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Artificial Intelligence and E-Service Quality Enhance E-Commerce Customer Satisfaction Among Gen Z

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ABSTRACT: Research on the quality of e-commerce services and artificial intelligence (AI) on Gen Z customer satisfaction. The research involved 150 Generation Z respondents living in Indonesia who used Shopee e-commerce services. Data was collected through an online questionnaire using Google Form and analyzed using quantitative descriptive, correlational and multiple regression methods using SPSS. The results show that the use of AI increases Gen Z customer satisfaction, especially regarding advertising posting schedules that can be interacted with and communicate easily to meet customer expectations and desires as well as satisfaction. E-Service Quality plays a role in increasing satisfaction through disseminating clear information, solving problems, protecting data, as well as responding to complaints and product safety. This research contributes to the development of e-commerce service strategies at Shopee. Theoretical contribution by enriching literature related to AI and E-Service Quality on customer satisfaction in e-commerce for Gen-Z.

Keywords: artificial intelligence, e-service quality, Gen-Z, shopee, customer satisfaction, e-commerce.

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1. INTRODUCTION

E-commerce sales in the global market and the evolution of e-commerce models show a very rapid expansion pattern (Lin, 2023). International sales made up 8.8% of all online retail spending in 2018 (Aljohani, 2024). One of the factors driving the development of digital business in Indonesia is the expansion of e-commerce (Asante et al., 2023). Electronic media is used in the online realm of e-commerce trading such as Shopee in Indonesia (Ashiq & Hussain, 2024). One of the benefits of e-commerce is that it does not require direct face-to-face meetings, which Gen-Z prefers for shopping (Fafílek et al., 2024).

AI has developed into a very fastgrowing e-commerce breakthrough (Chetioui & El Bouzidi, 2023)(Senathirajah et al., 2024). AI is used for many things such as real-time tracking (Ashiq & Hussain, 2024)(Asante et al., 2023) estimating delivery timeliness. E-commerce currently uses technology, namely AI, to determine the position of goods (Kim & Yum, 2024), responses which can help with the accuracy and speed of data information (Gidh, 2020), delivery and communication with customers (Mazanec & Harantová, 2024). AI can quickly handle large amounts of marketing data from multiple sources, including the internet, social media, and email

Gen-Z has the choice to use technology in purchasing via e-commerce. Technology has succeeded in changing the behavior of Gen-Z making it easier to interact by utilizing internet services such as e-commerce(Ashiq & Hussain, 2024). Gen-Z can utilize various interactive elements to improve the purchasing experience using mobile applications for transactions (Amegbe et al., 2023). Purchasing via e-commerce offers a number of benefits, such as fast and easy transactions (Ashiq & Hussain, 2024), wide market reach and cost efficiency,

time monitoring capabilities are sought after by Gen-Z in transactions on Shopee (Turkson et al., 2022). The phenomenon that occurs is that the delivery time sometimes does not match what was agreed upon at the beginning of the transaction (Kim & Yum, 2024). Gen-Z feels dissatisfied (Maemunah & Nekrasov, 2023; Maemunah & Syakbani, 2021). Another phenomenon is lack of information regarding the condition of the product being sent, whether it is safe and in accordance with the initial order (Chetioui & El Bouzidi, 2023).

On the other hand, Gen Z as customers are not yet satisfied with e-commerce services in transactions (Chetioui & El Bouzidi, 2023; Maemunah et al., 2023). Problems occur during transactions such as contacting life chat or calling the help center but the response takes a long time (Aljohani, 2024). Customer satisfaction is the main element that must be improved so that company goals can be achieved. The accuracy of the delivery method according to expectations and needs provides customer satisfaction at Shopee (Maemunah, 2020; Petcharat & Leelasantitham, 2021). E service quality in addition to website design factors, perceived security, and customer service. Customer satisfaction (Andini et al., 2023) is the main focus that must be given (Bunea et al., 2024) according to customer expectations to increase Gen-Z satisfaction.

Gen-Z customers are considered to be the group that most frequently uses e-commerce platforms in Indonesia to shop online (Yo et al., 2021; Zaato et al., 2023). Gen-Z is an increasingly dominant market segment and has unique shopping behavior. Shopee is expected to be more effective in meeting the hopes and needs of Gen-Z (Bunea et al., 2024) . The novelty of this research deepens the literature on AI-based technology and e-service quality on Gen-Z customer satisfaction in e-commerce (Islam et al., 2023). Overall, this research aims to provide comprehensive insight into the role of AI and E-Service quality in increasing Generation Z customer satisfaction on e-commerce Shopee (Okour et al., 2023).

2. LITERATURE REVIEW

Supply Chain Management

Management is planning, organizing, directing and controlling actions to determine and achieve goals through the use of human resources (Issaoui et al., 2019). Logistics management is part of Supply Chain Management which plans, implements and controls the flow of goods effectively and efficiently (Aljohani, 2024) including transportation, storage, distribution and services and information (Omoush, 2022).

Artificial Intelligence (AI)

AI is a field of computer science that creates systems that understand and interact with the environment using techniques such as speech, vision, and natural language processing. It learns from historical data using machine learning and makes decisions, requiring human intelligence. Poole and Mackworth define AI as “a field that combines and analyzes intelligently executed computational agents” (Thangavel et al., 2021). According to (Aljohani, 2024) AI is a branch of computer science which aims to develop systems and machines capable of carrying out tasks that usually require human intelligence.

E-Service Quality

Electronic Service Quality is the extent to which the quality of services provided via the internet is assessed. Electronic service quality is a broader type of electronic service quality (Yu et al., 2017) through web media that interacts between producers and customers in carrying out business activities efficiently and effectively (Malagueño et al., 2019). Quality e-service is a service provided to internet network customers as an extension and ability of a site to facilitate shopping, purchasing and distribution activities effectively and efficiently.

Customer Satisfaction

According to (Mazanec & Harantová, 2024). Customer satisfaction is “social, post-purchase reactions can be anger, dissatisfaction, annoyance, neutrality, joy or pleasure”(Ehikioya & Guillemot, 2020). Customer satisfaction refers to a customer's satisfaction or disappointment with the performance of a product, ranging from dissatisfied to very satisfied when it exceeds expectations. Customer satisfaction is the customer's response to evaluating the perceived difference between initial expectations before purchasing and the actual performance of the product after the customer uses or consumes the product (Hu et al., 2015).

Research Hypothesis:

H1: It is suspected that there is an influence of artificial intelligence technology on generation-Z satisfaction in Shopee e-commerce.

H2: It is suspected that there is an influence of artificial intelligence technology and e-service quality on generation-Z satisfaction with Shopee e-commerce.

H3: It is suspected that there is an influence of e-service quality on generation-Z satisfaction on Shopee e-commerce.

3. RESEARCH METHODS

This study uses a quantitative (Anuar et al., 2021) method to determine the influence of AI and E-Service Quality on Generation Z Customer Satisfaction on Shopee e-commerce. The data collection technique in this study uses primary data obtained from respondents' responses through filling out questionnaires. This study used a puposive sample of 150 respondents (Chabata, 2024). This test uses simple regression and correlation analysis as well as multiple regression and correlation. By using the SPSS 22 application.

Table 1. Dimensions and indicators

Variable	Dimension	Indicators
Artificial Intelligence (AI)	1. *Tangible objects* 2. *Reliability* 3. *responsiveness* 4. *Guarantee* 5. *Emphasis* (Bunea et al., 2024; Fang et al., 2021; Todoruţ & Tselentis, 2018)(Rahayu & Nurlaela Wati, 2018)	1. Product recommendations according to user interests 2. Satisfaction with AI services and trust in the platform 3. Quick and precise response from Chatbot 4. A sense of security in shopping related to personal data protection 5. Ease in comparing product prices.
E-Service Quality	1. *Efficiency* 2. *Charging* 3. *System Availability* 4. *Privacy* 5. *Responsive* 6. *Compensation* 7. *Contact* (Aljohani, 2024)	1. Ease and speed of accessing and using the site. 2. The extent to which the app's site's promises about order availability and item availability are met. 3. The correctness of the technical functionality of the application site. 4. The extent to which the site is secure and protects user information. 5. Effective problem handling and returns through the site. 6. To what extent the site compensates Gen-Z for problems. 7. Availability of assistance through online representatives (live chat or chatbot).
Customer Satisfaction	*1. Price* *2. Quality of Service* *3. Emotional* (Chabata, 2024)	1. Competitive Product Prices 2. Satisfaction with product diversity 3. Ease of use and navigation of the app 4. Meet shopping experience expectations 5. Satisfaction with Gen-Z services]

Population and Sample

This study uses a quantitative survey method to collect data from the generation-Z population of active Shopee e-commerce users (Ranjbarian et al., 2012). To achieve specific research objectives, purposive sampling techniques are used. There is no limit to the number of respondents to create a purposive sample, as long as the desired information can be obtained and generated (Turkson et al., 2022). The sample in this study is 150 respondents, with the conditions of the respondents sampled as follows:

a. The respondents are users of the Shopee e-commerce platform.
b. Respondents aged 12-27 (generation Z)

Data Collection Procedure

Data is collected through the dissemination of questionnaires through digital survey platforms such as Google Forms. Candidates who meet the sample criteria receive a survey link via social media (Okour et al., 2023).

4. RESULTS AND DISCUSSION

Description of Research Data

Respondent Profile

To explain the respondents' responses to the questionnaire, the researcher collected identity data from 150 respondents based on gender, age, education, and frequency of online shopping through the Shopee e-commerce platform. The results of the identification research are as follows:

Gender of Respondents

Table 2. Respondent Data by Gender

GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MAN	52	34.7	34.7	34.7
	WOMAN	98	65.3	65.3	100.0
	Total	150	100.0	100.0	

Based on Table 2, the majority of the sample was woman with a total of 98 respondents (65.3%) and man respondents totaling 52 respondents (34.7%).

1. Age of Respondents

Table 3 Respondent Data by Age

AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	12-15 YEARS OLD	1	.7	.7	.7
	16-19 YEARS OLD	12	8.0	8.0	8.7
	20-23 YEARS OLD	121	80.7	80.7	89.3
	24-27 YERAS OLD	16	10.7	10.7	100.0
	Total	150	100.0	100.0	

Based on table 3, the majority of the sample filled out the questionnaire was 20-23 years old with a total of 121 respondents (80.7%), 24-27 years old amounted to 16 respondents (10.7%), 16-19 years old amounted to 12

respondents (8%), and 12-15 years old amounted to 1 respondent (0.7%).

2. Respondent Education

Table 4 Respondent Data Based on Education

EDUCATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Junior High School	1	.7	.7	.7
	Senior High School	31	20.7	20.7	21.3
	Associate Degree	17	11.3	11.3	32.7
	Bachelor's Degree/ Master's Degree	101	67.3	67.3	100.0
	Total	150	100.0	100.0	

According to Table 4, the majority of the sample that filled out the questionnaire had S1/S2 Education Level with a total of 101 respondents (67.3%), D3 Education Level amounted to 17 respondents (11.3%), High School/Equivalent Education Level amounted to 31 respondents (20.7%), and Junior High School/Equivalent amounted to 1 respondent (0.7%).

3. Respondents' Frequency of Online Shopping

Table 5 Respondent data based on online shopping frequency

SHOPPING FREQUENCY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SEVERAL TIMES A MONTH	111	74.0	74.0	74.0
	SEVERAL TIMES A WEEK	34	22.7	22.7	96.7
	EVERY DAY	5	3.3	3.3	100.0
	Total	150	100.0	100.0	

Based on table 5 above, the majority of the sample who filled out the questionnaire had a frequency of online shopping several times a month totaling 111 respondents (74%), 34 respondents (22.7%) had a frequency of online shopping several times a week, and 5 respondents (3.3%) had a frequency of online shopping every day.

Test Instruments

Validity Test

Finding the degree of relationship between the total number of statement items for each variable and the individual items in each statement is the purpose of validity testing. For this test, the researchers gave a questionnaire to 150 people. A statement is accepted if the rCalculate column is larger than rtable. Any statement item in a research instrument can do this for it. With df = n-2 = 148 for degrees of freedom, the table values at $\alpha = 0.05$ on the bidirectional test are as follows:

1. Validity Test of Electronic Service Quality Variables

Table 6 AI Validity Test Results

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
STATEMENT NO.1 VARIABLE X1	57.51	53.231	.580	.914
STATEMENT NO.2 VARIABLE X1	57.54	52.089	.607	.913
STATEMENT NO.3 VARIABLE X1	57.52	52.855	.580	.914
STATEMENT NO.4 VARIABLE X1	57.44	53.966	.490	.917
STATEMENT NO.5 VARIABLE X1	57.51	51.594	.622	.913
STATEMENT NO.6 VARIABLE X1	57.53	52.372	.623	.913
STATEMENT NO.7 VARIABLE X1	57.60	51.812	.634	.912
STATEMENT NO.8 VARIABLE X1	57.42	52.755	.605	.913
STATEMENT NO.9 VARIABLE X1	57.47	52.532	.556	.915
STATEMENT NO.10 VARIABLE X1	57.58	51.198	.607	.913
STATEMENT NO.11 VARIABLE X1	57.49	50.802	.723	.909
STATEMENT NO.12 VARIABLE X1	57.48	51.849	.689	.911
STATEMENT NO.13 VARIABLE X1	57.41	52.338	.635	.912
STATEMENT NO.14 VARIABLE X1	57.61	50.911	.717	.909
STATEMENT NO.15 VARIABLE X1	57.49	51.903	.720	.910

Table 6 shows that 15 statements on artificial intelligence variables are considered valid and appropriate to be used as study variables, because the rCount (the size of the artificial intelligence variable) is higher than the rtable (0.1593) for each statement result.

2. Test of the Validity of E-Service Quality Variables

Table 7 Results of E-Service Quality Validity Test

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
STATEMENT NO.1 VARIABLE X2	58.34	49.957	.552	.910
STATEMENT NO.2 VARIABLE X2	58.42	49.802	.581	.909
STATEMENT NO.3 VARIABLE X2	58.55	49.203	.640	.907
STATEMENT NO.4 VARIABLE X2	58.53	48.841	.584	.909
STATEMENT NO.5 VARIABLE X2	58.23	50.136	.598	.909
STATEMENT NO.6 VARIABLE X2	58.21	51.212	.481	.912
STATEMENT NO.7 VARIABLE X2	58.41	49.102	.671	.906
STATEMENT NO.8 VARIABLE X2	58.63	48.126	.597	.909
STATEMENT NO.9 VARIABLE X2	58.31	50.751	.528	.911
STATEMENT NO.10 VARIABLE X2	58.46	48.398	.647	.907
STATEMENT NO.11 VARIABLE X2	58.43	49.133	.621	.908
STATEMENT NO.12 VARIABLE X2	58.47	48.358	.703	.905
STATEMENT NO.13 VARIABLE X2	58.39	48.401	.708	.905
STATEMENT NO.14 VARIABLE X2	58.47	47.794	.645	.907
STATEMENT NO.15 VARIABLE X2	58.46	47.753	.661	.906

Table 7, shows that 15 statements about the electronic service quality variables are considered valid and appropriate to be used as study variables. Because each item in the electronic service quality variable statement has a higher rCalculate value than rtable (0.1593).

3. Customer Satisfaction Variable Validity Test

Table 8 Results of the Validity Test of Customer Satisfaction Variables

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
STATEMENT NO.1 VARIABLE Y	16.74	5.187	.644	.791
STATEMENT NO.2 VARIABLE Y	16.77	5.640	.645	.791
STATEMENT NO.3 VARIABLE Y	16.73	5.566	.587	.807
STATEMENT NO.4 VARIABLE Y	16.74	5.174	.680	.779
STATEMENT NO.5 VARIABLE Y	16.56	6.047	.592	.806

In Table 8, the five components in the customer satisfaction statement are considered valid and appropriate to be used as study variables. Because it has a higher rCalculate value than rtable (0.1593).

Reliability Test

According to (Hair, J., William C., B., Barry J., B., & Rolph E., 2019)"reality tests are tools to measure questionnaires that are indicators of variables or constructions". To test reliability, it is performed as a *Cronbach Alpha Statistical test (a)*. Basis for decision-making: if Cronbach Alpha > 0.60, it is declared *reliable*, and if *Cronbach Alpha* < 0.60, it cannot be said to be reliable.

1. AI Variable Reliability Test

Table 9, AI Variable Reliability Test Results (X1)

Reliability Statistics

Cronbach's Alpha	N of Items
.918	15

Based on Table 9, the *Cronbach Alpha* value is 0.918 on the artificial intelligence variable > 0.60. Thus, the authors conclude that all statements in the e-service quality variable are trustworthy or *reliable*.

2. E-Service Quality Variable Reliability Test

Table 10, Results of the reliability test of e-service quality variables

Reliability Statistics

Cronbach's Alpha	N of Items
.914	15

Table 10, The authors draw the conclusion that every statement in e-service quality is trustworthy. Because the e-service quality variable has a Cronbach Alpha value of 0.914, which is more than 0.60.

3. Customer Satisfaction Variable Reliability Test

Table 11, Results of reliability test of customer satisfaction variables

Reliability Statistics

Cronbach's Alpha	N of Items
.829	5

Table 11. The authors draw the conclusion that every statement in the customer satisfaction variable is reliable or trustworthy, because the customer satisfaction variable has a Cronbach Alpha value of 0.829 > 0.60.

Data Analysis Techniques

Analysis of the Influence of AI Test on Gen-Z Customer Satisfaction on Shopee

1. Simple Linear Regression Analysis Test

Table 12, Simple Linear Regression Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.479	1.242		2.801	.006
	Artificial Intellegance	.283	.020	.758	14.124	.000

a. Dependent Variable: Customer Satisfaction

Based on Table 12, the results of the simple linear regression equation are obtained, as follows **Y = 3.479 + 0.283 X1**. The simple linear regression equation means that every increase of 1 unit of value in the X1 (AI) variable will be followed by an increase in the Y value (Customer Satisfaction) of 0.283.

2. Table 13, Simple Correlation Coefficient Analysis Test

Interval Cowphysin	Influence Level
0,00-0,199	Very Low
0,20-0,399	Low
0,40-0,599	Medium
0,60-0,799	Strong
0,80-1,00	Very Strong

(Turkson et al., 2022)(Sugiono et al., 2023)

Table 14 Simple Correlation Coefficient Analysis Test

Correlations

		Artificial Intellegance	Customer Satisfaction
Artificial Intellegance	Pearson Correlation	1	.758**
	Sig. (2-tailed)		.000
	N	150	150
Customer Satisfaction	Pearson Correlation	.758**	1
	Sig. (2-tailed)	.000	
	N	150	150

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the test results in table 14, it can be concluded that the Artificial Intelligence variable has a strong positive influence on the customer satisfaction variable with a correlation rate of 0.758.

3. Partial Significance Test (T-Test)

Table 15 Partial Test Results (T-Test)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.479	1.242		2.801	.006
	Artificial Intellegance	.283	.020	.758	14.124	.000

a. Dependent Variable: Customer Satisfaction

Based on table 15 mentioned above, the significance value is 0.000 < 0.05, and it is known from the data provided that the T-Calculate for AI (X1) has a value of 14.124 > T-Table 1.976. So it shows that the AI variable has a positive and significant influence on the customer satisfaction variable.

4. Determination Coefficient Analysis Test

Table 16, Determination Coefficient Test Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.758[a]	.574	.571	1.884

a. Predictors: (Constant), Artificial Intellegance

The R and R Square findings, which were used to assess the determination coefficient (R2) obtained using SPSS software, are shown in Table 16 and can be explained as follows:

DC = R2 x 100%

= (0.574) x 100%

= 57.4%

An R Square (R2) value of 0.574 shows that 57.4% of customer satisfaction can be attributed to the AI, with other variables affecting the remaining 42.6%.

Analysis of the Influence of E-Service Quality on Gen-Z Customer Satisfaction on Shopee

1. Simple Linear Regression Analysis Test

Table 17 Simple Linear Regression Analysis Test

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.697	1.303		2.071	.040
	E-Service Quality	.291	.021	.756	14.063	.000

a. Dependent Variable: Customer Satisfaction

Based on the results of simple linear regression processing using the SPSS program referred to in Table 17, the results of the simple linear regression equation are obtained, as follows: **Y = 2.697 + 0.291 X2**. The simple linear regression equation means that every 1 unit increase in the value of the E-Service Quality variable will be

followed by an increase in the Customer Satisfaction of 0.291.

2. Simple Correlation Coefficient Analysis Test

Interval Cowphysin	Influence Level
0,00-0,199	Very Low
0,20-0,399	Low
0,40-0,599	Medium
0,60-0,799	Strong
0,80-1,00	Very Strong

(Turkson et al., 2022)(Pristanto Ria Irawan et al., 2023)

Table 18 Coefeisien Simple Correlation

Correlations

		E-Service Quality	Customer Satisfaction
E-Service Quality	Pearson Correlation	1	.756**
	Sig. (2-tailed)		.000
	N	150	150
Customer Satisfaction	Pearson Correlation	.756**	1
	Sig. (2-tailed)	.000	
	N	150	150

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the test results in table.18, it can be concluded that the E-Service Quality variable has a strong positive influence on the customer satisfaction variable with a correlation level of 0.756.

3. Partial Significance Test (T-Test)

Table 19 Partial Test Results (T-Test)

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.697	1.303		2.071	.040
	E-Service Quality	.291	.021	.756	14.063	.000

a. Dependent Variable: Customer Satisfaction

Based on table 19, mentioned above, the significance value is 0.000 < 0.05, and it is known from the data provided that the T-Calculate for e-service quality has a value of 14,063 > T-Table 1,976. Thus showing that the e-service quality variable has a positive and significant influence on the customer satisfaction variable.

4. Determination Coefficient Analysis Test

Table 20, Determination Coefficient Test Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.756[a]	.572	.569	1.888

a. Predictors: (Constant), E-Service Quality

The R and R Square findings for testing the determination coefficient (R2) processed by the SPSS software are

shown in Table 20. These results can be interpreted as follows:

DC = R2 x 100%

= (0.572) x 100%

= 57.2%

An R Square (R2) value of 0.572 shows that 57.2% of customer satisfaction can be attributed to the quality of electronic services, with other variables affecting the remaining 42.8%.

Analysis of the Influence of AI and E-Service Quality on Gen-Z Customer Satisfaction on Shopee

1. Multiple Linear Regression Analysis Test

Table 21 Multiple Linear Regression Analysis Test Results

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.413	1.251		1.130	.260
	E-Service Quality	.158	.034	.410	4.571	.000
	Artificial Intellegance	.156	.033	.418	4.661	.000

a. Dependent Variable: Customer Satisfaction

The multiple regression equation, Y = 1.130 + 4.571 X1 + 4.661 X2, is derived based on the results of multiple regression processing using SPSS 25 software specified in Table 21.

The multiple linear regression equation means that every 1 increase in value unit in the X1 (AI) variable will be followed by an increase in Y (Customer Satisfaction) of 4.571). Every increase of 1 unit of value for the X2 (E-Service Quality) variable will be followed by an increase in Y (Customer Satisfaction) of 4,661. From the equation in the table above, the value of Y will be 1.130.

2. Double Correlation Coefficient Analysis Test

Interval Cowphysin	Influence Level
0,00-0,199	Very Low
0,20-0,399	Low
0,40-0,599	Medium
0,60-0,799	Strong
0,80-1,00	Very Strong

(Turkson et al., 2022)

Table 22 Results of the Double Correlation Coefficient Test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	Change Statistics F Change	Change Statistics df1	Change Statistics df2	Change Statistics Sig. F Change
1	.792[a]	.627	.622	1.769	.627	123.596	2	147	.000

a. Predictors: (Constant), E-Service Quality, Artificial Intelegance

Based on table 22, the results of the multiple correlation coefficient test have a Sig. F Change < 0.05, then the X1 (AI) variable and the X2 (E-Service Quality) variable have a simultaneous significant relationship with the Y variable and the R value (correlation coefficient) of 0.792, so it can be concluded that the level of relationship between the X1 variable and the X2 variable simultaneously has a strong relationship with the Y (Customer Satisfaction) variable.

3. Simultaneous Significance Test (Test F)

Table 23 ,Simultaneous Test Results (Test F)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	773.242	2	386.621	123.596	.000[b]
	Residual	459.831	147	3.128		
	Total	1233.073	149			

a. Dependent Variable: Customer Satisfaction

b. Predictors: (Constant), Artificial Intellegance, E-Service Quality

Based on table 23 mentioned above, the significance value is 0.000 < 0.05, and it is known from the data provided that Fcal 123.596 > Table 3.06. So Ho is rejected, it can be concluded that there is a significant influence between AI (X1) and E-Service Quality (X2) together on Customer Satisfaction (Y).

4. Determination Coefficient Analysis Test (R2)

Table 24, Determination Coefficient Test Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.792[a]	.627	.622	1.769

a. Predictors: (Constant), Artificial Intellegance, E-Service Quality

The findings of R and R Square for testing the determination coefficient (R2) processed by the SPSS 25 program are shown in Table 24. These results can be interpreted as follows:

DC = R2 x 100%

= (0.627) x 100%

= 0.627 x 100%

= 62.7%

It can be known that the determination coefficient or R2 is 0.627. This result means that the independent variables (AI and E-Service Quality) can explain 62.7% of the dependent variable, namely Customer Satisfaction, while the remaining 37.3% are explained by other variables that are not included in this determination coefficient model.

Hypothesis 1 (H1): It is suspected that there is an influence of artificial intelligence technology on the satisfaction of Gen-Z generation Z on Shopee e-commerce.

The results show that the AI variable (X1) has a significant influence on the customer satisfaction variable (Y). There is a greater t-value than the t-table, which is 14,124 > 1,976, and a lower significance, which is 0.000 < 0.05 indicates that there is a relationship between the two.

Hypothesis 3 (H3): It is suspected that there is an influence of artificial intelligence technology and e-service quality on the satisfaction of Gen-Z generation-Z on Shopee e-commerce.

The results show that the AI variable (X1) and the e-service quality variable (X2) have a significant influence simultaneously on customer satisfaction (Y). There are F-values greater than F-tables, specifically 123,596 > 3.06, and significance values of 0.00 < 0.05, which show strong evidence of this relationship.

Hypothesis 2 (H2): It is suspected that there is an influence of artificial intelligence technology and e-service quality on the satisfaction of Gen-Z generation Z on Shopee e-commerce.

The results show that the variable e-service quality (X2) has a significant influence on the customer satisfaction

variable (Y). There are t-values greater than t-tables, which are 14,063 > 1,976, and lower significance values, which are 0.000 < 0.05 indicate that there is a significant relationship between the two.

5. Discussion

This study shows that the use of AI and e-service quality increases customer satisfaction among Generation Z, which is confirmed by research (Thangavel et al., 2021). Gen Z has a positive attitude towards e-shopping in e-commerce (Kim & Yum, 2024). The study explains that Gen Z grew up with digital gadgets, is interested in advertising, interacts with them, and easily buys everything they need from e-commerce Shopee (Kim & Yum, 2024). Research (Mazanec & Harantová, 2024) supports the quality of AI and e-services and influences the desire to meet the needs and satisfaction of Gen Z as customers. Research (Aljohani, 2024) agrees that AI and quality e-services increase Gen Z satisfaction by providing information, problem solving and data protection in line with Shopee's desire for Gen Z e-commerce.

6. CONCLUSION

Gen-Z grew up with social media and is very open to information, shopping, and interested in Shopee e-commerce. Gen-Z accepts technology such as AI and quality e-service in e-commerce on Shopee. Gen-Z enjoys advances in AI technology, making it easier to meet all their needs. Shopee must provide all the expectations of Gen-Z. Shopee needs to improve its e-commerce platform for the products it offers so that Gen Z feels satisfied. Shopee must provide accurate information according to the advertisements offered so that Gen-Z customers are satisfied with choosing brands, products and data security as well as affordable prices. Shopee is expected to try to improve services that are appropriate to the times of the Gen-Z generation.

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