



DECISION MAKING ANALYSIS OF E-COMMERCE ON GENERATION Z USING ANALYTICAL HIERARCHY PROCESS (AHP) METHOD

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Abstract

The research aims to examine what e-commerce platform Generation Z chooses using Analytical Hierarchy Process (AHP) method. Based on a previous exploratory study, there are four criteria that Generation Z pays attention to when choosing an e-commerce platform: ease of use, promotion, product variety, and security. The data was gathered from 250 respondents by using online questionnaires and then analyzed using Expert Choice Software. The research reveals that Generation Z is very concerned about the security aspect of e-commerce platforms. The following criteria are promotion, product variety, and ease of use. It is found that Shopee is the first choice of Generation Z based on the four criteria, followed by Tokopedia, Lazada, and Blibli.

Keywords: AHP, ease of use, promotion, product variety, security

INTRODUCTION

According to Kemp (2021), the number of internet users in Indonesia in January 2021 reached 202.6 million or equally to 73,7% of Indonesia's population of 274,9 million, thus making Indonesia the fourth-largest number of internet users globally in the first quarter of 2021 after China, India and the United States (Johnson, 2021). Of the number of internet users, as many as 87,3% of internet users visited e-commerce sites, and as many as 87,1% of internet users made purchases of products online. Compared to the previous year, namely January 2020, there was an increase in the number of internet users by 27 million people or as much as 15,5% (Kemp, 2021).

According to Setyowati (2020), Temasek and Bain estimated that by mid-2020, 37% of all digital service users in Indonesia are categorized as new users. The use of e-commerce in Indonesia increased by 110% during the pandemic. Users spend more time using the internet and shopping online than before the pandemic. The national average daily time spent using the internet was 3,6 hours before the pandemic, now increasing to 4,7 hours during the lockdown regulation by the government.

E-commerce is a business activity that involves information technology to provide a new platform for delivering goods and services, increasing efficiency, and selling in a business (Išoraitė and Miniotienė 2018). According to Harahap and Amanah (2018), one of the reasons why many people shop online is the convenience of the transaction on e-commerce sites. Previously, it has been explained that the use of e-commerce in Indonesia increased by 110% during the pandemic (e-Conomy SEA 2020), caused by restrictions on community mobility. Hence, people carried out their

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activities from home (online), including online shopping.

According to Sulistya (2020), Kredivo and the Katadata Insight Center research found an exciting finding, namely the increase in e-commerce activity supported by generation Z and millennial consumers who contributed 85% of total transactions. The contribution of generation Z and millennials has increased during the pandemic because transactions were forced to be carried out online. In addition, generation Z is a generation with a high level of use of information technology and the internet (Santoso & Triwijayati, 2018). Therefore, it is not surprising that Generation Z also tends to do their shopping activities online. Generation Z itself is a generation born between 1997 and 2012 (Rakhmah 2021). The reason for choosing generation Z as this research subject is an increase in the number of digital services of Generation Z during the pandemic COVID-19 (Aria, 2021). Furthermore, Generation Z is chosen as research subjects because they are considered to have a high level of internet and information technology use (Santoso & Triwijayati, 2018). Thus, Generation Z also tends to carry out shopping activities online.

While the e-commerce sites chosen to be the research object (alternatives) include: Shopee, Lazada, Blibli, and Tokopedia. The object is chosen based on a survey conducted by topbrand-award.com in 2021 on generation Z using parameters of top of mind, last usage, and future intentions. The results obtained are Shopee as the number one brand in demand by Generation Z, followed by Lazada, Blibli, and Tokopedia (Top Brand Award, 2021). Shopee was launched in 2015, where Shopee is a subsidiary of the leading internet company in Southeast Asia called Sea (Shopee, 2021). Tokopedia is an e-commerce platform founded on August 17, 2009, by William Tanuwijaya and Leontinus Alpha Edison. In its development, Tokopedia has received many investment funds from investors such as Softbank Vision Fund, Sequoia, and Alibaba Group (Tokopedia, 2021). Lazada Group is an e-commerce platform that was founded in 2012. It has been

present in six countries like Indonesia, Malaysia, Singapore, Thailand, Philippines, and Vietnam. As part of Alibaba Group, Lazada became a star company of the group and is supported with the best technology infrastructure that Alibaba Group has (Lazada, 2021). Blibli was founded in 2011 as an e-commerce that focused their company to serve B2C, B2B, and B2B2C (Blibli, 2021). Then, the criteria used in this study are based on exploratory studies that have been carried out; these criteria include ease of use, promotion, product variety, and security. This study aims to find out which e-commerce sites are the leading choice for Generation Z by using the Analytical Hierarchy Process (AHP) method. The AHP method is used in this study because only a few have used this method to analyze the decision-making process of choosing an e-commerce platform, particularly in Generation Z.

LITERATURE REVIEW

Ease of Use

In their journal, Romla and Ratnawati (2018) explained that ease of use is a person's belief that they can take advantage of technology without expending effort. So, the firmer the user's belief, the easier it will be to use technology, the higher the level of technology use. According to Sahel et al. (2018), ease of use is one factor that significantly encourages customers to choose e-commerce sites. Ease of use relates to the user interface on an e-commerce site. The user interface system affects the time it takes customers to access until they make transactions on e-commerce sites. The better the user interface system is designed, the faster customers will make transactions. Putra et al. (2015) also state that the ease of use of e-commerce sites becomes one factor that influences customer decisions in choosing an e-commerce platform. According to Ranjbarian (2012), the components included in the ease of use of e-commerce sites include ease of transaction processing, ease of obtaining information, and a user-friendly UI.

Promotion

Promotion is the main component of a marketing campaign. The promotion itself is designed to increase sales in a short period. The main principle of the promotion itself is to provide more benefits to customers so that customers want to buy the product/service (Kotler and Keller 2016). According to Aprilia, Cyrilla, and Burhanuddin (2018), online shopping is an impact of internet use that allows customers to spread positive word of mouth, which will have a promotional effect on other customers. The promotional effect given from online shopping activities provides opportunities in product marketing. The promotional effect of online shopping helps in marketing products more broadly with e-commerce systems.

Product Variety

Product variety can be interpreted as the availability of various product types offered to customers (Kotler and Keller 2016). According to Amanah and Harahap (2018), product variety is closely related to customer behavior in choosing e-commerce sites. By offering a wide selection of product variety to customers, customers will feel that they are given the freedom to choose products, which will increase customer satisfaction in using the e-commerce site. In other words, the more varied the choice of products offered to customers, the more customer satisfaction will increase and affect customer loyalty. Based on this explanation, it can be concluded that ease of use, product prices, and product variety are factors that customers consider in choosing an e-commerce site. Based on the study by Amanah and Harahap (2018), Romla and Ratnawati (2018), and Sahel et al. (2018), product variety is one of the factors considered by customers in choosing an e-commerce platform. However, there are no researchers who specifically study Generation Z.

Security

According to Shahibi and Fakeh (2011), transaction security is the main issue that influences customers to make purchases online.

Majority of customers are hesitating to give their personal financial information during online transactions because they fear being hacked. The second most crucial element of the security factor is the confidentiality of personal data. It is due to the risk that hackers could steal their banking data during transactions on e-commerce platforms. The same thing was conveyed by Mohammed (2014), pointing out that users are very concerned about the risk of personal data leakage and misuse by other parties. So, e-commerce platforms need to ensure that personal data provided by users is safe and will not be shared with other parties (Sahel et al. 2018). When an e-commerce platform guarantees that all information provided will be kept confidential, customers will feel confident and continue to shop on the e-commerce platform (Shahibi & Fakeh, 2011).

METHODS

The research starts with exploratory study among 15 persons of Generation Z to determine the criteria that Generation Z consider to choose e-commerce platform. This research uses quantitative research using Expert Choice Analytical Hierarchy Procedure (AHP) software. Principles of AHP method that were used in this research are based on Saaty (1995). Non-probability sampling method, specifically purposive sampling is used in this study. The sample criteria in this study are Generation Z, who have shopped using e-commerce platforms and have used at least one of the four e-commerce platforms researched in this study (Shopee, Lazada, Blibli, and Tokopedia). Data was collected using a survey method with a pairwise comparison scale (1 to 9, where one means strongly disagree, and nine means strongly agree). The questionnaire consists of four main criteria that influence the customer's decision-making process in choosing an e-commerce platform. The use of four main criteria the total number of respondents in this study was 250 respondents.

Exploratory study is conducted by interviewing 15 respondents of Generation Z

about five criterias that they consider before they choose e-commerce platform. Furthermore, four same criterias from the interview result were chosen to be the criteria in the research. Questionnaires were distributed online using Google Forms to respondents. The requirement for respondents in the research are people born between 1997 and 2012 and have used at least one of the

four alternative e-commerce platforms being researched (Shopee, Lazada, Blibli, and Tokopedia). The criteria used in this study are based on exploratory studies that have been conducted before on ten respondents of Generation Z. From the exploratory study, four main criteria are obtained, including ease of use, promotion, product variety, and security, as seen in Figure 1.

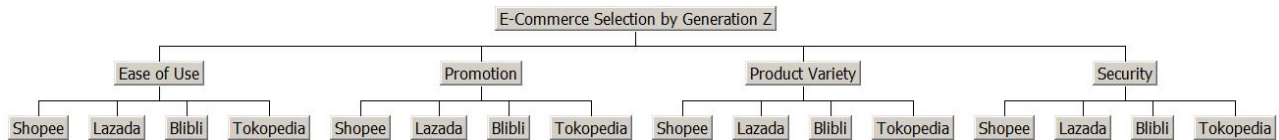


Figure 1. Research model

RESULTS AND DISCUSSIONS

Table 1. Respondent's Birth Year

Birthyear	Quantity	Percentage
1997	48	19,2%
1998	56	22,4%
1999	44	17,6%
2000	3	1,2%
2001	24	9,6%
2002	24	9,6%
2003	24	9,6%
2004	22	8,8%
2005	2	0,8%
2006	3	1,2%
2007	0	0%
2008	0	0%
2009	0	0%

2010	0	0%
2011	0	0%
2012	0	0%
Total	250	100%

Table 1 shows that the average respondents from the research are Generation Z, who was born in 1997 to 1999, with the most respondents being those born in 1998 with a percentage of 22,4% of the total number of respondents. Meanwhile, the respondents with the least number were those born in 2005, with a rate of 0,8% of the total number of respondents. There were no respondents who had a birth year from 2007 to 2012.

Table 2. Tabulation of Respondent Data on Research Criteria

	Goal (E-commerce Selection by Generation Z)									Total
	1	2	3	4	5	6	7	8	9	
Ease of Use	0%	0%	0%	0%	0%	1%	18%	23%	58%	100%
Promotion	0%	0%	0%	0%	0%	0%	10%	39%	51%	100%
Product Variety	0%	0%	0%	0%	0%	0%	9%	47%	44%	100%
Security	0%	0%	0%	0%	0%	0%	0%	11%	89%	100%

Table 2 shows how respondents rate how critical the four criteria are (ease of use, promotion, product variety, security). The percentage is obtained by dividing the number

of respondents who have filled out their assessments in each predetermined value range (0-9) with a total number of 250 respondents.

Table 3. Tabulation of Respondent Data on Alternative Research

	Blibli									Total
	1	2	3	4	5	6	7	8	9	
Ease of Use	92%	0%	0%	0%	0%	0%	1%	4%	4%	100%
Promotion	92%	0%	0%	0%	0%	0%	0%	6%	3%	100%
Product Variety	92%	0%	0%	0%	0%	0%	0%	5%	4%	100%
Security	92%	0%	0%	0%	0%	0%	1%	4%	3%	100%

Decision Making Analysis of E-commerce

Tokopedia										
	1	2	3	4	5	6	7	8	9	Total
Ease of Use	66%	0%	0%	0%	0%	1%	4%	6%	23%	100%
Promotion	66%	0%	0%	0%	0%	1%	1%	22%	10%	100%
Product Variety	66%	0%	0%	0%	0%	0%	2%	22%	10%	100%
Security	66%	0%	0%	0%	0%	1%	4%	6%	22%	100%

Shopee										
	1	2	3	4	5	6	7	8	9	Total
Ease of Use	57%	0%	0%	0%	0%	1%	5%	9%	38%	100%
Promotion	57%	0%	0%	0%	0%	1%	5%	22%	14%	100%
Product Variety	57%	0%	0%	0%	0%	1%	6%	30%	6%	100%
Security	57%	0%	0%	0%	0%	0%	1%	5%	36%	100%

Lazada										
	1	2	3	4	5	6	7	8	9	Total
Ease of Use	78%	0%	0%	0%	0%	0%	3%	6%	13%	100%
Promotion	78%	0%	0%	0%	0%	0%	5%	13%	4%	100%
Product Variety	78%	0%	0%	0%	0%	0%	0%	13%	9%	100%
Security	78%	0%	0%	0%	0%	0%	2%	11%	9%	100%

While Table 3 explains the respondent's assessment of alternative e-commerce platforms based on the four predetermined criteria, namely ease of use, promotion, product variety, and security. The percentage is obtained by dividing the number of respondents' assessments per current value (0-9) by the total number of respondents, namely 250.

The research starts by conducting an exploratory study of 15 e-commerce users with

an age range of 12 years to 24 years or what is commonly called Generation Z. From the results of this exploratory study, it was found that four main criteria were considered by Generation Z, including ease of use, promotion, product variety, and security (Figure 2). Thus, these four criteria are used to analyze E-commerce decision-making in Generation Z using the AHP method.

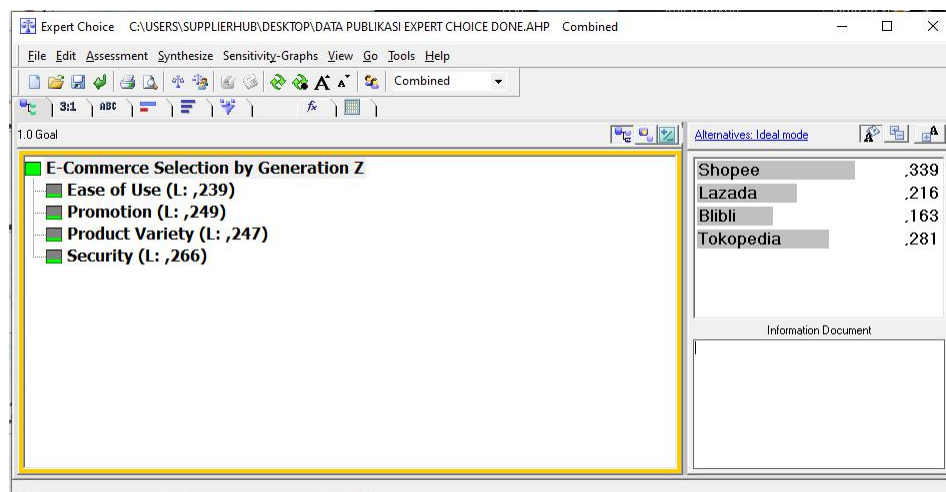


Figure 2. Main Display of AHP Analysis Results with Expert Choice

The test was carried out using Expert Choice, and the results are as shown in Figure 2. The main criteria that determine Generation Z in choosing an E-commerce platform are ease of use, promotion, product variety, and security.

The alternative e-commerce platforms used includes Shopee, Lazada, Blibli, and Tokopedia. The objective is to identify Generation Z's preference in e-commerce platforms based on these four criteria.

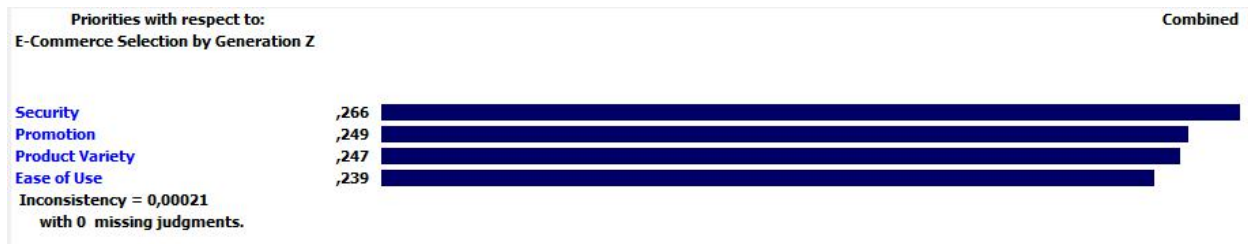


Figure 3. The rank of E-Commerce Preference Criteria by Generation Z

Based on the data processing, Figure 3 shows that the main criteria in choosing an e-commerce site platform by Generation Z are the user security in transactions or making payments and personal data privacy with a weight of 26,6%. Followed by promotions in the form of cashback, free shipping, discount

vouchers, and discount events with a weight of 24,9%, then product variety (the variety of products sold which users can find everything they need) with a weight of 24,7%. Next is the ease of use in transaction and platform navigation, with a weight of 23,9%.



Figure 4. Ranking of Generation Z's Preferred E-Commerce by Ease of Use Criteria

In the ease of use criteria, Figure 4 reveals that most Generation Z respondents state that Shopee is the e-commerce platform with the

highest ease of use with a weight of 34,0%. It was followed by Tokopedia with 28,2%, Lazada with 21,6%, and Blibli with 16,2%.



Figure 5. Ranking of Generation Z's Preferred E-Commerce by Promotion Criteria

In the promotion criteria, Figure 5 shows that Shopee is the e-commerce platform with the highest promotion with 33,8%, followed by

Tokopedia with 28,2%, Lazada with 21,6%, and Blibli with 16,4%.



Figure 6. Ranking of Generation Z's Preferred E-Commerce based on Product Variety Criteria

According to Figure 6, Shopee is also perceived by Generation Z as e-commerce with the highest product variety compared to its competitors, with a weight of 33,5%. The second choice of Generation Z for an e-

commerce platform with a high level of product variety is Tokopedia with a weight of 28,4%, followed by Lazada with a weight of 21,8%, and finally Blibli with a weight of 16,3%.



Figure 7. Ranking of Generation Z Preferred E-Commerce by Security Criteria

As seen in Figure 7, the preferred e-commerce platform by Generation Z based on security criteria is similar to the previous criteria. Shopee has the highest security level

with a weight of 34,4%, followed by Tokopedia with a weight of 27,9%, then Lazada with a weight of 21,5%, and the last one is Blibli with a weight of 16,2%.

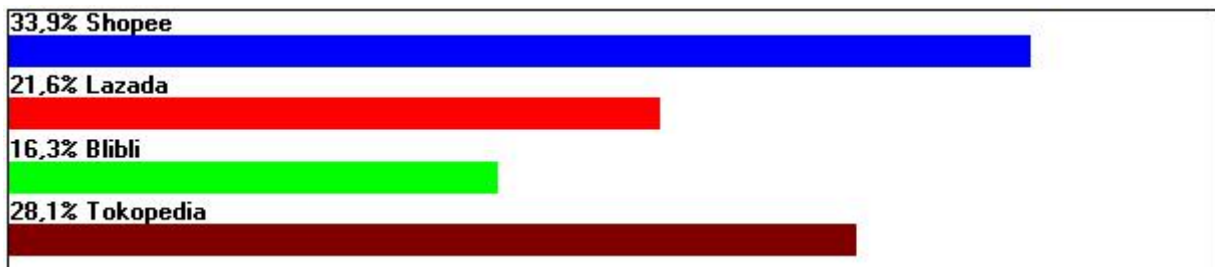


Figure 8. Ranking of Generation Z Preferred E-Commerce by All Criteria

Therefore, it can be seen from Figure 8 that Shopee has the highest weight based on the assessment of the four criteria previously mentioned (ease of use, promotion, product variety, and security) with a weight of 33,9%, followed by Tokopedia with a weight of 28,1%, and Lazada with a weight of 21,6%, and Blibli with a weight of 16,3%. The results obtained in this study are different from the survey conducted by Top Brand Award. This difference

is possible due to differences in the research variables used. Topbrand-award.com used variables of top of mind, last usage, and future intentions. While in this study, the variables or criteria used are security, promotion, product variety, and ease of use.

It can be seen that the majority of Generation Z put forward four criteria in choosing an e-commerce platform in sequence, namely security, promotion, product variety,

and ease of use. Then after Generation Z assessed the four e-commerce platforms that have been determined (Shopee, Lazada, Tokopedia, and Blibli), Generation Z chose Shopee as their preferred e-commerce platform for online shopping.

It is expected that from this research, the management of the e-commerce platform can receive feedback directly from Generation Z. This research suggests to the management of e-commerce companies that several criteria must be considered, sequentially including security, promotion, product variety, and ease of use. The first criterion chosen by Generation Z is the security criteria of the e-commerce platform; this is because the majority of the respondents of Generation Z put forward this criterion in selecting the e-commerce platform where they shop. In addition, companies can also promote more aggressively, which is also what Generation Z is interested in. No less important than those two things, e-commerce companies must also pay attention to the criteria for the variety of products sold (to be a one-stop solution for customers) and ease of use of existing shopping platforms.

If it is seen from the inconsistency data listed in Figure 3 to Figure 7, it can be seen that the inconsistency value of the data processed in the Expert Choice software is not more than 0,021%, so it can be concluded that all the data obtained have good consistency to Cho and Cho (2008) which state that the inconsistency ratio in an excellent pairwise comparison is not more than 10%. Good consistency data shows that the information is valid. Most respondents give the same assessment of the criteria and alternatives discussed in this study. The data obtained can describe the actual choices of Generation Z consumers based on the perspective of Generation Z customers.

CONCLUSIONS AND RECOMMENDATIONS

The number of e-commerce users continues to grow every year, especially during this pandemic. Thus, e-commerce platforms are competing to attract people's attention to shop on their platforms. However, e-commerce users have personal preferences in

determining the e-commerce platform used, including Generation Z. Many previous researchers have discussed consumer preferences for e-commerce. Still, no one has specifically made Generation Z the subject of research. In fact, Generation Z is considered to have a significant contribution in conducting transactions on e-commerce platforms. Thus, this researcher focuses on research on the preferences of Generation Z in choosing e-commerce to answer the existing research gap. This study also contains information about the criteria why Generation Z selected an e-commerce platform. Based on the explanation above, it can be concluded that the four criteria considered by Generation Z in choosing an e-commerce platform are security, promotion, product variety, and ease of use. Based on the analysis of each criterion and overall, Shopee consistently ranks first in the assessment by Generation Z based on these four criteria compared to its competitors. Afterwards, the e-commerce platform that always follows Shopee is Tokopedia, then Lazada and Blibli.

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