

The Effect of Website Quality 4.0 and Brand Image Toward Purchase Decision and Customer Loyalty at E-Commerce Shopee in Pekanbaru

Jushermi¹, Muhammad Nayoga², Tengku Firli Musfar³, Prima Andreas Siregar⁴
^{1,2,3,4}Management Department, Faculty of Economics and Business, University of Riau

Article Info

Article history:

Received December 2023
Revised December 2023
Accepted December 2023

Keywords:

Website Quality 4.0
Brand image
Purchase decision
Customer loyalty

ABSTRACT

The study aims to analyze the effect website quality 4.0 and brand image toward purchase decision and consumer loyalty at E-Commerce Shopee. This research is a quantitative research and primary data was collected by questionnaire as an instrument to prove the results of the research. The population in this study is the people of Pekanbaru city who have used E-Commerce Shopee for the last 3 months. The sampling technique used is non-probability sampling with purposive sampling with sample criteria that can be correspondents are people who have transacted using E-Commerce Shopee for the last 3 months, aged 17 years and over and domiciled in Pekanbaru city. The subjects of this study were 120 respondents. For data analyze using path analysis with WARPPLS 7.O. The result shown that website quality 4.0 and brand image have positive and significant effect to purchase decision and customer loyalty in using the E-Commerce Shopee, website quality 4.0 has positive and significantly effect to customer loyalty through purchase decision, brand image has positive and significantly effect to customer loyalty through purchase decision and purchase decision has positive and significantly effect to customer loyalty in using the E-Commerce Shopee in Pekanbaru.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Name: Prima Andreas Siregar
Institution Address: Kampus Binawidya km 12,5, Panam, Pekanbaru, Riau
e-mail: prima.andreas@lecturer.unri.ac.id

1. INTRODUCTION

With the massive development of technology, the growth of information media is also increasing rapidly in people's lives. Starting from the information media of magazines, newspapers, radio, television, and the internet. The rapid development of technology has caused significant changes in various areas of life. One of them is the change in people's lifestyles. The lifestyle of today's society is increasingly instantaneous in search of a service that is more practical, saves time, and makes it easier to compare prices, types, and even places without direct face-to-face meetings or called electronic commerce (e-commerce). According to the World Trade Organization (WTO), e-commerce is the production, distribution, marketing, sale, or delivery of goods/services by electronic means.

According to the data released by Bank Indonesia (2017), digital trade transactions in Indonesia are growing rapidly. Data on the rapid advancement of technology have changed the way people shop by conducting e-commerce transactions (e-commerce). NielsenIQ, a company engaged in the global information provider sector, has noted that the number of online shopping consumers in Indonesia who use e-commerce will reach 32 million in 2021. The number has increased by 88 percent compared to 2020, which is only 17 million people, and is expected to continue to grow every year.

According to a report by Statista on data on e-commerce users in Indonesia, e-commerce users in Indonesia are predicted to increase to 189.6 million users in 2024. Since 2017, there have been 70.8 million e-commerce users, and this number is increasing every year.

In Indonesia, many popular e-commerce sites such as Bukalapak.com, Tokopedia.com, and Lazada. co. id. The number of e-commerce services in Indonesia, of course, quality comparison, must be considered further because it is very influential on the number and loyalty of e-commerce customers. In addition, the quality of e-commerce is determined by the quality of

information, interaction, and usability, as well as the way e-commerce defines itself.

Shopee had four indicator ratings used in the survey. The indicators used were as follows.

- a. *Brand Use Most Often (BUMO) indicator.* Based on this BUMO indicator, 54% of respondents chose Shopee, followed by Tokopedia (30%) and Lazada (13%).
- b. Indicator *Top of Mind*, Shopee ranks first at 54%, followed by Tokopedia (27%), and Lazada (12%). This means that Shopee is the brand or *e-commerce* brand that is most remembered by the majority of Indonesian consumers.
- c. Indicator of the market share of the number of transactions (*share of orders*), Shopee also managed to record the highest market share of the number of transactions in three months of transactions, namely 41%, followed by Tokopedia (34%) and Lazada (16%).
- d. As an indicator of the transaction value market share, Shopee ranks first to record the largest transaction value market share, which is 40%. The second rank was followed by Tokopedia (30%), and Lazada (16%).

The data above are the result of online research by the IPOS in Indonesia, involving a total of 1000 respondents from the age-18-35 years and over. This research was conducted not only in Tier 1 cities such as Jakarta and other big cities, which serve as barometers, but also in Tier 2 and Tier 3 cities, which have the potential to become pillars of Indonesia's growth in the future.

Pekanbaru is a Smart City with the highest number of Internet users in the Riau Province. Pekanbaru is a city with trade and services, including a city with a high rate of growth, migration, and urbanization. According to the results of the 2019 processed data survey in the Management Scientific journal Vol 7. No. June 2, 2019, by Wijaya and Warnadi shows the results of a consumer survey of online site users, which is widely used by teenagers in the Pekanbaru area, with

an average value of 60.8% compared to the Lazada, Tokopedia, and Bukalapak sites.

Researchers have conducted a pre-study (*Pre-Survey*) on as many as 30 people in Pekanbaru using Google Forms, of which 25 were women and 5 were men, and respondents were aged over 17 years.

Based on the results of the pre-survey, as many as 30 respondents (96.7%) were Shopee e-commerce users. Then, as many as 93.3% of respondents agreed that the website on Shopee's e-commerce website looks convincing and competent. In the results of pre-survey question no. 3, as many as 96.7% of respondents agreed that Shopee is an e-commerce company that is currently popular. Then, as many as 90% of the respondents claimed to always return to using Shopee e-commerce, while the rest answered no.

Webqual 4.0 is based on three research areas: information quality from information systems, interaction quality, and usability from human-computer interactions. User perception consists of two parts: perception of the service received (actual) and level of expectation (ideal). A high-quality website can be seen from the level of perception of the actual service, which is high, and the gap between the perception of actual and ideal service is low. According to Nada and Wibowo (2015), WebQual 4.0 is a measure of website quality based on research instruments that can be categorized into four variables: usability, information quality, interaction quality, and overall impressions.

Even though Shopee is the E-Commerce with the most users in Indonesia, it is still not free from problems. According to the data collected by the author from the official Shopee account, which specifically serves consumer complaints on Twitter social media, it was noted that consumers often complained about how slow the Shopee application/website was, which not only happened to devices with low specifications, but also to devices with specifications medium to high. The complaint is that apart from the slow application/website program, errors occur when consumers are in the middle of the shopping process. In addition,

there are frequent complaints when consumers want to withdraw funds through their preferred bank, and the only option is to withdraw funds through Shopee's own financial products. Another problem that is often complained about is that the data displayed on the application/website often do not match the data that occur in the field. For example, in the delivery of goods, on the application/website, it is recorded that the goods have been received by the consumer, even though the consumer has not received the delivery goods.

In addition to the problems that the author described, there are still several things that many consumers complain about, such as Shopee's low supervision of counterfeit goods circulating in their e-commerce, which makes consumers feel disadvantaged. Another problem that is quite a problem for consumers is how Shopee responds to complaints submitted by their consumers. Consumers complain that Shopee is slow to respond to complaints and often does not provide good solutions to their complaints. From the things that the author has said, it can be concluded that although Shopee e-commerce has the most customers in Indonesia, there are still many problems that Shopee has that must be corrected so that it can continue to be the number one e-commerce company in Indonesia.

According to Kotler and Keller (2016), brand image is a consumer's perception of a brand as a reflection of the associations that exist in the minds of consumers. Brand image is an association that appears in consumers' minds when they remember a particular brand. This association can simply appear in the form of certain thoughts and images associated with a brand. Brand image comprises brand associations that are related to brand memory. Brand associations have a certain level of strength and will become stronger as the consumption or information mining experience increases, and will become stronger if supported by other networks. Thus, brand image is important for consumers when choosing to buy a product. In conclusion, brand image is a picture or

impression created by a brand in the minds of customers. Placement of brand image in the minds of consumers must be done continuously so that the brand image created remains strong and can be positively received. When a brand has a strong and positive image in the minds of consumers, the brand will always be remembered, and the possibility of consumers buying the brand in question is high.

In this study, the authors chose Shopee, an E-Commerce from Singapore which has entered since 2015 as the object of research. Shopee is an *E-commerce* company that has the most significant customers increase with the addition of 16 million visitors. Shopee recorded 127 million users in the first quarter of 2021, which was the year this study was conducted.

The emergence of Shopee as an *E-commerce* type C2C or *customer-to-customer* in Indonesia often makes people shop *online*. Shopee is an *E-commerce* that offers a wide range of products ranging from frequently sought after, namely clothing, electronic devices, home appliances, bags, hobbies and collections, food and beverages, children's needs, cosmetics, automotive, mother and baby equipment, watches, photography needs and much more. Owing to the high number of users and all the reasons that have been mentioned, the author chose E-Commerce Shopee as the object of research.

Indarto et al. (2022) in his research entitled The Effect of Brand Image and Product Attributes on Customer Satisfaction and Customer Loyalty, said that brand image affects customer satisfaction and if it continues to improve it will also significantly affect customer loyalty.

Saidani, Lusiana, and Aditya (2019), who examined the influence of website quality and trust on customer satisfaction in forming repurchase intention in Shopee customers, also found that website quality has an influence on customer satisfaction. Furthermore, this study also shows that the quality of the website also influences consumers' intention to repurchase, which is one of the dimensions of customer loyalty.

By assessing each of these factors, e-commerce players can easily determine how much loyalty is and understand the needs of their users. Therefore, research is needed to analyze the quality of Shopee e-commerce websites and brand image. To assess the quality of this shop website, the author uses a method called WebQual 4.0.

2. LITERATURE REVIEW

2.1 E-Marketing

E-marketing is the result of information technology being applied to traditional marketing in two ways. However, e-marketing also involves basic technologies and applications. Based on these three opinions, it can be concluded that e-marketing is electronic marketing in the form of goods, services, information, or ideas through Internet communication technology and other communication tools.

2.2 Website Quality 4.0

Webqual measures website quality based on end-user perceptions. Webqual is a development of SERVQUAL, which has been widely used to measure service quality. Webqual is based on the Quality Function Deployment (QFD). Webqual development has reached version 4.0, in the Webqual 1.0 version, Webqual is only strong on information quality, the dimensions are ease of use, experience, information, communication and integration, alternatives to Webqual 1.0 were tested using a pilot questionnaire method before being tested on a larger population and with 24 questions to test the quality of the UK Business school website by following the standards of the QFD.

Webqual 2.0, improvements were made to the interaction perspective and significant changes were made to Webqual 1.0. It began to be compared with Servqual, tested on the domains of Amazon online bookstores, Blackwells, and Internet bookshops, and found that the interactive level of the web affects purchases via the Internet.

In Webqual 3.0, the dimensions are web information quality (accurate, timely, reliable), web interaction quality (good reputation, safe to transact, personal data secure, and will deliver as promised), and site design quality (easy to navigate, attractive appearance, and project a sense of competency). Tests were conducted on several online auction domains.

Webqual 4.0, is based on three research areas: information quality from information systems, interaction quality, and usability from human-computer interaction. User perception consists of two parts: perception of the service received (actual) and level of expectation (ideal). A high-quality website can be seen from the level of perception of the actual service, which is high, and the gap between the perception of actual and ideal service is low. Webqual 4.0 is structured based on three main areas: information quality, interaction quality, and usability. These are defined as follows.

2.2.1 Quality of Information

Quality Information quality includes accurate information, reliable information, up to date information, information according to the topic of discussion, ease of information to understand, detailed information and information presented in an appropriate design format.

2.2.2 Quality of Interaction

The quality of interaction includes the ability to provide a sense of security during transactions, have a good reputation, facilitate communication, create a more personal emotional feeling, have confidence in providing personal information, be able to create a specific community, and provide confidence that promises will be maintained.

2.2.3 Quality of usability

Usability quality includes the ease of the website to learn, easy to understand, easy to browse, easy to use, attractive website, pleasant interface, has good competence and provides a pleasant new experience.

2.3 Brand Image

Brand image is a picture or impression created by a brand in the minds of customers. Placement of brand image in

the minds of consumers must be done continuously so that the brand image created remains strong and can be positively received. When a brand has a strong and positive image in the minds of consumers, the brand will always be remembered, and the possibility of consumers buying the brand in question is high.

2.4 Purchase Decision

Purchase decisions are inseparable from the nature of a consumer (consumer behavior) so that each consumer has different habits in making purchases. Kotler and Keller (2016) suggest that pursuing decisions have the following indicators.

2.4.1 Product Choices

Consumers can decide to buy a product or use money for other purposes. In this case the company should focus its attention on the people who are interested in buying a product and the alternatives they are considering.

2.4.2 Brand Choices

Consumers must make decisions regarding the brand name to be purchased, and each brand has its own differences. In this case the company must know how consumers choose a brand.

2.4.3 Dealer Choices

Consumers must make decisions regarding which dealers to visit. Each consumer is different in terms of choosing a supplier, which can be due to factors such as close location, low prices, complete inventory, convenience in shopping, low prices, complete inventory, convenience in shopping, and the size of the place.

2.4.4 Time of Purchase

Consumer decisions in choosing the time of purchase can vary, for example, there are those who buy every day, once a week, every two weeks and so on.

2.4.5 Number of Purchase

Consumers can make decisions about how much a product to spend at a time, and purchases made may be more than one. In this case, the company must prepare a number of products according to different wishes.

2.4.6 Payment Method

Consumers can make decisions regarding the payment method to make decisions regarding the use of products or services. Purchase decisions are influenced by not only environmental and family aspects, purchasing decisions are also influenced by the technology used in the purchase transaction.

Based on the description above, it can be concluded that purchasing decisions are problem-solving activities carried out by individuals in selecting appropriate behavioral alternatives from two or more behavioral alternatives, and are considered the most appropriate action in buying by first going through the stages of the decision-making process.

The decision-making process is a behavior that must be carried out to achieve the target, and thus be able to solve the problem, that is, the process of solving a problem that is directed at the target. The specific purchasing decision process according to Kotler and (Armstrong 2012) consists of the following sequence of events: recognition of needs problems, information search, evaluation of alternatives, purchase decisions and post-purchase behavior.

2.5 Customer Loyalty

It can be concluded that loyalty in general is a person's loyalty to a product, both goods, or certain services.

According to the journal entitled "The Effect of Service Quality on Customer Satisfaction and Its Impact on Customer Loyalty" from the Journal of Administration Vol.17 No.1 December 2014, there are 3 indicators of customer loyalty, namely:

2.5.1 Repurchase

The act of buying, consuming, or reusing an item or service is certain. This activity can be interpreted as someone feeling satisfied and becoming dependent on the goods or services offered.

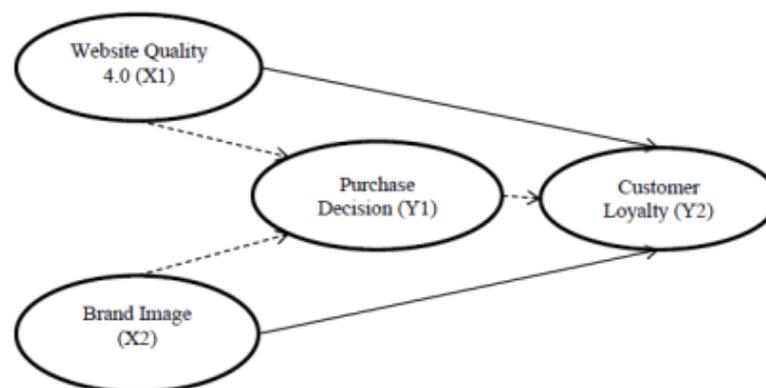
2.4.2 Positive Perception

Customers have a positive perception of the company's services, so they are not influenced by other brands and do not believe in the company's negative perceptions.

2.4.3 Customer Preferred Choice

A reaction or action against something that is negative, namely by not wanting to accept something, in this topic, the goods or services offered by the company.

2.6 Research Framework



Picture 1 Research Framework

3. METHODS

3.1 Research Location

This research was conducted in the city of Pekanbaru to Shopee E-Commerce users.

3.2 Data Types and Sources

Data in this research contain 2 types: Primary data that refers to first-hand information by researchers and secondary data that refer to information from existing data.

3.3 Population and Sample

The population in this study is e-commerce shop customers in Pekanbaru City, whose number is unknown. Purposive Sampling was used in this study. The criteria set in this sample are as follows: a minimum age of 17 years and transactions made at E-commerce Shopee three months later. The number of samples used in this study were 130 Shopee e-commerce users in the city of Pekanbaru.

3.4 Data Collection Techniques

The methods used in this research are: interview, questionnaire (require demographic data and regarding statements about variabel)

3.5 Research Variables and Operational Definitions

3.5.1 Variable X1 (Website Quality 4.0)

Webqual 4.0 is arranged based on three main areas: information quality, interaction quality, and usability.

3.5.2 Variable X2 (Brand Image)

According to Biel (1992) in the journal Xian, et al (2011:1876) brand image has three components, namely corporate image (company image), user image (user image), and product image (product image).

3.5.3 Variabel Y1 (Purchase Decision)

Decision-making is an individual activity directly involved in obtaining and using the goods offered.

3.5.4 Variabel Y2 (Customer Loyalty)

Customer Loyalty is a person's loyalty to a product, either goods or services.

3.6 Data Analysis Method

The software used is WarpPLS 7.0. In the SEM-PLS-based quantitative analysis, the analysis carried out is the measurement model (outer model), structural model (inner model) and hypothesis testing.

4. RESULTS AND DISCUSSION

4.1 General Descriptions of Respondens

The respondents in this study were customers who had made transactions three months later in Shopee and currently domiciled in Pekanbaru City. Based on data from 120 respondents obtained through data collection methods, respondents obtained the following conditions: gender, age, last education, employment status, income level, frequency of transactions, frequently purchased product category, average shopping value, and preferred payment method. The characteristics of respondents can be seen in the following table

Table 1. Demographic of Responden

No	Demographic Characteristics	Frequency	Percents (%)	
1	Gender	Men	39	32.5
		Women	81	67.5
	Total		120	100
2	Age	17-21 years	40	33.3
		22-26 years	51	42.5
		27-31 years	3	2.5
		32-36 years	6	5
		≥37 years	20	16.7
	Total		120	100
3	Last Education	JHS	1	0.8
		SHS	80	66.7
		Associate's Degree	8	6.7
		Bachelor	31	25.8
	Total		120	100
4	Employment/status	PNS/TNI/POLRI	3	2.5

	Entrepreneur	7	5.8
	Private Employee	18	15
	Student	60	50
	Housewife	21	7.5
	Other	11	9.2
	Total	120	100

Based on Table 5.1, the most dominant respondents based on gender were women, 81 people (67.5 %), and 39 men (32.5 %). The characteristics of respondents seen from their current age at the age of 22 – 26 years amounted to 51 people, or 42.5% more interested in transacting using Shopee. It is also known that the most dominant respondents based on last education are senior high school by 80 people (66.7%), and the characteristics of respondents seen from their employment/status are dominated by 60 students (50%).

4.2 Descriptive Analysis

The level of assessment according to Sugiyono (2013) is as follows:

1.00 – 1.80 = Very Poor

2.61 – 2.60 = Poor

2.61 – 3.40 = Adequate

3.41 – 4.20 = Good

4.21 – 5.00 = Very Good

4.2.1 Website Quality 4.0

Table 2 Respondents' Responses Website Quality 4.0 Variables

Indicator of Variables	N	Scale					Mean	Criteria
		1	2	3	4	5		
1. Accurate information	120	1	7	21	60	31	3.94	Good
2. Reliable information	120	0	7	26	51	36	3.97	Good
3. Up to date information	120	2	5	24	59	30	3.92	Good
4. Sense of secure during transaction	120	2	4	23	65	26	3.91	Good
5. Have a good reputation	120	1	5	14	64	36	4.08	Good
6. Provide confidence that promise made will be kept	120	1	6	31	49	33	3.89	Good
7. Ease to learn and operate	120	2	4	12	51	51	4.21	Very Good
8. Easy to navigate	120	1	5	24	50	40	4.03	Good
9. Attractive design	120	2	10	22	46	40	3.93	Good
		Mean					3.99	Good

Based on the results of the descriptive analysis in Table 5.2, indicator number 6, which provides confidence that promises will be kept, has the lowest at 3.89, which means that consumers still have doubts about product sales at E-Commerce Shopee. It can be improved if E-Commerce Shopee can pay more attention to the process of product and

seller selection to counter counterfeit goods at their shop.

Overall, it shows that the average respondent's assessment of the webqual 4.0 variable is 3.99, which is included in the good criteria. This means that consumers have given a good assessment of the website quality 4.0 of E-Commerce Shopee as a whole, in accordance with consumer wishes.

4.2.1 Brand Image

Table 3 Respondent's Responses Brand Image Variables

Indicator of Variables	N	Scale					Mean	Criteria
		1	2	3	4	5		
1. Well known E-Commerce	120	1	7	21	60	31	4.32	Very Good
2. Ability to compete with others E-Commerce	120	0	7	26	51	36	4.35	Very Good
3. Give pride when doing transaction	120	2	5	24	59	30	3.84	Good
4. Fulfill the consumer needs	120	2	4	23	65	26	4.24	Very Good
5. Have ability to developing technology	120	1	5	14	64	36	4.18	Good
6. Provide benefits to consumer	120	1	6	31	49	33	4.23	Very Good
							4.19	Good

Based on the results of the descriptive analysis in Table 5.3, the average respondent's rating of the brand image variable is 4.19 is included in the good criteria. This means that consumers agree with the statement that E-Commerce Shopee, a well-known E-Commerce, has the ability to compete with others, and that consumers feel that their needs have been fulfilled. In addition, they felt the benefits of e-commerce shops.

However, it shows that indicator number 3, which gives pride when doing transaction, has the lowest rank (3.84), which means that consumers do not feel proud when using E-Commerce Shopee. It can be fixed by improving company branding through e-commerce shops. For example, a brand campaign that creates exclusivity can raise pride when consumers use E-Commerce Shopee.

4.2.2 Purchase Decision

Table 4 Respondent's Responses Purchase Decision Variables

Indicator of Variables	N	Scale					Mean	Criteria
		1	2	3	4	5		
1. Product Choice	120	1	7	15	51	46	4.12	Good
2. Brand Choice	120	0	6	10	63	41	4.16	Good
3. Dealer Choice	120	1	14	19	46	40	3.92	Good
4. Time Choice	120	6	21	20	37	36	3.63	Good
5. Amount Choice	120	3	7	20	52	38	3.96	Good
6. Payment Method	120	0	2	9	53	56	4.36	Very Good
							4.02	Good

Based on the results of the descriptive analysis in Table 5.4, indicator number 3, which is Time Choice, has the lowest rank with 3.63, indicating that consumers are not really into grand promo at a certain date and month. There is no significant amount of discount or an unfair system when a person with a higher specification gadget has a higher probability of winning. It can be fixed

by creating a new method of discount that has a fair system, so everyone has the same opportunity to win the grand promo.

Overall, the results show that the average respondent's assessment of the purchase decision variable was 4.02 is included in the good criteria. This means that consumers of E-Commerce Shopee in

Pekanbaru have a high rate of purchasing decisions.

4.2.3 Customer Loyalty

Table 5 Respondent's Responses Customer Loyalty Variables

Indicator of Variables	N	Scale					Mean	Criteria
		1	2	3	4	5		
1. Repurchase	120	1	6	11	40	62	4.30	Very Good
2. Positive Review	120	1	8	20	40	51	4.10	Good
3. Recommend to others	120	0	6	25	45	44	4.06	Good
Mean							4.15	Good

Based on the results of the descriptive analysis in Table 5.5, indicator number 3, which is recommended to others, has the lowest rank of 4.06, indicating that consumers are not really recommending to others after they are purchased at E-Commerce Shopee. It can be resolved by creating loyalty programs for those who recommend it to others. Benefits such as special discounts or any privillage for them while transaction at E-Commerce Shopee and also really important to build a good connection with consumers by listening more to what they really need. However, it will build a better relationship between e-commerce shops and consumers.

This shows that the average respondent's assessment of the customer loyalty variable of 4.15 is included in the good criteria. This means that consumers feel loyal to E-Commerce Shopee so that they are committed to recommending E-Commerce to others because their preference for making transactions with this website will continue.

4.3 Data Quality Test

4.3.1 Validity Test

a) Convergent Validity

Table 6 Convergent Validity Test Result

Variable	Indicator	Loading Factor	Cut Off	Decision
Website Quality 4.0	WQ1	0.736	0.7	Valid
	WQ2	0.784	0.7	Valid
	WQ3	0.732	0.7	Valid
	WQ4	0.755	0.7	Valid
	WQ5	0.730	0.7	Valid
	WQ6	0.769	0.7	Valid
	WQ7	0.735	0.7	Valid
	WQ8	0.751	0.7	Valid
	WQ9	0.763	0.7	Valid
Brand Image	BI1	0.758	0.7	Valid
	BI2	0.756	0.7	Valid
	BI3	0.733	0.7	Valid
	BI4	0.818	0.7	Valid
	BI5	0.870	0.7	Valid
	BI6	0.755	0.7	Valid
Purchase Decision	PC1	0.727	0.7	Valid
	PC2	0.790	0.7	Valid
	PC3	0.865	0.7	Valid
	PC4	0.727	0.7	Valid
	PC5	0.707	0.7	Valid
	PC6	0.778	0.7	Valid
Customer Loyalty	CL1	0.829	0.7	Valid
	CL2	0.836	0.7	Valid
	CL3	0.852	0.7	Valid

From the table above, it can be seen that the indicators of each construct provide a high convergent validity value, which is all

above 0,70. This result means that the indicator shows good convergent validity

b) Discriminant Validity

Table 7 Discriminant Validity Test Result

Indicator	Website Quality 4.0	Brand Image	Purchase Decision	Customer Loyalty
WQ1	0.736	-0.250	0.086	0.003
WQ2	0.784	-0.016	-0.069	-0.034
WQ3	0.732	0.124	-0.229	-0.184
WQ4	0.755	-0.297	0.179	-0.046
WQ5	0.730	-0.053	-0.085	0.221
WQ6	0.769	-0.358	-0.073	0.130
WQ7	0.735	0.482	0.138	-0.169
WQ8	0.751	0.362	0.039	-0.117
WQ9	0.763	0.023	0.014	0.190
BI1	-0.235	0.758	0.019	-0.123
BI2	-0.124	0.756	-0.251	0.264
BI3	0.165	0.733	0.146	-0.174
BI4	0.131	0.818	0.028	-0.064
BI5	0.144	0.870	0.099	-0.090
BI6	-0.108	0.755	-0.055	0.202
PC1	0.131	0.419	0.727	-0.213
PC2	0.079	0.093	0.790	0.037
PC3	-0.130	-0.039	0.865	-0.149
PC4	-0.027	-0.109	0.727	-0.007
PC5	0.142	-0.322	0.707	0.138
PC6	-0.161	-0.048	0.778	0.209
CL1	-0.282	-0.042	0.030	0.829
CL2	0.204	0.228	-0.278	0.836
CL3	0.074	-0.182	0.244	0.852

The table above shows that the loading factor value for each indicator of each latent variable has the largest loading factor value compared with the other latent variable

loading values. This means that each latent variable had good discriminant validity.

Table 8 Square root of Average (AVE) Validity Test Result

Variable	Website Quality 4.0	Brand Image	Purchase Decision	Customer Loyalty
Website Quality 4.0	0.751	0.735	0.656	0.676
Brand Image	0.735	0.783	0.738	0.759
Purchase Decision	0.656	0.738	0.767	0.693
Customer Loyalty	0.676	0.759	0.693	0.839

Table in above shows that the square root value of AVE along the diagonal line has a greater correlation between one construct

and another, so it can be concluded that the construct has a good level of validity

4.3.2 Reability Test

Table 9 Reability Test Result

Variable	Cronbach's Alpha	Composite Reliability
Website Quality 4.0	0.903	0.921
Brand Image	0.873	0.905
Purchase Decision	0.859	0.895
Customer Loyalty	0.790	0.877

The table above shows that the value of Cronbach's alpha > 0,6 and composite reliability >0,7 indicates that all the constructs in the estimated model meet the criteria (reliable)

4.4 Structural Model Testing

4.4.1 Coefficients of Determination

Table 10 Goodnes of Fit-Inner Model Test Result

Structural Model	R Square	R Square Adjusted
Purchase Decision	0.579	0.481
Customer Loyalty	0.571	0.476

From the table above, the R Square purchase decision value is 0.579. This means that 57.9% of the purchase decision variable is influenced by Website Quality 4.0 and Brand Image. Then, the value of the R Square

Customer Loyalty is 0,571. This means that purchase decisions influence 57.1% of the Customer Loyalty variable.

4.4.2 Model Fit and Quality Indexes

Table 11 Value of Fit Indicators and Quality Indexes

Model Fit and Quality Indexes	Index	P-value	Criteria	Information
Average path coefficient (APC)	0.500	P < 0.001	P ≤ 0.05	Accepted
Average R-squared (ARS)	0.530	P < 0.001	P ≤ 0.05	Accepted
Average adjusted R-squared (AARS)	0.524	P < 0.000	P ≤ 0.05	Accepted
Average block VIF (AVIF)	2.241	Acceptable if ≤ 5, Ideally ≤ 3.3		Accepted
Average full collinearity VIF (AFVIF)	2.764	Acceptable if ≤ 5. Ideally ≤ 3.3		Accepted
Tenenhaus GoF (GoF)	1.000	Small ≥ 0.1; Medium ≥ 0.25; Large ≥ 0.36		Large
Sympson's paradox ratio (SPR)	1.000	≥ 0.7		Accepted
R-squared contribution ratio (RSCR)	1.000	≥ 0.9		Accepted
Statistical suppression ratio (SSR)	1.000	≥ 0.7		Accepted

Model Fit and Quality Indexes	Index	P-value	Criteria	Information
Nonlinear bivariate causality direction ratio (NLBCDR)	1.000	≥ 0.7		Accepted

From the table above, it can be seen that the average path coefficient (APC) is 0,500 with a p-value <0,001, the average R-

squared (ARS) is 0,530 with a p-value < 0,001, and the average adjusted R-squared (AARS)

is 0,524 with a p-value < 0,001 which means that the research model has a good fit.

The value of the average variance inflation factor (AVIF) is 2,241 and the average full collinearity variance inflation factor (AFVIF) is 2,764 <3,3, which means that there is no problem of multicollinearity between indicators and between exogenous variables. Furthermore, the tenenhaus goodness-of-fit value is 0,572 > 0,36, which indicates that the model's predictive power is large or the fit model is very good.

To evaluate the quality indexes, the Simpson's paradox ratio (SPR) index is 1,000 > 0,70 (ideal), the R-squared contribution ratio (RSCR) is 1,000 > 0,90 (ideal), the statistical suppression ratio (SSR) is 1,000 > 0,70 (ideal) and the nonlinear bivariate causality direction ratio (NLBCDR) of 1,000 > 0,70 means that the indices have no causality problem in the model.

4.4.3 Hypotesis Test

Table 12 Results of Direct & Indirect Hypotesis Test

Hypothesis	Path Coefficient		P Values	Result
	Direct	Indirect		
Website Quality 4.0 → Purchase Decision	0.254		0.002	Significant Influence
Brand Image → Purchase Decision	0.552		<0.001	Significant Influence
Purchase Decision → Customer Loyalty	0.693		<0.001	Significant Influence
Website Quality 4.0 → Purchase Decision → Customer Loyalty		0.176	0.003	Significant Influence
Brand Image → Purchase Decision → Customer Loyalty		0.383	<0.001	Significant Influence

Based on the table above, the results of direct and indirect hypothesis testing are as follows:

- a) Website Quality 4.0 → Purchase Decision
- b) The path coefficient value was 0.254, with a p-value of 0.002. These results indicated a p-value of 0.002 <0.05. Thus, website quality (4.0) had a significant effect on purchase decisions. Then, a path coefficient value of 0.254 is obtained, which means that every increase in website quality 4.0 by one unit will increase the purchase decision by 0.254, and vice versa, assuming other variables are constant.
- c) Brand Image → Purchase Decision
- d) The path coefficient value was 0.552, with a p-value <0.001. These results indicate a p-value of <0.001. Thus, brand image significantly affects purchase decisions. Then, a path coefficient value of 0.552 is obtained,

which means that every 1 unit increase in the brand image will increase the purchase decision by 0.552 and vice versa, assuming other variables are constant.

- e) Purchase Decision → Customer Loyalty
- f) The path coefficient value was 0.693, with a p-value <0.001. These results indicate a p-value of <0.001. Thus it can be interpreted that the purchase decision significantly affects customer loyalty. Then, a path coefficient value of 0.693 is obtained, which means that every increase in purchase decision by one unit will increase customer loyalty by 0.693, and vice versa, assuming other variables are constant.
- g) Website Quality 4.0 → Purchase Decision → Customer Loyalty
- h) The path coefficient value was 0,176, with a p-value of 0,003. These results indicated that the p-value was 0,003

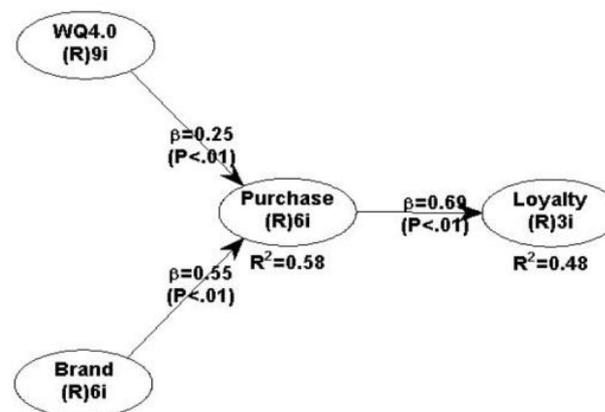
<0,05. Thus, Website Quality 4.0 significantly affects customer loyalty through purchase decisions. Then, a path coefficient value of 0,176 is obtained, which means that every increase in Website Quality 4.0, by 1 unit, will increase Customer Loyalty by 0,176 through Purchase decisions and vice versa, assuming other variables are constant.

- i) Brand Image → Purchase Decision → Customer Loyalty
- j) The path coefficient value was 0,383, with a p-value <0,001. These results indicate a p-value of <0,001. Thus,

Brand Image significantly affects customer loyalty through their purchase decisions. Then, a path coefficient value of 0,383 is obtained, which means that every 1 unit increase in Brand Image will increase Customer loyalty by 0,383 through customer loyalty and vice versa, assuming other variables are constant.

- k) From the test results, the WarpPLS Structural Diagram image model is obtained as follows:

Figure 2 Structure of WarpPLS Diagram



DISCUSSION

a) The Effects of Website Quality 4.0 Toward Purchased Decision

Webqual 4.0, is based on three research areas: information quality from information systems, interaction quality, and usability from human-computer interaction. User perception consists of two parts: perception of the service received (actual) and level of expectation (ideal). A high-quality website can be seen from the level of perception of the actual service, which is high, and the gap between the perception of actual and ideal service is low. According to Voss Quoted from Tarigan (2008), Webqual is one step ahead in measuring website quality. In addition, Loiacono (2002) said "Webqual is a comprehensive website quality measurement."

Based on the submission of the hypotheses and the findings of the research

analysis, it was determined that H1 was acceptable. The results of the study show that the path coefficient value is 0,254 with a p-value of 0,002. These results indicate a p value of 0,002 < 0,05. Thus, website quality 4.0 has a significant effect on purchase decisions at E-Commerce Shopee in Pekanbaru City. This indicates that the greater the information quality, the greater is the interest in using it. Transacting on the E-Commerce Shopee service enables users to make transactions whenever and wherever they want and by using E-Commerce Shopee. Users also receive the benefits of free shipping and cash back in the form of a Shopee Coin. E-Commerce Shopee users believe that using this application is free from burdensome difficulties and effort, easy to learn, easy to operate, and transact according to what users want to convince customers to purchase.

The results of this study are in line with previous research conducted by Fadhiah Adlina Putri Ghaisani and Dinalestari Purbawati (2019), which showed that Website Quality 4.0 has a positive and significant effect on purchase decisions. The results of the research by Chendy Christy Dapas, Tigor Sitorus, Edi Purwanto, John J.O.I. Ihalauw (2019) showed that Website Quality (4.0) had a significant effect on purchase decisions.

b) The Effects of Brand Image Toward Purchased Decision

According to Biel (1992), brand image comprises three components: corporate image (company image), user image (user image), and product image (product image). The image of a company starts from the feelings of customers and business people about the organization concerned as a producer of the product, as well as the result of individual evaluations about it (Surachman, 2008).

Xian, et al (2011) stated that "The user image refers to whether the brand personality is congruent with the consumers." User image refers to whether a brand personality matches that of the consumer. Product image is the public view of a product or product category (Surachman, 2008).

Based on the submission of the hypotheses and the findings of the research analysis, it was determined that H2 was acceptable. The results of the study showed that the path coefficient value was 0,552 with a p-value of $< 0,001$. These results indicate a p value $< 0,001$. Thus it can be interpreted that Brand Image has a

c) The Effect of Purchase Decision Toward Customer Loyalty

Based on the submission of the hypotheses and the findings of the research analysis, it was determined that H3 was acceptable. The results of the study show that the path coefficient value is 0,693 with a p-value $< 0,001$. These results indicate a p value $< 0,001$. Thus, it can be interpreted that the purchase decision has a significant effect on customer loyalty. Then, a path coefficient value of 0,693 is obtained, which means that every increase in the purchase decision by one

unit will increase customer loyalty by 0,693 and otherwise, assuming other variables are constant.

d) The Effect of Website Quality 4.0 toward Costumer Loyalty through Purchase Decision

Based on the submission of the hypotheses and the findings of the research analysis, H4 was found to be acceptable. The results of the study show that the path coefficient value is 0,176 with a p value of 0,003. These results indicate a p- value of $0,003 < 0,05$. Thus, Website Quality 4.0 has a significant effect on customer loyalty through purchase decisions. The greater Website Quality 4.0 of E-Commerce Shopee, which is felt by consumers, will create a positive impression of the Purchase Decision, which will have an impact on increasing Customer Loyalty. Otherwise, if consumers feel that Website Quality 4.0 of E-Commerce Shopee is not good enough, it will cause a negative Purchase Decision and have a decreasing impact on Customer Loyalty.

The results of this study are in line with previous research conducted by Putra (2021) and Ashari and Tafiprios (2021), which showed that Website Quality 4.0, has a significant and positive effect on purchasing decisions and customer loyalty.

e) The Effect of Brand Image toward Costumer Loyalty through Purchase Decision

Based on the submission of the hypotheses and the findings of the research analysis, H5 was found to be acceptable. The results of the study show that the path coefficient value is 0,383 with a p-value $< 0,001$. These results indicate a p value $< 0,001$. Thus, Brand Image has a significant effect on customer loyalty through purchase decisions. This means that a greater brand image of e-commerce shops, which is felt by consumers, will create a positive impression of the Purchase Decision, which will increase Customer Loyalty. Otherwise, if consumers feel that the brand image of E- Commerce Shopee is not good enough, it will cause a

negative Purchase Decision and have a decreasing impact on Customer Loyalty.

The results of this study are in line with those of previous research conducted by Fadiyah Adlina Putri Ghaisani and Dinalestari Purbawati (2019), Edi Sucipto Tanady and Muhammad Fuad (2020), Fransisca Paramitasari Musay (2013), Linawati, Dimas Pranandito, and Rano Kartono (2019), who showed that Brand Image has a significant and positive effect on purchasing decisions and customer loyalty.

5. CONCLUSION

Based on the analysis and discussions regarding the effect of website quality 4.0, brand image toward purchase decision, and customer loyalty at e-commerce shops in Pekanbaru, the author finally obtains the following conclusions:

- a. Website Quality 4.0 has a significant positive effect on purchase decisions

when using e-commerce shops in Pekanbaru City.

- b. Brand Image has a significant positive effect on purchase decisions when using e-commerce Shopee in Pekanbaru City.
- c. Purchase decisions have a significant positive effect on Customer Loyalty when using e-commerce Shopee in Pekanbaru City.
- d. Website Quality 4.0 has a significant positive effect towards Customer Loyalty through Purchase Decision in using E-Commerce Shopee in Pekanbaru city.
- e. Brand Image has a significant positive effect on customer loyalty through purchase decisions in e-commerce Shopee in Pekanbaru City.

REFERENCES

- [1] Ashari, A. and Tafiprios. (2021), "Effect of Service Quality, Electronic Word of Mouth, Web Quality, and Trust in Consumer Purchasing Decisions (Study On Mataharimall.com)", *International Journal of Innovative Science and Research Technology*, Vol. 6 No. 4, pp. 665–674.
- [2] Garcia, J.M., Freire, O.B.D.L., Santos, E.B.A. and Andrade, J. (2020), "Factors affecting satisfaction and loyalty to online group buying", *Revista de Gestao*, Vol. 27 No. 3, pp. 211–228.
- [3] Ilmuonedata. "Pertumbuhan E-Commerce Indonesia Meningkatkan Tajam, Siapa di Posisi Teratas?", artikel diakses tanggal 13 Februari 2022, dari <http://www.idntimes.com/business/economy/yoshi/pertumbuhan-e-commerce-indonesia-1>
- [4] Indarto, E.W. and Qomariah, N. (2018), "The Effect of Brand Image and Product Attributes on Customer Satisfaction THE EFFECT OF BRAND IMAGE AND PRODUCT ATTRIBUTES ON CUSTOMER SATISFACTION AND CUSTOMER LOYALTY Indexed in Google Scholar", *Journal of Applied Management (JAM)*, Vol. 16 No. 36, pp. 457–466.
- [5] Kotler dan Keller.(2012). *Marketing Management Edisi 14.Global Edition*.Pearson Prentice.
- [6] Kotler, Philip & Armstrong, Gary. 2001. *Prinsip-Prinsip Pemasaran*. Jakarta: Penerbit Erlangga
- [7] Kotler, Philip & Keller, Kevin L. 2008. *Manajemen Pemasaran : Edisi Ketiga Belas Jilid 1*. Jakarta: Penerbit Erlangga
- [8] Kotler, P., & Keller, K. L. (2013) *Manajemen Pemasaran: Edisi Ketiga Belas*. Jakarta; Pearson Education Inc.
- [9] Kotler, P., & Armstrong, G. (2012). *Principles of Marketing*. 14th ed. New Jersey: Prentice Hall.
- [10] Lubis, Milladine 2014. "Konsumen Indonesia Mulai Menyukai Belanja Online", Nielsen, diakses pada 13 Februari 2022, dari <http://www.nielsen.co.id/en/press-room/2014/konsumen-indonesia-mulai-menyukai-belanja-online.html>
- [11] Mawardi, Ponti Kurniawan, dkk. 2011. *Riset Pemasaran dan Konsumen, Panduan Riset dan Kajian:Kepuasan, Perilaku Pembelian, Gaya Hidup, Loyalitas dan Persepsi Risiko*. IPB Press. Bogor.
- [12] Putri, Dr. Budi Rahayu Tanama S.Pt.,MM. 2017. *Manajemen Pemasaran*. Denpasar:Swasta Nulus.
- [13] Rohman, F. and Kurniawan, D. (2017), "Pengukuran Kualitas Website Badan Nasional Penanggulangan Bencana Menggunakan Metode Webqual 4.0", *Jurnal Ilmu Pengetahuan Dan Teknologi Komputer*, Vol. 3 No. 1, pp. 31–38.
- [14] Sastika, W., Suryawardani, B. and H. Hanifa, F. (2016), "Analysis of Website Quality, Brand Awareness on Trust and its Impact on Customer Loyalty", Vol. 15, pp. 472–478.
- [15] Saidani, B., Lusiana, L.M. and Aditya, S. (2019), "Analisis Pengaruh Kualitas Website dan Kepercayaan Terhadap Kepuasan Pelanggan dalam Membentuk Minat Pembelian Ulang pada Pelanggan Shopee", *Jurnal Riset Manajemen Sains Indonesia*, Vol. 10 No. 2, pp. 425–444.
- [16] Wijaya, E. and Warnadi. (2019), "Factors Affecting Online Purchase Decisions At Shopee: Effect of E-Commerce", *Jurnal Ilmiah Manajemen*, Vol. 7 No. 2, pp. 152–164.
- [17] Sochenda, S. (2021), "Modeling of Customer Satisfaction and Customer", *International Journal of Economics, Business and Accounting Research (IJEBAR)*, Vol. 2021 No. 4, pp. 409–433.

-
- [18] Wicaksono, A.I. and Ishak, A. (2022), "Promoting online purchase intention through website quality, EWOM, receiver perspective, consumer satisfaction and brand image", *International Journal of Research in Business and Social Science* (2147- 4478), Vol. 11 No. 1, pp. 12–23.
- [19] Widagdo, B. and Roz, K. (2021), "Hedonic Shopping Motivation and Impulse Buying: The Effect of Website Quality on Customer Satisfaction", *Journal of Asian Finance, Economics and Business*, Vol. 8 No. 1, pp. 395–405.
- [20] Abdillah, Willy dan Jogiyanto. 2015. *Partial Least Square (PLS) Alternatif Structural Equation Modeling (SEM) dalam Penelitian Bisnis*. Ed.1. Yogyakarta: ANDI.
- [21] Abdullah. (2015). *Metodologi Penelitian Kuantitatif*. Yogyakarta: Aswaja Pressindo.
- [22] Ghozali, I. Latan, H. 2012. *Partial Least Square : Konsep, Teknik dan Aplikasi Smart PLS 2.0 M3*. Semarang: Badan Penerbit Universitas Diponegoro.
- [23] Ghozali, Imam., & Hengky Latan. 2014. *Partial Least Squares : Konsep, Teknik dan Aplikasi Menggunakan Program SmartPLS3.0 edisi kedua*. Universitas Diponegoro, Semarang.
- [24] Kock, N. (2020). *WarpPLS User Manual: Version 7.0*. ScriptWarp Systems.
- [25] Sholihin, Mahfud, and Dwi Ratmono. 2013. *Analisis SEM-PLS Dengan WarpPLS 3.0*. Yogyakarta: Penerbit Andi.