

INFLUENCE OF UI, UX AND E-SERVICE QUALITY ON TOKOPEDIA PURCHASE VIA PERCEIVED RISK

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ABSTRACT

The development of technology and information have led to increase shopping activity on many e-commerce, especially in Indonesia. Tokopedia, one of the largest e-commerce in Indonesia, experienced a surge in transactions with high purchasing decisions. A high purchase decision indicates that the product or service has succeeded in attracting the attention of consumers and is related to engagement in choosing and making decisions to buy goods or use services. UI Design, UX Design and e-ServQual are the first aspects consumers feel when opening an application before making a purchase. Therefore, this research was conducted to determine the relationship between UI, UX, e-ServQual, Perceived Risk and Purchase Decision which are used as latent variables of this research. This study adopted a correlational research design and analysis was carried out using PLS-SEM method with SmartPLS 4.0 software. There are 114 respondents with various backgrounds and ages from all over Indonesia who use the Tokopedia mobile application. The results revealed that the factor that most influenced the purchasing decisions was e-ServQual with the indicator "The entire process of using the application is efficient". Furthermore, the factor that most influences perceived risk is UX Design, even though perceived risk does not have a mediating effect on purchasing decisions and become a gap in this study. The study suggested further studies to be conducted to relate the variables.

Keywords: *User Experience, User Interface, e-Service Quality, Purchase Decision, Perceived Risk*

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INTRODUCTION

Development in technology and information have had a huge impact on the business sector since the invention of the internet. It has become easier for a company to reach a wider market with more efficient cost structure. This has led to the emergence of various e-commerce having tight competition with various competitors to attract consumers and retain customers using the marketing strategies they have.

A high purchase decision indicates that the product or service has successfully captured the consumer's attention. A purchase decision is a consumer's behavior that relates to his/her engagement in choosing and making the decision to buy a good (s) or use a service (Goswami, 2020). There are the first aspects that consumers feel when opening the application before they do the decision making on purchase, that specifically lead to User Interface (UI), User Experience (UX) and e-Service Quality. Implementation of effective site or application design factors such as design information, visual and navigation design as marketing tools that can increase purchase (and or repurchase) intention (Tandra, 2020). All e-Service Quality (e-ServQual) variables such as efficiency, system availability, fulfillment and privacy had a strong positive relationship with behavioral adoption for online shopping in e-commerce (Muhammad et al., 2016).

Several marketplaces and retail companies from Indonesia such as Tokopedia, Alfamart, Salim Group, and Bukalapak experienced a surge in transactions. According to Euromonitor International's research in its report, these 4 companies are included in the top 15 largest retail companies in Southeast Asia. Tokopedia also occupies the first position as a retail player in Indonesia as well as in Southeast Asia (Nisafani et al., 2017). Shopping through the Tokopedia application greatly facilitates people, especially those living in urban areas, to shop and fulfil their daily needs quickly and efficiently. Meanwhile, minimarkets such as Alfamart, Indomaret, and other supermarkets tend to be easy to reach directly because they are available in many places. So, it is hoped that if Tokopedia application developers can focus on the variables that most influence perceived risk and purchasing decisions, Tokopedia in general can maintain customer loyalty and avoid losses (Prakarsa, 2021).

Research Objectives

This study will be based on the following objectives:

- 1) To analyze the effect of the direct relationship between UI, UX and e-Service Quality on consumers' purchase decisions using the Tokopedia Apps.
- 2) To analyze the effect of the indirect relationship between UI, UX and e-Service Quality on consumers' purchase decisions using the Tokopedia Apps through perceived risk mediation.
- 3) To identify what variable that have the greatest influence on purchase decisions and perceived risk when buying products through the Tokopedia apps.

Research Hypothesis

There are several hypotheses that have been developed to test the effect of UI, UX and e-ServQual designs on purchasing decisions and perceived risk;

- 1) Testing the influence of UI design on purchasing decisions and perceived risk
H1: UI design has a significant effect on purchasing decisions
H2: UI design has a significant effect on perceived risk
- 2) Testing the influence of UX design on purchasing decisions and perceived risk
H3: UX design has a significant effect on purchasing decisions
H4: UX design has a significant effect on perceived risk
- 3) Testing the effect of e-ServQual on purchasing decisions and perceived risk
H5: e-ServQual has a significant effect on purchasing decisions
H6: e-ServQual has a significant effect on perceived risk
- 4) Testing the influence of perceived risk on mediating UI, UX, and e-Service Quality on purchasing decisions
H7: Perceived risks have a significant mediating effect on purchasing decisions

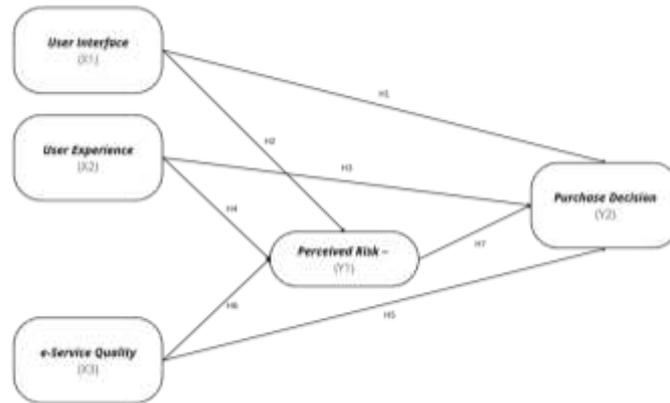


Figure 1.1. - Hypotheses

User Interface Design (UI)

User interface display is an important part in a system or application. UI design is the part of the system that is used to interact directly from the user. Therefore, UI design is one of the most influential attractions, especially for a mobile applications (Zolkepli et al., 2021). According to Hartadi et al (2020), there are guidelines for compiling an easy-to-use application design, which are as follows:

- a. Consistency: consistency of the user interface
- b. Hierarchy: arrangement of the hierarchy of interests of objects that are contained in the application
- c. Personality: the first impression seen in the application show the characteristics of the application
- d. Layout: the layout of the elements used in an application
- e. Type: typography used in the app
- f. Color: choosing the right color for an application
- g. Imagery: use of images, icons, and the like for convey information in the application
- h. Control and Affordance: elements of the user interface that can be used by people to interact with the system through a screen.

Good UI design is measured by the ease of interaction between users with the product, in this case the Tokopedia Apps. UI design emphasizes aesthetics and design elements that grab the user's attention. In this study, 5 indicators were compiled based on previous research that can measure the performance of the UI Design of the Tokopedia Apps, which can be seen in Table 2.1.

Table 2.1.
Indicators of UI Design Variables

No.	Variables	Indicators
1.	UI Design	Consistent application design and comfortable to use (website design convenience)
2.		The application display design is clear and concise so that it is easy to understand the information listed (information logically presented)
3.		Good color contrast (aesthetic design)
4.		Good and structured information display quality (information quality)
5.		Can understand the flow of application usage easily (easily navigate)

(Compiled by author).

User Experience Design (UX)

User Experience is the user experience in feeling ease and efficiency in interacting with computers. Including one's perception of practical aspects such as usability, ease of use, and efficiency of an existing system (Lebson, 2021). UX design is measured by how good the user experience is when using the product. UX design prioritizes flow efficiency when operating applications that aim to meet user needs. There are 4 indicators compiled to measure the performance of the UX Design of the Tokopedia Apps, which can be seen in Table 2.2.

Table 2.2.
Indicators of UX Design Variables

No.	Variables	Indicators
1.	UX Design	Applications are easy to understand and use (usability)
2.		The features provided are in accordance with user needs (valuable)
3.		Applications are easy to access or download (adoptability)
4.		Have a pleasant experience when using the application (desirable)

(Compiled by author).

E-Service Quality (e-ServQual)

In conceptualizing the basic service quality model, (Parasuraman et al., 2005) identified ten key determinants of service quality as perceived by companies: customer reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing customers and suitability. Furthermore, the ServQual scale by (Parasuraman et al., 1985) reduced from ten determinants to five dimensions of service quality: (1) tangibles, (2) reliability, (3) responsiveness, (4) assurance, and (5) empathy (Parasuraman & Grewal, 2000). However, report that the definition and importance of the five dimensions of ServQual is different when customers interact with websites than with service employees.

In response to these findings, (Parasuraman et al., 2005) introduced two different scales to capture the quality of e-services. They are e-ServQual and e-RecS-QUAL. For the purpose of

this study, e-ServQual is applied because this model contains four dimensions which largely determine the customer's first use of online shopping behavior. The dimensions are; efficiency, fulfillment, system availability, and privacy.

Electronic Service Quality (e-ServQual) was developed to evaluate a service provided on the internet network. E-Service Quality is defined as an extension of the ability of a site to facilitate shopping, purchasing, and distribution activities effectively and efficiently (Rahahleh et al., 2020). e-ServQual is used to measure customer satisfaction with an online-based service, in this case an application service. 7 indicators have been compiled to measure the e-ServQual Tokopedia Apps, which can be seen in Table 2.3.

Table 2.3.
Indicators of e-ServQual Variables

No.	Variables	Indicators
1.	e-Service Quality	Reliable customer service ex: serving questions, complaints, or comments well (reliable)
2.		Easy transaction process (transaction)
3.		The whole process of using the application is efficient or not complicated (efficiency)
4.		In accordance with what the company promised (guaranteed delivery of orders and availability of goods are met) (fulfillment)
5.		The system in the application works well with fast response times (system availability)
6.		Users trust the application security system (privacy)
7.		Users are not bothered by excessive advertisements or promotions. (concentration, time elapse, noise awareness, forget things).

(Compiled by author).

Purchase Decision

Purchase decision is an integration process that is used to combine knowledge by evaluating two or more alternative behaviors and choosing one of them (Kotler & Keller, 2018). Consumer decisions are a problem-solving approach to buying goods or services in order to fulfill their wants and needs. Purchasing decisions are composed of indicators that are expected to measure user confidence to return to shopping through the Tokopedia Apps. These indicators can be seen in Table 2.4.

Table 2.4.
Indicators of Purchase Decision Variables

No.	Variables	Indicators
1.	Purchase Decisions	Trust the system provided and decide to make a transaction
2.		Recommend the app to relatives
3.		Doing repeat buying because feeling safe and comfortable shopping using the application

(Compiled by author).

Perceived Risk

Perceived risk has been defined by Chellappa in 2005 as the uncertainty that when customers are unable to predict the consequences of their purchasing decisions (Cheng et al., 2021). Perceived risk is the uncertainty felt by customers when they cannot predict the consequences of their purchasing decisions (Cherenkov et al., 2020). Online shopping makes it impossible for customers to observe, touch, try, or taste the products being sold directly because of the distance between the seller and the buyer. Therefore, if the customer decides to make a purchase transaction via online, it can be interpreted as consumer confidence in an application or online shopping service provider so that they are willing to accept the risks. The general risks of shopping online include damaged products during shipping, products that do not match the appearance on the application, products that do not meet the claims stated on the application, and so on (Prakarsa, 2021).

Shopping through the application cannot be separated from risks, ranging from risks during transactions to product conditions during the trip. Perceived risk is measured to see how well the overall system performance that is owned and promised by the Tokopedia Apps is. There are 3 indicators that can measure how much risk the user feels, can be seen in Table 2.5.

Table 2.5.

Indicators of Perceived Risk Variables

No.	Variables	Indicators
1.	Perceived Risk	Item received in good condition (not damaged or expired)
2.		Do not feel or accept risk when making a purchase transaction (no errors during the transaction process)
3.		Privacy and security are maintained when using the application

(Compiled by author).

METHOD

The object of this research is Tokopedia mobile apps which is under the auspices of PT GoTo Gojek Tokopedia Tbk., an e-commerce which has an online retail feature “Dilayani Tokopedia”. This research adopted a correlational research design and was conducted in January - February 2023. The population of the sample was 114 Tokopedia users from various backgrounds and ages.

Research data were collected using structured questionnaires that were administered by the researcher. The data questionnaire items were tested for validity before data collection. The research instruments were tested for reliability to ensure the research findings are reliable. A correlation analysis was conducted to determine the relationship between UI, UX and e-ServQual on Purchase Decision through the mediation of perceived risk. One-tailed significance test was conducted to test the statistical significance of the relationship. The results were presented using tables.

RESULTS AND DISCUSSION

Tokopedia is an example of a company that can successfully seize the Indonesian e-commerce business market opportunity and becomes one of the most preferred companies for

Indonesians. This is supported by their Q2 2022 data (iPrice Group, 2023). This data ranks Tokopedia as number one in terms of monthly visitors. Tokopedia has 158,346,667 monthly visitors. It also ranks second in the AppStore after Shopee and fifth in the Google PlayStore (behind Shopee, Lazada, Blibli and Sociola) in terms of the number of applications installed from each site (iPrice Group, 2023). The data is displayed for all business model categories.

In the questionnaire that has been distributed, there are questions regarding personal data that reflect the characteristics of respondents from various categories, which can be grouped into demographic variables such as gender, age, and occupation. In addition, customers can also be grouped based on the user type of Tokopedia and their average spending through the applications. All of these variables which are customer characteristics can be used as a reference for adjusting the business model to achieve purchasing targets.

Demographics

Based on the data obtained, there were 114 respondents which female respondents used more Tokopedia mobile applications to shop for their needs than male respondents. The questionnaire was filled with 53% women (60 people) and 47% men (54 people). This can be caused by shopping habits to meet daily needs mostly done by women.

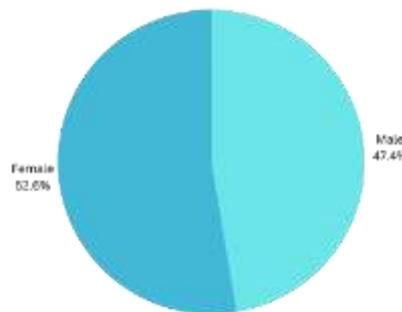


Figure 4.1. - Gender

The majority of respondents who shop using Tokopedia mobile applications are in the age range of 17 – 25 years, totaling 55 people (48,2%), followed by the second majority of respondents aged 26 – 35 years, totaling 47 people (41,2%). 46 – 55 years as many as 6 people (5,3%) and 36 – 45 years for 5 people (4,4%). The least is > 55 years with only 1 person (0,9%) and none of them are underage (< 17 years).

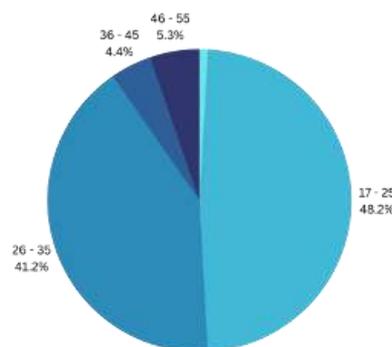


Figure 4.2. - Ages

It can be seen that the majority of respondents who answered the questionnaire were 50,9% private employees (58 people), second place for 14% each (16 people) are students and

government employees, followed by self-employees 9,6% (11 people), professionals are 7,9% (9 people), and the least are the housewives 3,5% (4 people). This can be due to the fact that private employees, government employees and students are the people who are very close to and grow with technology, so it is assumed that they can make good use of the convenience of online shopping.

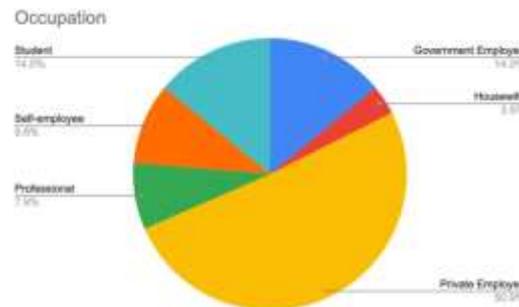


Figure 4.3. - Occupations

It can be seen 64,9% of the total respondents are old users who have used Tokopedia for more than 1 year. In the second position are new users who have used it for under 1 month. The third position are occupied by users who use apps 1-3 months and 4-6 months, each 8,8%. The remaining 5,3% are users who have been using Tokopedia for 6-12 months. This is a good thing because the distribution of Tokopedia users who are respondents in this study varies from new users to old users.

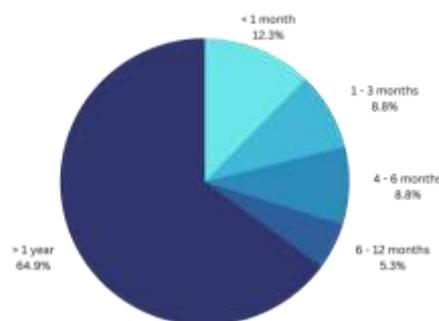


Figure 4.4. – Time of Usages

Tokopedia classified the types of user levels called members, namely silver, gold, platinum and diamond (Tokopedia Academy, 2023). However, before silver members there were users who are not have a level yet, because they had never made a transaction or had already made a transaction, nevertheless the nominal value they spent was still relatively small. To become a silver member, users must make at least one or more transaction with accumulated total purchase of IDR 500.000.

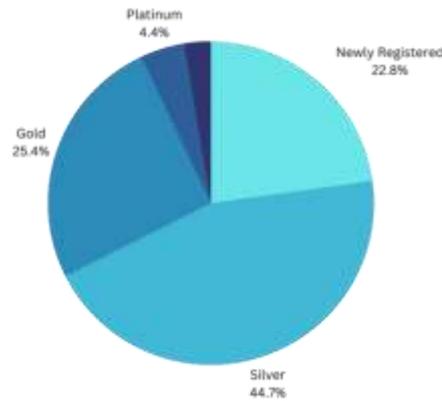


Figure 4.5. – Type of Users

The figure 4.5. shows that the most users who become respondents in this research are silver member (44,7% or 51 people), gold (25,4% or 29 people), 26 people (22,8%) are newly registered user (not yet a member), platinum and diamond become the least compared to others, each 4,4% (5) and 2,6% (3).

Description Analysis

A. UI Design (X1)

From the Table 4.1., it can be seen that the user perception of the user interface design of the Tokopedia mobile application is on average very good (excellent), with a total mean of 3,33. The indicators that have the highest score are UI3 (Tokopedia has good color contrast.) and followed by UI5 (User can understand the flow of using the apps easily) each of which has a value of 3,48 and 3,38.

Table 4.1. – User Interface Mean Value

Indicators	Mean	Criteria
UI1	3,28	Excellent
UI2	3,24	Good
UI3	3,48	Excellent
UI4	3,24	Good
UI5	3,38	Excellent
Total Mean	3,33	Excellent

B. UX Design (X2)

From the table 4.2., it can be concluded that the user's perception of the user experience design of the Tokopedia mobile application is very good with a total mean of 3,29. The indicator that has the highest mean value is UX1 (the application is easy to understand and use) with a value of 3,38.

Table 4.2. – User Experience Mean Value

Indicators	Mean	Criteria
UX1	3,38	Excellent
UX2	3,25	Excellent
UX3	3,33	Excellent
UX4	3,20	Good
Total Mean	3,29	Excellent

C. E-ServQual (X3)

Based on the table 4.3., it can be concluded that the user's perception of the e-service quality design of the Tokopedia mobile application is good with a total mean of 3,21. The indicator that has the highest mean value is SQ2 (The transaction process is easy) with a mean value of 3,50.

Table 4.3. – e-Service Quality Mean Value

Indicators	Mean	Criteria
SQ1	2,90	Good
SQ2	3,50	Excellent
SQ3	3,38	Excellent
SQ4	3,20	Good
SQ5	3,33	Excellent
SQ6	3,35	Excellent
SQ7	2,83	Good
Total Mean	3,21	Good

D. Purchase Decision (Y1)

Based on the table 4.4., it can be concluded that the user's perception of purchasing decisions through the Tokopedia mobile application has a total mean of 3,19, which means that the average users want to buy products through the Tokopedia apps which is influenced by the user interface, user experience, and e-ServQual offered by the application. The indicator with the highest mean value is KP1 (Trust the system provided and decide to make a transaction) with a mean value of 3,27.

Table 4.4. – Purchase Decision Mean Value

Indicators	Mean	Criteria
PD1	3,27	Decided to buy
PD2	3,12	Want to buy
PD3	3,20	Want to buy
Total Mean	3,19	Want to buy

E. Perceived Risk (Y2)

Based on this table, it can be concluded that the user’s perception of perceived risk when shopping through the Tokopedia mobile application has a total mean of 1,34; which means that the average users accept risks when making purchases through the Tokopedia mobile application which is influenced by the user interface, user experience, and e-ServQual offered by the application. The indicators with the highest mean values are PR3 (Privacy and security is maintained when using the application) which has a mean value of 1,36.

Table 4.5. – Perceived Risk Mean Value

Indicators	Mean	Criteria
PR1	1,33	Accept risk
PR2	1,32	Accept risk
PR3	1,36	Accept risk
Total Mean	1,34	Accept risk

Inferential Statistical Analysis

A. Outer Model Evaluation (Measurement Model)

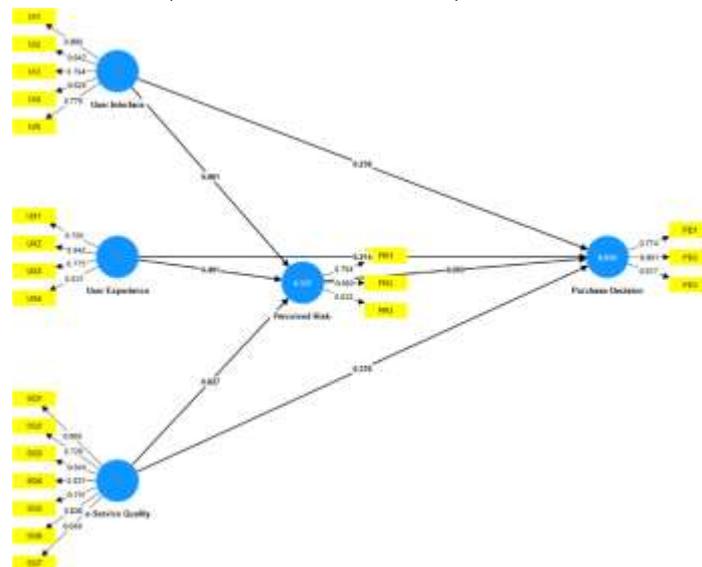


Figure 4.6. – Outer Loading Calculation (Generated using SmartPLS 4.0)

a. Indicator Reliability

The assessment of indicator reliability is seen from the magnitude of the outer loadings of each indicator. The recommended outer loadings value is > 0,7, but if an indicator with a value < 0,7 is removed and reduces the composite reliability and AVE values, then the indicator is not eliminated while it is still in the range 0,4 – 0,7. If the value of outer loadings < 0,4, the indicator must be removed because it is considered very unreliable in representing variables, Hair et al. in (Schuberth, 2021).

Based on Figure 4.6, the magnitude of outer loadings is > 0,70 in almost every indicator for all variables. This shows that each latent variable is able to explain the variance of each indicator that measures it.

b. Convergent Validity

The next validity test is convergent validity by looking at the AVE value, where the AVE must be 0,50 or higher, because it shows that the average construct has explained more than half of the indicator variance. The AVE values obtained for this study are as follows (Table 4.6.).

Table 4.6. – Composite reliability and AVE values in the modified model

Latent Variable	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
User Interface	0,904	0,917	0,688
User Experience	0,832	0,884	0,657
e-Service Quality	0,894	0,910	0,592
Perceived Risk	0,796	0,874	0,699
Purchase Decision	0,755	0,859	0,670

It can be seen from Table 4.6. that the AVE value is > 0,50, so it can be concluded that the average construct has explained more than half of the indicator variants.

c. Discriminant Validity

Discriminant validity is evaluated through two criteria, namely Fornell-Larcker and Cross Loadings. The Fornell-Larcker value or AVE squared correlation between a variable and its own variable must be higher than the other variables. The results obtained for the Fornell-Larcker criteria in this study are as follows (Table 4.7.)

Table 4.7. – Fornell-Larcker

	Perceived Risk	Purchase Decision	User Experience	User Interface	e-Service Quality
Perceived Risk	0,836				
Purchase Decision	0,508	0,818			
User Experience	0,578	0,754	0,811		
User Interface	0,495	0,714	0,804	0,830	
e-Service Quality	0,475	0,753	0,796	0,696	0,770

Judging from the diagonal column which is the correlation value of the variable with its own variable, this value is already higher than the correlation value of the variable with different variables, which means that the variable is not correlated with other variables. Cross loadings in this model are shown in Table 4.8. namely as follows.

Table 4.8. – Cross Loadings

	Perceived Risk	Purchase Decision	User Experience	User Interface	e-Service Quality
PD1	0,373	0,774	0,660	0,653	0,614
PD2	0,358	0,801	0,563	0,481	0,596
PD3	0,509	0,877	0,622	0,605	0,635
PR1	0,794	0,353	0,446	0,352	0,386
PR2	0,880	0,412	0,445	0,380	0,374
PR3	0,832	0,491	0,544	0,490	0,424
SQ1	0,241	0,496	0,430	0,365	0,668
SQ2	0,352	0,551	0,690	0,653	0,729
SQ3	0,395	0,640	0,640	0,647	0,844
SQ4	0,408	0,595	0,615	0,512	0,837
SQ5	0,421	0,630	0,759	0,607	0,797
SQ6	0,371	0,673	0,673	0,588	0,836
SQ7	0,348	0,430	0,415	0,311	0,649
UI1	0,472	0,656	0,699	0,906	0,611
UI2	0,540	0,686	0,734	0,842	0,586
UI3	0,268	0,550	0,618	0,794	0,510
UI4	0,354	0,514	0,610	0,826	0,572
UI5	0,359	0,515	0,654	0,775	0,609
UX1	0,511	0,621	0,786	0,790	0,556
UX2	0,465	0,647	0,842	0,625	0,662
UX3	0,421	0,484	0,775	0,540	0,674
UX4	0,472	0,671	0,837	0,633	0,696

The value of cross-loadings shows the correlation between the variables and their indicators. From Table 4.8., it can be seen that the correlation value of the variable with its indicators is already higher, so it can be concluded that each indicator of a variable is not correlated with indicators of other variables.

d. Internal Consistent Reliability

Based on Table 4.8., it can be observed that the composite reliability value of each variable is more than 0,7, so it can be concluded that the statistical technique used and the statement items on the questionnaire, were answered with consistent values by the respondents, or in other words the model used can be dependable.

B. Inner Model Evaluation (Structural Model)

a. R-square

Table 4.9. – R-square

Latent Variable	R-square
Perceived Risk	0,337
Purchase Decision	0,658

Based on the table 4.9., it can be concluded that exogenous latent variables affect the purchasing decision variable by 65,8%, and the remaining 34,2% is explained by other factors not observed in this study. Then exogenous latent variables affect the Perceived Risk variable by 33,7%, the remaining 66,3% is influenced by other factors. According to (Hair et al., 2017), the R-Square value of 0,20 is high in disciplines such as consumer behavior. According to Santosa (2018), if the R-square value is > 0,25, it means that it shows a high influence. So it can be concluded that exogenous latent variables (UI Design, UX Design, and e-ServQual) have a high influence on endogenous latent variables (Perceived Risk and Purchase Decision).

b. Path Coefficient

Table 4.10. – Path Coefficient

	Perceived Risk	Purchase Decision
User Interface	0,081	0,236
User Experience	0,491	0,214
e-Service Quality	0,027	0,376
Perceived Risk		0,089
Purchase Decision		

Based on the table, it can be concluded that:

- 1) The relationship between UI Design and Purchase Decision is positive.
- 2) The relationship between UI Design and Perceived Risk is positive.
- 3) The relationship between UX Design and Purchase Decision is positive.
- 4) The relationship between UX Design and Perceived Risk is positive.
- 5) The relationship between e-ServQual and Purchase Decision is positive.
- 6) The relationship between e-ServQual and Perceived Risk is positive.
- 7) The relationship between Perceived Risk and Purchase Decision is positive.

Regarding the path coefficient value of each variable, the value obtained is far from 1, this is because the respondents' answers are varied and subjective. Factors that are considered important by respondents are very diverse, therefore the majority of the results shown from the path coefficient test are far from a value of 1, or have a very small value.

c. Q-square

The Q-square value is obtained through a blindfolding mechanism in the SmartPLS 4 software. Q-square is useful to show how good the resulting observation value is. If the Q-square value is above 0, then the observation value of the model is good (Hair et al., 2017). The Q-square value generated from this research model can be seen in Table 4.11.

Table 4.11. – Q-square (Predictive Relevance)

	Q²
Perceived Risk	0,277
Purchase Decision	0,607

d. Bootstrapping (t-statistics)

Bootstrapping is a mechanism used to see the significance of the influence between exogenous latent variables and endogenous latent variables. If the t-statistics value exceeds the t-table value, then the variables have a significant relationship. Conversely, if the t-statistics value is below the t-table then it has a relationship but it is not significant. The t table value for the significance level (α) = 5% = 0,05 and n = 114 is 1,66. The results of bootstrapping are in Table 4.12. namely as follows.

Table 4.12. – Bootstrapping Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)
Perceived Risk -> Purchase Decision	0,089	0,086	0,084	1,059
User Experience -> Perceived Risk	0,491	0,477	0,185	2,661
User Experience -> Purchase Decision	0,214	0,205	0,121	1,761
User Interface -> Perceived Risk	0,081	0,081	0,124	0,657
User Interface -> Purchase Decision	0,236	0,246	0,121	1,947
e-Service Quality -> Perceived Risk	0,027	0,050	0,186	0,148
e-Service Quality -> Purchase Decision	0,376	0,384	0,109	3,452

The interpretation of the results from the table can test the hypotheses that have been prepared at the beginning, which are as follows.

1. H1: UI design has a positive and significant relationship to purchasing decisions because it has a t-statistics value of 1,947 > t-table 1,66. (in accordance with the initial hypothesis)
2. H2: UI design has a positive but not significant relationship to Perceived Risk because it has a t-statistics value of 0,657 < t-table 1,66. (not in accordance with the initial hypothesis)
3. H3: UX design has a positive and significant relationship to purchasing decisions because it has a t-statistics value of 1,761 > t-table 1.66 (in accordance to the initial hypothesis).
4. H4: UX Design has a positive and significant relationship to Perceived Risk because it has a t-statistics value of 2,661 > t-table 1,66 (in accordance to the initial hypothesis).
5. H5: eServQual has a positive and significant relationship to Purchase Decision because it has a t-statistics value of 3,452 < t-table 1.66 (in accordance with the initial hypothesis).
6. H6: eServQual has a positive but not significant relationship to Perceived Risk because it has a t-statistics value of 0,148 < t-table 1.66 (not in accordance to the initial hypothesis).
7. H7: Perceived risk has a negative and insignificant relationship to purchasing decisions because it has a t-statistics value of 1,059 < t-table 1.66 (not in accordance with the initial hypothesis).

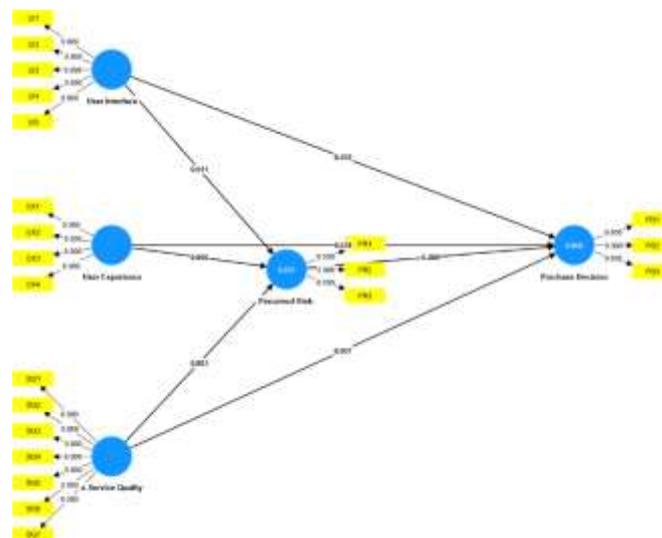


Figure 4.7. – Bootstrapping Results (Generated using SmartPLS 4.0)

Based on the bootstrapping results, not all relationships are in accordance with the hypotheses that were prepared earlier. This is caused by the respondents coming from diverse circles even though they have the same criteria. The model which is accompanied by an arrow with a significant as well as a non-significant relationship can be seen in Figure 4.7.

e. Goodness of Fit

Goodness of Fit shows how good the model is. The GoF values generated in this study are:

$$\begin{aligned} \text{GoF} &= \sqrt{AVE} \times \sqrt{R^2} \\ \text{GoF} &= \sqrt{0,699} \times \sqrt{0,658} = 0,678 \end{aligned}$$

From the results of these calculations, a GoF value of 0,678 is obtained, which indicates that this research model has a large Goodness of Fit and the resulting overall model (outer model and inner model) is strong. Then an SRMR value of 0.084 is obtained, which means that the model is fit because it refers to (Pavlov et al., 2021), the model can be said to be fit if the SRMR is < 0,10.

C. Path Analysis

Path analysis was carried out to analyse the pattern of relationships between variables with the aim of knowing the direct and indirect effects of all exogenous latent variables on endogenous latent variables. This effect can be seen based on the original sample coefficient value (O) in the bootstrapping test results table, which indicates the effect of exogenous latent variables on endogenous latent variables. Based on Table 4.7., it is known that the UI Design variable has an influence value on Purchasing Decisions with an original sample value of 0,236 and an influence value on perceived risk of 0,081. The UX Design Variable has an influence value on Purchasing Decisions with an original sample value of 0,214 and for Perceived Risk has an influence value of 0,491. The e-ServQual variable has an influence value on Purchasing Decisions with an original sample value of 0,367 and for Perceived Risk has an influence value of 0,027. Then the influence value between the Perceived Risk variable on Purchase Decision has an original sample value of 0,089.

Furthermore, each exogenous latent variable is calculated with the Perceived Risk variable as a mediator, to see whether the presence of the Perceived Risk variable can increase the relationship between exogenous latent variables (UI Design, UX Design, and eServQual) on Purchasing Decisions. The result is as follows:

1) UI Design → Perceived Risk × Perceived Risk → Purchase Decision

$$\begin{aligned} 0,081 \times 0,089 &= 0,00721 \\ 0,00721 &< 0,089 \end{aligned}$$

The results of these calculations show that the path coefficient of UI Design on Purchasing Decisions through Perceived Risk is smaller than the direct effect of UI Design on Purchasing Decisions, so that the Perceived Risk variable does not have a mediating effect. The Perceived Risk variable is considered unable to mediate the relationship between UI Design variables and Purchase Decisions, or there is only a direct effect of UI Design on Purchase Decisions.

2) UX Design → Perceived Risk × Perceived Risk → Purchase Decision

$$\begin{aligned} 0,491 \times 0,089 &= 0,04370 \\ 0,04370 &< 0,491 \end{aligned}$$

The path coefficient of UX Design on Purchasing Decisions through Perceived Risk is smaller than the direct effect of UX Design on Purchasing Decisions, so that the Perceived Risk

variable does not have a mediating effect, or there is only a direct effect of the UX Design variable on Purchasing Decisions.

3) E-ServQual → Perceived Risk × Perceived Risk → Purchase Decision

$$0,027 \times 0,089 = 0,00240$$

$$0,00240 < 0,027$$

The path coefficient of e-ServQual to Purchase Decision through Perceived Risk is smaller than the direct relationship of e-ServQual to Purchase Decision. This indicates that the Perceived Risk variable cannot mediate the relationship between e-ServQual and Purchasing Decisions, in other words there is only a direct effect or influence of the e-ServQual variable on Purchasing Decisions. From the overall results of hypothesis testing, it is obtained that the greatest influence on purchasing decisions is the e-ServQual variable with the most dominant indicator being the SQ3 item, namely "The entire process of using the application is efficient (not complicated).", with the highest t-statistics value of 24,228 and outer loadings of 0.844. Then the variable that has the greatest influence on Perceived Risk is UX (0,491) with the most dominant indicator of UX2 namely "The features provided are in accordance with user needs.", with a t-statistics value of 24,573 and outer loadings of 0,842.

It can be concluded that customers will decide to make purchases if the marketplace (in the case of Tokopedia mobile apps) can provide the whole process of using the apps is not complicated to operate in other word is efficient in the process. This factor can be Tokopedia's main focus if you want to gain customer loyalty and make consumers more confident in shopping through Tokopedia as their preferred marketplace. Then to reduce the risk felt by customers, the features provided by Tokopedia should only be the most important features needed by users, so users do not feel disturbed when using the apps due to features that are not needed make the display of the apps too crowded and become difficult to access.

CONCLUSIONS

Purchasing Decision Variable is directly influenced by E-Service Quality (e-ServQual), but not directly influenced by User Interface Design (UI) and User Experience (UX). It can be concluded that e-ServQual has the greatest influence on Purchasing Decisions, with the indicator namely "The entire process of using the application is efficient (not complicated)". Therefore, Tokopedia must always pay attention to improve the efficiency of entire process of using the apps and make it simple.

The Perceived Risk variable is directly influenced by the User Experience Design (UX), but not directly influenced by the User Interface Design (UI) and e-Service Quality. UX has the greatest influence on Perceived Risk, with an indicator that is "The features provided are in accordance with user needs". Therefore, companies should emphasize offering a feature that in accordance with user needs so that users do not feel disturbed by unnecessary features and can avoid the risk of errors in processing the transaction. Even though from the path analysis revealed that perceived risk does not have a mediating effect on purchasing decisions and become a gap in this study.

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