923	0.852	0.148	0.976	0.836
		X2_12	0.923	0.852	0.148		
		X2_21	0.901	0.812	0.188		
		X2_22	0.921	0.848	0.152		
		X2_31	0.884	0.781	0.219		
		X2_32	0.921	0.848	0.152		
		X2_41	0.928	0.861	0.139		
		X2_42	0.831	0.690	0.310		
		X2_43	0.814	0.663	0.337		
		Sigma²	5.495				
3	Y1	Y1_11	0.909	0.826	0.174	0.978	0.816
		Y1_12	0.920	0.846	0.154		
		Y1_21	0.868	0.753	0.247		
		Y1_22	0.879	0.772	0.228		
		Y1_31	0.916	0.839	0.161		
		Y1_32	0.908	0.824	0.176		
		Y1_41	0.894	0.799	0.201		
		Y1_42	0.834	0.696	0.304		
		Y1_51	0.921	0.850	0.150		
		Y1_52	0.901	0.812	0.188		
		Sigma²	9.031	8.159	1.841		
4	Y2	Y2_11	0.915	0.837	0.163	0.965	0.820
		Y2_12	0.903	0.815	0.185		
		Y2_21	0.927	0.859	0.141		
		Y2_22	0.844	0.712	0.288		
		Y2_31	0.926	0.858	0.142		
		Y2_32	0.918	0.843	0.157		
		Sigma²	5.432	4.923	1.077		

Based on the data above, it can be concluded that all questionnaire items are valid, as the *standardized loading factor* values for all items are greater than 0.50. Furthermore, all items are considered reliable, as the values of *Construct Reliability (C.R.)* and *Average Variance Extracted (AVE)* meet the required criteria.

Specifically, the first construct has a *C.R.* value of 0.970 and an *AVE* of 0.762 (*C.R.* > 0.70; *AVE* > 0.50). The second construct shows a *C.R.* value of 0.976 and an *AVE* of 0.836. The third construct produces a *C.R.* value of 0.978 and an *AVE* of 0.816, while the fourth construct has a *C.R.* value of 0.965 and an *AVE* of 0.829.

d) Outlier Test

The outlier test is conducted to identify whether there are data points that are significantly higher or lower than the average. Outliers can be detected using the *Mahalanobis Distance (D²)* by comparing it with the chi-square value at a degree of freedom (*df*) of 34 (since this study uses 34 indicators) and a significance level of 0.001. The chi-square table value obtained is 65.247. Observations with a *Mahalanobis Distance (D²)* value greater than 65.247 are considered outliers and should be removed from the dataset.

Table 10. Outlier Test Results

Observation Number	Mahalanobis D²	p1	p2
64	55.872	0.010	0.722
66	54.155	0.015	0.564
50	51.445	0.028	0.666
18	51.096	0.030	0.501
29	50.374	0.035	0.423
55	49.712	0.040	0.363
…	…	…	…
17	27.747	0.767	0.426
79	27.246	0.788	0.560

Based on the data above, it can be concluded that there are no multivariate outliers in the dataset. This is because the highest *Mahalanobis D²* value is 55.872, which is lower than the chi-square threshold value of 65.247. Therefore, all data points are considered acceptable and suitable for further analysis.

e) Multicollinearity Test

The multicollinearity test is conducted to determine whether there is a strong correlation among the indicators within the research variables. Multicollinearity can affect the accuracy of parameter estimation in the model.

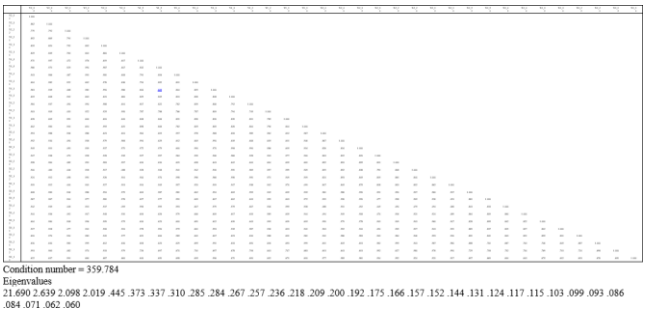

Figure 3. Multicollinearity Test

Based on the data processing results, it can be seen that the correlation values among items are less than 0.90, indicating that there is no multicollinearity problem in this study.

f) Confirmatory Factor Analysis of Exogenous Construct: Service Quality (X1)

The *confirmatory factor analysis (CFA)* for the exogenous construct Service Quality (X1) aims to examine the validity and reliability of the indicators used to measure this variable. In this study, Service Quality is measured using several indicators, including reliability, responsiveness, assurance, empathy, and tangibles.

Based on the *CFA* results, all indicators of Service Quality (X1) show *standardized loading factor* values greater than 0.50, indicating that all indicators are valid in measuring the construct. In addition, the construct also meets the reliability criteria, as reflected by the *Construct Reliability (C.R.)* value exceeding 0.70 and the *Average Variance Extracted (AVE)* value exceeding 0.50. These results indicate that the Service Quality (X1) construct has good validity and reliability, and is therefore appropriate to be used in further analysis within the *structural equation model (SEM)*.

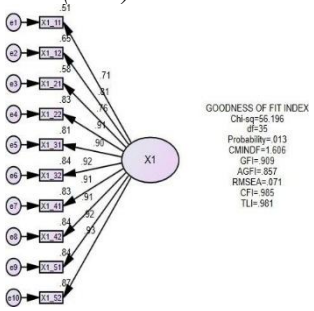

Figure 4. Results of Exogenous Construct: Service Quality (X1).

g) Confirmatory Factor Analysis of Exogenous Construct: Customer Value (X2)

The *CFA* for the exogenous construct Customer Value (X2) aims to evaluate the validity and reliability of the indicators used to measure customer value, including emotional value, quality value, social value, and *value for money*. The results show that all indicators have *standardized loading factor* values greater than 0.50, indicating good validity. In addition, the construct meets reliability requirements with *Construct Reliability (C.R.)* > 0.70 and *AVE* > 0.50. Therefore, the Customer Value (X2) construct is valid and reliable for further analysis.

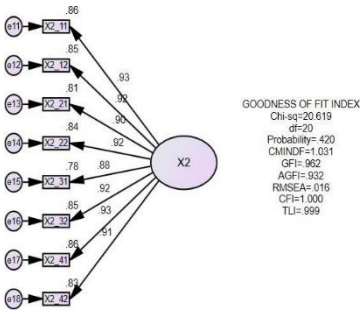

Figure 5. Results of Exogenous Construct: Customer Value (X2)

h) Confirmatory Factor Analysis of Endogenous Construct: Competitive Advantage (Y1)

The *CFA* for Competitive Advantage (Y1) is conducted to test indicators such as price, quality, delivery, dependability, innovation, and *time to market*. The analysis results indicate that all indicators have *loading factor* values above 0.50, meaning they are valid. The construct also meets reliability criteria (*C.R.* > 0.70 and *AVE* > 0.50). Thus, the Competitive Advantage (Y1) variable is suitable for use in the *SEM* model.

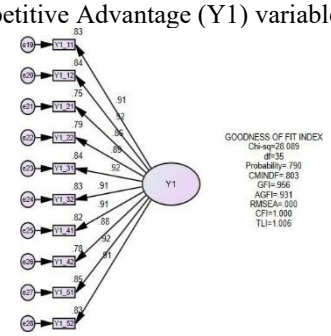

Figure 6. Results of Endogenous Construct: Competitive Advantage (Y1)

i) Confirmatory Factor Analysis of Endogenous Construct: Customer Satisfaction (Y2)

The *CFA* for Customer Satisfaction (Y2) evaluates indicators such as price suitability, *repurchase intention*, and *willingness to recommend*. The results show that all indicators have *loading factor* values greater than 0.50, and the construct meets the reliability requirements (*C.R.* > 0.70 and *AVE* > 0.50). Therefore, the Customer Satisfaction (Y2) construct is valid and reliable for further analysis.

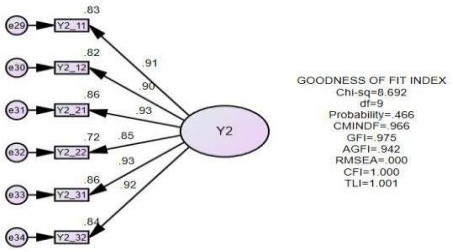

Figure 7. Results of Endogenous Construct: Customer Satisfaction (Y2)

j) Confirmatory Factor Analysis (CFA) Full Model

The *CFA full model* combines all constructs, namely Service Quality (X1), Customer Value (X2), Competitive Advantage (Y1), and Customer Satisfaction (Y2), into a single measurement model. The results indicate that all indicators across variables meet the validity and reliability criteria. This confirms that the overall measurement model is appropriate and can proceed to the *structural model* analysis stage.

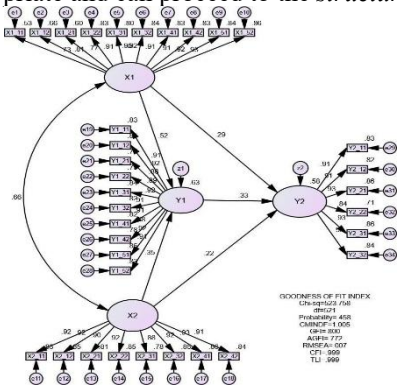

Figure 8. Full Model Uji CFA

k) Goodness of Fit Model Analysis

The *goodness of fit* test is conducted to evaluate how well the proposed model fits the observed data. Several fit indices are commonly used, including:

a) *Chi-square* (χ^2) → expected to be small
b) *Probability (p-value)* → ≥ 0.05
c) *CMIN/DF* → ≤ 2.00 or 3.00
d) *GFI* and *AGFI* → ≥ 0.90
e) *TLI* and *CFI* → ≥ 0.90
f) *RMSEA* → ≤ 0.08

Table 11. Goodness of Fit Model Analysis

Goodness of Fit Index	Cut-off Value	Result	Model Evaluation
Chi-square (χ^2)	≤ 575.208	523.758	Good Fit
Probability	≥ 0.05	0.458	Good Fit
CMIN/DF	≤ 2.00	1.005	Good Fit
GFI	≥ 0.90	0.800	Marginal Fit
AGFI	≥ 0.90	0.772	Marginal Fit
RMSEA	≤ 0.08	0.007	Good Fit
CFI	≥ 0.90	0.999	Good Fit
TLI	≥ 0.90	0.999	Good Fit

Based on the results above, most *goodness of fit indices* indicate a good model fit. Although *GFI* and *AGFI* fall into the *marginal fit* category, the overall model can still be considered acceptable because other indices such as *RMSEA*, *CFI*, *TLI*, and *CMIN/DF* show excellent fit values. Therefore, the model is deemed appropriate for further analysis.

l) Hypothesis Testing

A hypothesis is accepted if the *Critical Ratio (C.R.)* value is greater than 2.58 at a significance level of 0.01, or greater than 1.96 at a significance level of 0.05. Hypothesis testing is conducted to examine the causal relationships between variables in the structural model. The decision criteria are as follows:

a) if *C.R.* > 1.96 and *p-value* < 0.05, then the hypothesis is accepted (*significant effect*),

b) if *C.R.* ≤ 1.96 and *p-value* ≥ 0.05, then the hypothesis is rejected (*not significant*).

Table 12. Estimation Results of Variables

			Estimate	S.E.	C.R.	P	Label
Y1	<---	X1	.625	.111	5.617	***	**par_31**
Y1	<---	X2	.339	.078	4.343	***	**par_32**
Y2	<---	X1	.348	.124	2.811	.005	**par_33**
Y2	<---	X2	.211	.088	2.395	.017	**par_34**
Y2	<---	Y1	.324	.106	3.069	.002	**par_35**
X1_11	<---	X1	1.000				
X1_12	<---	X1	1.099	.120	9.162	***	**par_1**
X1_21	<---	X1	1.027	.118	8.678	***	**par_2**
X1_22	<---	X1	1.196	.116	10.327	***	**par_3**
X1_31	<---	X1	1.186	.117	10.114	***	**par_4**
X1_32	<---	X1	1.218	.117	10.394	***	**par_5**
X1_41	<---	X1	1.214	.118	10.289	***	**par_6**
X1_42	<---	X1	1.226	.119	10.285	***	**par_7**
X1_51	<---	X1	1.234	.119	10.386	***	**par_8**
X1_52	<---	X1	1.237	.118	10.520	***	**par_9**
X2_11	<---	X2	1.000				
X2_12	<---	X2	1.021	.056	18.330	***	**par_10**
X2_21	<---	X2	.931	.055	17.009	***	**par_11**
X2_22	<---	X2	.986	.054	18.201	***	**par_12**
X2_31	<---	X2	.893	.056	16.086	***	**par_13**
X2_32	<---	X2	.955	.052	18.331	***	**par_14**
X2_41	<---	X2	1.005	.054	18.679	***	**par_15**
X2_42	<---	X2	.919	.052	17.805	***	**par_16**
Y1_11	<---	Y1	1.000				
Y1_12	<---	Y1	.982	.057	17.348	***	**par_17**
Y1_21	<---	Y1	.924	.063	14.648	***	**par_18**
Y1_22	<---	Y1	1.002	.064	15.712	***	**par_19**
Y1_31	<---	Y1	1.073	.063	17.061	***	**par_20**
Y1_32	<---	Y1	1.039	.063	16.625	***	**par_21**
Y1_41	<---	Y1	1.042	.063	16.670	***	**par_22**
Y1_42	<---	Y1	.874	.056	15.481	***	**par_23**
Y1_51	<---	Y1	1.000	.057	17.425	***	**par_24**
Y1_52	<---	Y1	1.012	.060	16.864	***	**par_25**
Y2_11	<---	Y2	1.000				
Y2_12	<---	Y2	.986	.059	16.691	***	**par_26**
Y2_21	<---	Y2	1.051	.059	17.785	***	**par_27**
Y2_22	<---	Y2	.957	.069	13.842	***	**par_28**
Y2_31	<---	Y2	1.034	.059	17.612	***	**par_29**
Y2_32	<---	Y2	1.019	.059	17.210	***	**par_30**

Based on the estimation results, all proposed hypotheses are accepted. The relationship between Service Quality and Competitive Advantage (X1 → Y1) is significant, as indicated by a *C.R.* value of 5.617 and a *p-value* ($p < 0.01$). Similarly, the relationship between Customer Value and Competitive Advantage (X2 → Y1) is also significant, with a *C.R.* value of 4.343 ($p < 0.01$).

Furthermore, Service Quality has a significant effect on Customer Satisfaction (X1 → Y2), with a *C.R.* value of 2.811 and a *p-value* of 0.005 (p < 0.05). Customer Value also significantly influences Customer Satisfaction (X2 → Y2), as shown by a *C.R.* value of 2.395 and a *p-value* of 0.017 (p < 0.05).

Lastly, Competitive Advantage has a significant effect on Customer Satisfaction (Y1 → Y2), with a *C.R.* value of 3.069 and a *p-value* of 0.002 (p < 0.05).

Thus, it can be concluded that all variables in this study have a positive and significant effect in accordance with the proposed hypotheses (H1–H5). This indicates that improvements in service quality and customer value can enhance competitive advantage, which in turn contributes to increased customer satisfaction.

Y1 = 0.52(X1) + 0.35(X2)

Y2 = 0.29(X1) + 0.22(X2) + 0.33(Y1)

Table 13. Hypothesis Testing (Regression Weights: Default Model)

Variable	Relationship	Variable	Estimate	S.E.	C.R.	P
Competitive Advantage	<---	Service Quality	0.625	0.111	5.617	***
Competitive Advantage	<---	Customer Value	0.339	0.078	4.343	***
Customer Satisfaction	<---	Service Quality	0.348	0.124	2.811	0.005
Customer Satisfaction	<---	Customer Value	0.211	0.088	2.395	0.017
Customer Satisfaction	<---	Competitive Advantage	0.324	0.106	3.069	0.002

- Hypothesis 1

The *Critical Ratio (C.R.)* value between Service Quality (X1) and Competitive Advantage (Y1) is 5.617. This value is greater than 1.96 (the *z-table* value at a 5% significance level), and the *p-value* is far below 0.05. Therefore, the first hypothesis, which states that there is a significant effect of Service Quality (X1) on Competitive Advantage (Y1), is accepted.

- Hypothesis 2

The *C.R.* value between Customer Value (X2) and Competitive Advantage (Y1) is 4.343. This value is greater than 1.96, and the *p-value* is far below 0.05. Therefore, the second hypothesis, which states that there is a significant effect of Customer Value (X2) on Competitive Advantage (Y1), is accepted.

- Hypothesis 3

The *C.R.* value between Service Quality (X1) and Customer Satisfaction (Y2) is 2.811. This value is greater than 1.96, and the *p-value* of 0.005 is less than 0.05. Therefore, the third hypothesis, which states that there is a significant effect of Service Quality (X1) on Customer Satisfaction (Y2), is accepted.

- Hypothesis 4

The *C.R.* value between Customer Value (X2) and Customer Satisfaction (Y2) is 2.395. This value is greater than 1.96, and the *p-value* of 0.017 is less than 0.05. Therefore, the fourth hypothesis, which states that there is a significant effect of Customer Value (X2) on Customer Satisfaction (Y2), is accepted.

- Hypothesis 5

The *C.R.* value between Competitive Advantage (Y1) and Customer Satisfaction (Y2) is 3.069. This value is greater than 1.96, and the *p-value* of 0.002 is less than 0.05. Therefore, the fifth hypothesis, which states that there is a significant effect of Competitive Advantage (Y1) on Customer Satisfaction (Y2), is accepted.

H. Discussion

Basically, competitive advantage refers to the extent to which a company is able to maintain its position amid intense market competition. A competitive advantage strategy is crucial because a company must excel in various aspects by implementing appropriate strategies, enabling it to compete effectively with its competitors. In implementing such strategies, companies must be able to carefully analyze market conditions and closely monitor competitors so that the decisions taken are appropriate and can improve company performance.

This study is based on the theory proposed by Jay Barney (1995), which states that competitive advantage can be viewed from a company's resources, both tangible (such as financial, physical, and technological resources) and intangible (such as creativity and reputation). These resources are reflected in several indicators, including service quality (tangible, empathy, assurance, responsiveness, and reliability) and customer value (emotional value, social value, quality value, and *value for money*). These two variables influence competitive advantage, which ultimately enhances customer satisfaction with the services received.

This research was conducted in the logistics sector, particularly at JNE. The logistics sector was chosen due to Indonesia's vast geographical area, where logistics plays a vital role in the distribution of goods. In its operations, JNE faces intense competition from several companies, including J&T Express, TIKI, AnterAja, DHL, Pos Indonesia, and Ninja Express.

Data were collected through an *online survey* using *Google Forms*. The majority of respondents were female, indicating that women tend to engage more frequently in shopping activities compared to men. Most respondents were aged between 30–40 years, representing a financially stable group with steady income. The majority worked as private employees, particularly career women who spend more time at work than at home, leading them to prefer *online shopping* over *offline* methods. Most respondents had an income above IDR 5,000,000, which significantly influences consumption levels. Additionally, most respondents were domiciled in Jakarta, a densely populated capital city and the center of business activities in Indonesia.

The results confirm that service quality has a significant effect on competitive advantage. Improved service quality provided by JNE leads to enhanced competitive advantage. The service quality dimensions include tangible aspects, where employees present themselves professionally; reliability, where delivery services meet customer expectations such as next-day delivery; responsiveness, where customer complaints are handled promptly; empathy, where employees treat all customers equally; and assurance, where JNE maintains a strong reputation and credibility supported by numerous awards.

Service quality is a critical element in business, as it influences customer satisfaction and *repeat purchase* decisions. According to Putri (2018), delivering high-quality service contributes to optimal company performance by ensuring reliability, responsibility, and customer focus.

Furthermore, the study shows that customer value significantly affects competitive advantage. Higher perceived customer value leads to greater competitive advantage. JNE enhances emotional value through good communication, social value through customer-oriented service, quality value through consistent service improvement, and *price value* by ensuring fairness between cost and benefits.

Customer value also influences purchasing decisions, satisfaction, and post-purchase behavior such as recommendations and *repeat usage*. These findings support previous studies such as Yasri et al. (2019) and Huang et al. (2013).

The study also confirms that service quality significantly affects customer satisfaction. Higher service quality results in higher customer satisfaction. Customers perceive JNE's services—such as responsive customer service, timely delivery, and user-friendly systems—as satisfactory, leading to continued usage.

In addition, customer value significantly influences customer satisfaction. Customers evaluate the balance between benefits received and sacrifices made (price), which determines satisfaction. JNE enhances value through additional services, such as *pickup services* for business customers, saving time and effort.

Moreover, competitive advantage significantly affects customer satisfaction. JNE differentiates itself through competitive pricing, service innovation, quality, and delivery speed. These factors create superior value for customers, resulting in higher satisfaction.

However, several issues remain, such as inconsistent partner office layouts and limited collaboration strategies. Competitors such as Deddy Corbuzier (through collaboration with J&T) demonstrate stronger promotional strategies. Therefore, JNE is recommended to improve quality control, expand partnerships, implement proactive marketing strategies, and enhance its mobile application by adopting features similar to *ride-hailing platforms*.

4. CONCLUSION

Basically, *competitive advantage* refers to the extent to which a company is able to maintain its position amid intense market competition. A *competitive advantage strategy* is essential, as companies must excel in various aspects by implementing appropriate strategies in order to compete effectively with their competitors.

This study is based on the theory proposed by Jay Barney (1995), which explains that *competitive advantage* can be viewed from a firm's resources, both tangible (such as financial, physical, and technological resources) and intangible (such as creativity and reputation). These resources are reflected in several indicators of service quality (tangible, empathy, assurance, responsiveness, and reliability) and customer value (emotional value, social value, quality value, and *value for money*). Both variables influence *competitive advantage*, which ultimately enhances customer satisfaction with the services received.

Based on the results and analysis of customer value, service quality, competitive advantage, and customer satisfaction, several conclusions can be drawn in accordance with the research problem formulation.

First, customer value at JNE (*Jalur Nugraha Ekakurir*) is considered very good, as the results indicate that customer value has a positive and significant effect on both *competitive advantage* and customer satisfaction. This implies that the better the perceived value by customers, the stronger the company's ability to compete and satisfy its customers.

Second, the service quality provided by JNE is also categorized as very good. The findings reveal that service quality has a positive and significant effect on both *competitive advantage* and customer satisfaction. This indicates that improvements in service quality directly contribute to strengthening the company's position in the market while simultaneously enhancing customer satisfaction.

Third, the *competitive advantage* of JNE is classified as strong, as the results demonstrate that competitive advantage has a positive and significant effect on customer satisfaction. This suggests that the company's ability to differentiate itself from competitors plays a crucial role in shaping customer satisfaction levels.

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