

## **Analysis of User Journey Mapping Factors to Enhance User Experience in the Tokopedia Mobile E-Commerce Application**

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### **ABSTRACT**

Recent technological advancements have significantly transformed human life, particularly with the advent of the Fourth Industrial Revolution, which has profoundly influenced the use of the internet for business and economic activities. E-commerce has emerged as a crucial medium for online buying and selling, propelled by these digital advancements. This growth is especially evident in Indonesia, which ranks among the countries with the highest number of internet users globally. This study aims to identify the dominant factors influencing user journey mapping and their impact on the user experience of Tokopedia mobile application users. The research sample comprises 125 users of the Tokopedia application, with data collected through questionnaires distributed via Google Forms. The analysis involves factor analysis and simple linear regression. The findings reveal that the dominant factors influencing user journey mapping are user persona and opportunity. Furthermore, the study demonstrates that user journey mapping positively impacts the user experience for Tokopedia application users. This research underscores the importance of understanding user journey mapping in enhancing the overall user experience, which is crucial for e-commerce platforms like Tokopedia. The insights gained from this study can assist developers and marketers in better tailoring their strategies to improve user engagement and satisfaction. This study provides valuable perspectives on how user journey mapping can be utilized as a strategic tool to optimize user interactions and ensure that each step in the user journey delivers maximum value. Thus, user journey mapping not only enhances individual experiences but also contributes to the overall success of e-commerce platforms in an increasingly competitive market.

**Keywords:** User Journey Mapping, User Experience, E-Commerce

### **1. INTRODUCTION**

The Industrial Revolution 4.0 represents a comprehensive transformation of all aspects of industrial production, combining digital technology and the internet with traditional industry. This rapid and widespread transformation has caused disruptions across various industries and aspects of human life, known as the era of disruption. The disruption era introduces innovations that offer practicality, ease, and cost-effectiveness, transforming existing marketing systems and significantly altering consumer behavior and needs. This era has led to the emergence of online market systems and transactions (e-commerce), which are reactions to changes in consumer behavior (Aziza, 2020). E-commerce and online marketplaces connect producers/sellers directly with consumers, eliminating the limitations faced by conventional markets. The shift from conventional to online marketplaces expands the market without time, distance, or information constraints, making e-commerce applications appear highly practical to users (Batat, 2019).

There were 175.4 million internet users in Indonesia in January 2020, an increase of 17 percent from 2019 when internet penetration in Indonesia was 64 percent. The increase in internet users has led to a higher number of digital platform users in Indonesia (Dabrynin & Zhang, 2019). In January 2020, out of 160 million digital platform users, 59 percent used these platforms for communication and network expansion, while 80 percent of total internet users in Indonesia used digital marketing platforms for online shopping and sales transactions. Economic activities have begun to rely on applications and websites across various fields, including business, banking, healthcare, tourism, education, transportation, and agriculture (Orlando Putra & Setiawan, 2019). The rapid growth of e-commerce has caused a shift in shopping activities from conventional to online systems. E-commerce also creates new job opportunities within the digital economy by utilizing online shopping platforms and social media to support e-commerce activities (Octavius et al., 2017).

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The high number of internet and digital platform users has increased competition, necessitating unique and attractive features to draw users to applications and encourage purchases. Competition is not limited to producers/sellers in the market but also includes various digital marketplace platforms vying to attract and retain users, who may act as both producers/sellers and consumers on the platforms (Sonia et al., 2024).

Based on data of the top four e-commerce platforms in Indonesia based on the number of monthly accesses during the first and second quarters of 2022, as published by (Iprice, 2022), shows that Tokopedia consistently ranks first in Indonesia, followed by Shopee. Considering the tight monthly access comparison between Tokopedia and Shopee, the competition among e-commerce platforms in Indonesia is very intense. Therefore, e-commerce platforms must continuously update their features and services to attract and retain user engagement.

User experience (UX) is a strategy used by e-commerce platforms to attract and retain users by designing products focused on user perspectives. With the help of user experience strategies, it is also possible to understand how customer interactions appear through various products or functions offered (Li et al., 2020). User experience encompasses four main points: (1) determining the value provided to users and assessing whether the product can meet business objectives; (2) setting goals, identifying all opportunities to improve product quality, and examining each interaction step against established components; (3) product development and planning for continuous improvement; (4) determining product success and the methods used to ensure product success (Akhmetov & Aitimov, 2015).

According to the ISO 9241-210 definition user experience is a person's perception or experience and response to using a product, system, or service. User experience measures how satisfied someone is with a product, system, and service (Gao et al., 2015). User interaction in using e-commerce occurs under various conditions and situations related to the user's journey. The consumer journey starts from when users or consumers learn about the products and services provided by the e-commerce platform until the product reaches the consumer's hands. Visualizing how users can have an optimal shopping experience in an online store can be done by mapping the customer journey (Dudemaine et al., 2014). Customer Journey Mapping is a technique used to better understand the shopping experience of users interacting with each shopping process (Fenu & Pau, 2015). The more the e-commerce platform understands the shopping experience of its service users, the easier it becomes to innovate and enhance that experience, which can positively impact user comfort.

Customer journey mapping visualization can be divided into several main phases: 1) Discover - users search for e-commerce based on the items they want to buy; 2) Consider - users consider the price, quality, and trustworthiness of the e-commerce platform; 3) Purchase - users checkout items and choose the desired payment method; 4) Wait for delivery - users can track the status of their shipment; 5) Receive and wear/use the product - users can return items and get refunds (Hawk et al., 2019).

## 2. LITERATURE REVIEW

### Digital Marketing Theory

E-marketing, or online marketing, is any business activity aimed at marketing products or services through or using online media. Digital marketing theory explains how marketing is conducted with the help of digital media, such as the internet, social media, and other online applications. Digital marketing offers increased efficiency and cost-effectiveness, allowing marketing activities to be conducted anytime and anywhere with the aid of digital media (Kotler et al., 2014).

### E-Commerce

According to Kotler & Armstrong, e-commerce is an online or internet-based platform with various features that enable users to conduct business online. E-commerce is also defined as a digital platform for real-time online buying and selling transactions that can be conducted anywhere with the help of digital devices such as laptops, computers, or smartphones (Kotler & Armstrong, 2000).

### User Experience

User experience (UX) is defined as the extent to which a user's experience with a medium is represented by their satisfaction or dissatisfaction with a technology or service (Dabrynin & Zhang, 2019). In the context of online

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shopping, user experience refers to the direct experience users have with the service, leaving a lasting impression. A positive experience results in user satisfaction with online shopping features, leading to a favorable perception of the application (Batat, 2019).

### User Journey Mapping

User journey mapping involves a series of processes that allow customers to interact with every step of a company's processes. It is essential for illustrating and understanding consumer patterns based on their journeys. When a company understands consumer journeys, it can easily enhance its profitability through higher purchase rates (Nugraheni & Setiyoningsih, 2021).

### 3. METHOD

The research was conducted in Denpasar City with respondents who are users of the Tokopedia mobile e-commerce application. The population of this study comprises Tokopedia mobile application users, with an unknown number due to constant changes over time.

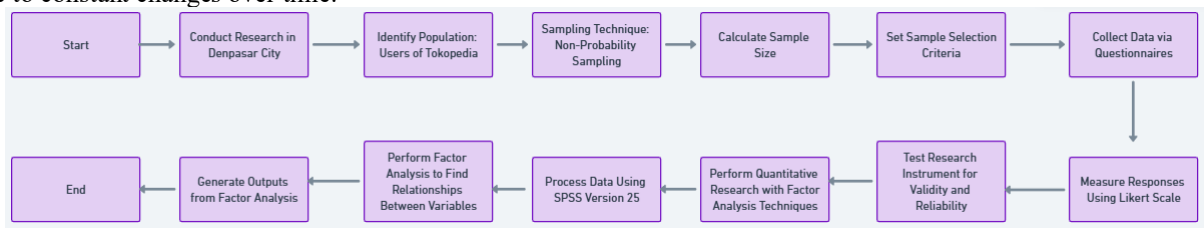


Fig. Flowchart Method

The sampling technique used is non-probability sampling with a purposive sample approach, selecting samples based on predetermined criteria (Ferdinand, 2014). The sample size for multivariate analysis is calculated as follows:

$$n = 25 \times \text{number of independent variables}$$

$$n = 25 \times 5$$

$$n = 125 \text{ samples}$$

The criteria for sample selection are:

- a) Respondents aged over 17 years, as they are considered mature and rational.
- b) Respondents who have the Tokopedia mobile e-commerce application.
- c) Respondents who actively use the Tokopedia mobile e-commerce application.

Data collection is conducted through questionnaires distributed via Google Forms. Responses are measured using a Likert scale, and the research instrument is tested for validity and reliability.

This study is a quantitative research that employs factor analysis techniques, specifically Exploratory Factor Analysis (EFA), with data processed using SPSS version 25. Factor analysis is an analysis that seeks to find relationships (correlations) between initial independent variables, allowing one or more sets of variables smaller than the original number to be used (Santoso, 2016). The output generated from factor analysis includes the following (Suliyanto, 2018):

- 1) KMO and Bartlett's Test  
KMO and Bartlett's Test are used to determine whether the research variables are suitable for further analysis.
- 2) Anti-image Matrix  
The Anti-image Matrix is a table containing numbers marked 'a' in diagonal lines.
- 3) Communalities  
Communalities represent the amount of variance of an initial variable that can be explained by the existing factors.
- 4) Total Variance Explained  
Total Variance Explained serves to show the results of the computation of factor analysis and is used to determine the number of factors formed.

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5) Rotated Component Matrix

The Rotated Component Matrix shows the distribution of variables that have been extracted into the factors formed based on factor loadings after the rotation process is performed.

**4. RESULT**

This study used a sample of 125 respondents. The identity data is based on the respondents' gender and age. The details of the survey subjects' characteristics are presented in Table 2.

Table 2

Characteristics of Respondents				
No	Characteristic	Classification	Number of Respondents (people)	Percentage of Respondents (%)
1	Gender	Male	56	44.8
		Female	69	55.2
	Sum		125	100
2	Age	>40 Years	10	8.0
		17-21 Years	53	42.4
		22-27 Years	40	32.0
		28-33 Years	8	6.4
		34-39 Years	14	11.2
	Sum		125	100
3	Occupation	ASN	10	8.0
		Mahasiswa	23	18.4
		Pegawai Swasta	70	56.0
		Wirasahawan	22	17.6
	Sum		125	100

Source : primary data processed 2023

The validation test results indicate that all elements of the instrument can be considered valid. This is evidenced by the fact that all correlation coefficients for social, personal, and marketing mix factors are greater than 0.3. This signifies that the elements claimed by the search engine are valid and suitable for use as a search engine. A summary of the reliability test results for the research instrument is presented in Table 2 below.

Table 3  
Instrument Reliability Test

No	Variabel	Cronbach's Alpha	Keterangan
1	User Persona	0,778	Reliabel
2	Timeline	0,905	Reliabel
3	User Opportunity	0,877	Reliabel
4	User Touchpoint	0,864	Reliabel
5	User Goals	0,856	Reliabel
6	User Experience	0,860	Reliabel

Source : primary data processed 2023

The reliability test results presented in Table 3 show that all research variables have Cronbach's alpha values greater than 0.6. Therefore, it can be said that all factors meet the reliability criteria and can be used for research.

Factor analysis is used to reduce and summarize a number of variables into one or more factors, a process similar to multiplying factors from a set of existing variables. Thus, the aim of factor analysis is to minimize data, which involves summarizing a small number of variables and naming them as factors. The results of the factor analysis are as follows.

**KMO and Barlett's Test**

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Select the variables deemed suitable for inclusion in the subsequent analysis, apply several tests to all variables, and discard those considered unsuitable. In this case, use the KMO (Kaiser Meyer Olkin) method and Bartlett's Test of Sphericity, MSA (Measurement of Sampling Adequacy), and testing with the Anti-Image Matrix. The MSA value must be greater than 0.5, and the significance must be less than 0.05.

Tabel 4  
KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.856
Bartlett's Test of Sphericity	Approx. Chi-Square	2149.596
	Df	210
	Sig.	.000

Source : primary data processed 2023

Based on the table above, it can be seen that the KMO and Bartlett's Test value of 0.856 is above 0.5, with a significance level of 0.000, which is below 0.05. Therefore, it can be analyzed further.

**Anti-image Matrix**

Table 5  
Anti Image

Variabel	Point	Anti Image
User Persona	X1.1	0,879
	X1.2	0,841
	X1.3	0,809
	X1.4	0,790
Timeline	X2.1	0,787
	X2.2	0,817
	X2.3	0,855
	X2.4	0,835
	X2.5	0,846
User Opportunity	X3.1	0,922
	X3.2	0,834
	X3.3	0,864
	X3.4	0,929
User Touchpoint	X4.1	0,796
	X4.2	0,825
	X4.3	0,886
	X4.4	0,867
User Goals	X5.1	0,865
	X5.2	0,908
	X5.3	0,870
	X5.4	0,906

Source : primary data processed 2023

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The MSA values in the anti-image matrix table, as shown in the anti-image correlation, indicate that all anti-image values are greater than 0.5 for the analysis of subsequent variables and samples.

**Comumnunalities**

The next procedure is to perform a rotation procedure to clarify whether the formed elements are significantly different from the remaining elements.

Table 6  
Comumnunalities

Variabel	Butir	Initial	Extraction
User Persona	X1.1	1.000	.686
	X1.2	1.000	.619
	X1.3	1.000	.771
	X1.4	1.000	.746
Timeline	X2.1	1.000	.858
	X2.2	1.000	.857
	X2.3	1.000	.808
	X2.4	1.000	.730
	X2.5	1.000	.799
User Opportunity	X3.1	1.000	.763
	X3.2	1.000	.747
	X3.3	1.000	.667
	X3.4	1.000	.768
User Touchpoint	X4.1	1.000	.772
	X4.2	1.000	.742
	X4.3	1.000	.688
	X4.4	1.000	.767
User Goals	X5.1	1.000	.680
	X5.2	1.000	.869
	X5.3	1.000	.862
	X5.4	1.000	.696

Source : primary data processed 2023

Based on the table above, it is evident that the extraction value of each variable is greater than 0.5. This indicates that more than 50% of the variance of each variable can be explained by its underlying factors. The higher the extraction value, the stronger the relationship with the underlying factor.

**Total Variance Explained**

All factor loading values are above 0.6, indicating that the variables correlate quite strongly with their respective factors. From the above factor loading values, it can be seen that the most dominant values are in the timeline variable with a factor loading of 0.798 and the user touchpoint variable with a factor loading of 0.789.

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**Rotated Component Matrix**

Table 7  
Rotated Component Matrix

Variabel	Butir	Component				
		1	2	3	4	5
User Persona	X1.1	.368	.165	.023	.169	.703
	X1.2	.138	.106	.199	.187	.717
	X1.3	.188	.065	.218	.480	.673
	X1.4	.115	.139	.688	.007	.489
Timeline	X2.1	-.015	.913	.125	.055	.072
	X2.2	.047	.894	.208	.009	.108
	X2.3	.107	.869	.062	.156	.113
	X2.4	.430	.641	.128	.329	.093
	X2.5	.490	.588	.099	.427	.143
User Opportunity	X3.1	.327	.173	.613	.052	.497
	X3.2	.556	.066	.374	.389	.377
	X3.3	.394	.062	.644	.211	.219
	X3.4	.662	.111	.512	.165	.168
User Touchpoint	X4.1	.831	.079	.185	.023	.201
	X4.2	.526	.038	.358	.529	.235
	X4.3	.704	.158	.161	.233	.295
	X4.4	.621	.151	.537	.253	.076
User Goals	X5.1	.153	.277	.636	.417	-.025
	X5.2	.232	.193	.244	.807	.260
	X5.3	.137	.219	.249	.797	.315
	X5.4	.235	.178	.696	.350	.052

Source : primary data processed 2023

The component matrix obtained from the rotation process shows a clearer and more visible distribution of variables. It is evident that smaller factor loadings decrease while larger factor loadings increase. In the table above, all factor loading values are greater than 0.5. This will clarify which variables will be included in which part of the factor.

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**Multiple Linear Regression Analysis**

Table 8  
Results of Multiple Linear Regression Analysis

Model		Coefficients <sup>a</sup>				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.592	.080		208.274	.000
	REGR factor score 1 for analysis 1	.949	.080	.502	11.862	.000
	REGR factor score 2 for analysis 1	.739	.080	.391	9.237	.000
	REGR factor score 3 for analysis 1	.636	.080	.337	7.955	.000
	REGR factor score 4 for analysis 1	.877	.080	.464	10.958	.000
	REGR factor score 5 for analysis 1	.431	.080	.228	5.387	.000
R		: 0,887				
R Square		: 0,787				
Adjusted R Square		: 0,778				
F		: 87,681				
Sig. F		: 0,000				

Source : primary data processed 2023

**5. DISCUSSION**

**Dominant Factors Affecting User Journey Mapping**

The analysis results indicate that there are five factors influencing user journey mapping in the Tokopedia Mobile E-Commerce Application. These factors are user persona and opportunity, timeline, user opportunity and goals, user touchpoint and goals, and user goals and persona. Based on the results of multiple linear regression analysis, the user persona and opportunity factor has the highest regression coefficient value of 0.949, indicating that the user persona and opportunity factor has the most dominant influence on user journey mapping in the Tokopedia Mobile E-Commerce Application.

A persona is a user class model described with extensive information about how the product is used, attitudes towards the product and services, and even the user's lifestyle (Lemon & Verhoef, 2016). User personas help determine for whom the application is designed. Personas can be used to analyze which types of users are important for the business or the product being created (Aziza, 2020). Nugraheni & Setiyoningsih (2021) argue that by using user personas, one can understand the goals and characteristics of users as well as the environment in which the information system/application will operate. Subsequently, the necessary functions and requirements can be designed to create an information system/application that truly meets the users' needs.

**The Effect of User Journey Mapping on Improving User Experience**

The analysis results indicate that user journey mapping affects user experience. This is evidenced by the results of the simple linear regression analysis, which show a significant value of 0.000, indicating that the user journey mapping variable influences user experience. This suggests that as user journey mapping improves, user experience will also improve. Conversely, if user journey mapping declines, user experience will also decline.

User journey mapping is a design tool used to create a visual representation that illustrates the relationships, interactions, and journeys of users while using and interacting with the product/service and the business itself (Rahmalia & Trichayono, 2020). When a company understands why customers recognize and are willing to use its e-commerce application, it will be able to modify or create marketing strategies that can provide a more optimal experience for users.

The study concludes that user persona and opportunity are the most dominant factors influencing user journey mapping on the Tokopedia mobile e-commerce application. User journey mapping positively affects user experience. Tokopedia's management can use these findings as a theoretical basis to enhance user experience by improving user persona, timeline, user opportunity, user touchpoint, and user goals. Additionally, this study makes a significant contribution by providing a structured approach to understanding the key elements that shape user interactions within

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mobile e-commerce platforms. By focusing on user persona and opportunity, the research highlights specific areas for targeted improvements, offering actionable insights for enhancing the overall user journey. Future researchers and students can use these findings to broaden their understanding of improving user experience in mobile e-commerce applications. The insights gained from this study pave the way for further exploration into the optimization of user journey mapping, encouraging a more user-centric approach in mobile application development and research.

## 6. CONCLUSION

The study concludes that user persona and opportunity are the most dominant factors influencing user journey mapping on the Tokopedia mobile e-commerce application. User journey mapping positively affects user experience. Tokopedia's management can use these findings as a theoretical basis to enhance user experience by improving user persona, timeline, user opportunity, user touchpoint, and user goals. Additionally, this study makes a significant contribution by providing a structured approach to understanding the key elements that shape user interactions within mobile e-commerce platforms. By focusing on user persona and opportunity, the research highlights specific areas for targeted improvements, offering actionable insights for enhancing the overall user journey. Future researchers and students can use these findings to broaden their understanding of improving user experience in mobile e-commerce applications. The insights gained from this study pave the way for further exploration into the optimization of user journey mapping, encouraging a more user-centric approach in mobile application development and research.

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