ANALYTICAL HIERARCHY PROCESS APPROACH ON E-COMMERCE PURCHASE DECISION (CASE STUDY: BUKALAPAK, TOKOPEDIA, SHOPEE)

PROSES ANALISA HIRARKI TERHADAP KEPUTUSAN PEMBELIAN E-COMMERCE (STUDI KASUS: BUKALAPAK, TOKOPEDIA, SHOPEE)

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Abstract: The top 10 e-commerce websites in Indonesia previously listed demonstrates that Tokopedia has managed to become the leader in Indonesia with about 150 million visits per month. Shopee and Bukalapak are fighting for the second place, around 100 million visitors per month. There are some factors that can influence customer purchase decision, which are brand ambassador, price, product variety, security, reputation, and website quality. This research aims to to know which criteria is most important for customer in selecting an online shopping platform and the most preferable online shopping platfor. This research used analytical hierarchy process with the sample is 70 respondents that were obtained from citizen in Manado. The result shows that price, product variety, and security is the most important thing that influence the customer in choosing an e-commerce. The customer will choose a shop at the online shopping platform that have an affordable price and have many variety of product. The customers also highly concern about their privacy and security in using the online shopping platform. Shopee is the most preferred online shopping platform according to the customers. Tokopedia should improve their performance same as the recommendation for Bukalapak to attract more customers.

Keywords: Purchase decision, brand ambassador, price, product variety, security, reputation, website quality

Abstrak: 10 besar situs e-commerce di Indonesia yang tercatat sebelumnya menunjukkan bahwa Tokopedia telah berhasil menjadi pemimpin di Indonesia dengan sekitar 150 juta kunjungan per bulan. Shopee dan Bukalapak memperebutkan posisi kedua, sekitar 100 juta pengunjung per bulan. Ada beberapa faktor yang dapat mempengaruhi keputusan pembelian pelanggan, yaitu duta merek, harga, variasi produk, keamanan, reputasi, dan kualitas website. Penelitian ini bertujuan untuk mengetahui kriteria mana yang paling penting bagi pelanggan dalam memilih platform belanja online dan platform belanja online yang paling disukai. Penelitian ini menggunakan proses analisa hirarki dengan sampel sebanyak 70 responden yang diperoleh dari warga di Manado. Hasil penelitian menunjukkan bahwa harga, variasi produk, dan keamanan merupakan hal terpenting yang mempengaruhi pelanggan dalam memilih e-commerce. Pelanggan akan memilih toko di platform belanja online yang memiliki harga terjangkau dan memiliki banyak variasi produk. Pelanggan juga sangat memperhatikan privasi dan keamanan mereka dalam menggunakan platform belanja online. Shopee adalah platform belanja online yang paling disukai oleh pelanggan. Tokopedia harus meningkatkan kinerjanya sama seperti rekomendasi Bukalapak untuk menarik lebih banyak pelanggan.

Kata Kunci: Keputusan pembelian, duta merek, harga, keragaman produk, keamanan, reputasi, kualitas website

INTRODUCTION

Research Background

In 2019, e-commerce accounted for more than half of the digital economy in Indonesia with its US\$21 billion contribution to the overall economy. The striking growth of Indonesia's e-commerce sector has made it one of the fastest-growing markets in the world. When reviewed annually, Indonesia's digital economy has grown almost fivefold from US\$8 billion in 2015 to US\$40 billion in 2019. At this rate, Indonesia's digital economy has been forecasted to reach US\$133 billion by 2025. The growth drivers behind the thriving economy can be observed among the people and the government. Both parties have significantly contributed to higher digital penetration that has changed the ways of interacting socially, obtaining information, and consuming products and services. The top 10 e-commerce websites in Indonesia previously listed demonstrates that Tokopedia has managed to become the leader in Indonesia with about 150 million visits per month. Shopee and Bukalapak are fighting for the second place, around 100 million visitors per month, with Blibli following not far. Tokopedia is the largest online marketplace in Indonesia, allowing individuals and businesses to open and easily manage their own online stores. It has received funding for more than 100 million US \$ from Japan's Softbank and the famous American tech venture capital firm, Sequoia Capital.

Shopee is a primarily mobile, diversified online shop also providing a regular web shopping experience. A major platform throughout Southeast Asia, Shopee is also present in Singapore, the Philippines, Malaysia, Thailand, Vietnam, as well as in Taiwan. Bukalapak is another of the leading online marketplaces in Indonesia, providing an e-commerce platform for brands and individuals to easily buy and sell online. Bukalapak insists on the ease and reliability of e-commerce, providing extra financial guarantees to its customers. Purchasing decision is a decision making process where consumers actually buy. Purchasing decisions from consumers is a matter of support in making the decision to buy a product with a high level of confidence. In purchasing decisions, every consumer has a strategy to get superior products in accordance with satisfaction and desires. There are some factors that can influence customer purchase decision, which are brand ambassador, price, product variety, security, reputation, and website quality

Research Objective

The research objectives used are as follows:

- 1. To know the most important criteria that drive customer purchase decision of online shopping platform.
- 2. To know the most preferred online shopping platform.

THEORETICAL FRAMEWORK

Marketing

According to the American Marketing Association (AMA) in 2017, marketing is the social process by which individuals and organizations obtain what they need and want through creating and exchanging value with others. McDaniel et al (2011) also stated marketing entails processes that focus on delivering value and benefits to customers, not just selling goods services, and/or ideas. It uses communicating, distribution, and pricing strategies to provide customers and other stake holders with the good, services, ideas values, and benefits they desire when and where they want them.

Consumer Behavior

Schiffman and Kanuk (2004) defined that consumer behavior as the behavior that consumers display in searching for purchasing, using, and disputing of products and services that they expect will satisfy they needs. In other words, consumer behavior involves the feelings and thoughts of people experiences. It attempts to understand the decision-making processes of buyers, both individually and in groups such as how emotions affect buying behavior. It studies characteristics of individual consumers such as demographics and behavioral variables in an attempt to understand people's wants.

Consumer Purchase Decision

Kotler and Armstrong (2014) describe purchase decision as a buyer's decision-making stage wherein an individual decides to actually buy the product being considered. Subsequently, the author explained that a purchase decision is the decision regarding a brand to be purchased. Purchase decision is insensitive to pricing

and the show of their loyalty by suggesting positive recommendations to firm and even investing money on the product or brand which show their extreme trust the product or brand (Shah et al., 2012).

Electronic Commerce (E-commerce)

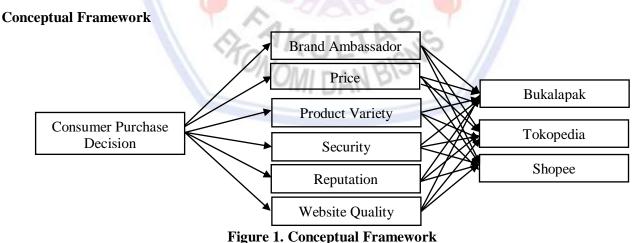
Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact. E-commerce is widely considered the buying & selling of products over the internet, but any transaction that is completed solely through electronic measures can be considered e-commerce.

Previous Research

Vineeta and Dangi (2017) aimed to find out the key factors that affect the success of online retail business and to evaluate ecommerce websites based on web related attributes. In this empirical study a set of criteria and factors are presented being considered relevant for e-commerce evaluation are used. A ranking algorithm is proposed, based on AHP technique to judge the effectiveness of e-commerce websites. The proposed methodology is applied on some famous Indian's E-commerce websites to judge their effectiveness on customers' experience.

Albari and Safitri (2020) aimed to examine the influence of product price on consumers' purchasing decisions. The subject of this research is the consumption of counterfeit products or "replicas" of famous brands. The sample consisted of 166 people who were selected using the purposive convenience sampling technique. Data were obtained by using a questionnaire. After instrument testing and quality testing, the data were then analyzed by using regression analysis and the discriminant model. All calculations were carried out by using the SPSS 21.0. The discriminant analysis results show that brand image and price (fair price and fixed price) simultaneously have a partial and positive effect on purchasing decision. Multiple linear regression analyses results show that price (fixed price and relative price) simultaneously have a partial and positive effect on brand image.

Sahel, Anwar, and Nandi (2018) attempted to investigate the factors that influence the customers in choosing websites for making online purchase. Accordingly, 11 e-tailers from the consumer goods sector have been surveyed and the factors that have been ascertained are- ease of usage, privacy and security, past experience, brand Image, product variety and customer service. Through the employment of analytical hierarchical process (AHP) the key factors have been ranked. The research reveals that among the chosen factors, ease of usage ranks first securing 45% weight which is followed by privacy and security, past experience, customer service, product variety and brand image. In reaching this judgment, the inconsistency level generated by the synthesis of AHP was 7% which falls below the threshold value of 10%, suggestive of the viability of the result.



Source: Theoretical Framework (2022)

Figure 1 explains the hierarchy that also a system of ranking and organizing the conceptual of this research. It consists of an overall goal which is customer purchase decision of online shopping platform alternatives which are Bukalapak, Tokopedia and Shopee. The criteria are divided into six parts which brand ambassador, price, product variety, security, reputation, website quality. The criteria use by respondent to compare among the three alternatives that influence on customer purchase decision to choose which online shopping

platform is better. The hierarchy visualized as a figure, with the goal at the left side, criteria at the middle, and alternatives at the right side.

RESEARCH METHOD

Research Approach

This research used quantitative method. The method used in this research is Analytical Hierarchy Process and Microsoft Excel as the data tabulation's tool.

Population, Sample, and Sampling Technique

Population is the citizen of Manado City who has been shopping at three alternative online shopping platform (Bukalapak, Tokopedia and Shopee) with total 70 respondents. The sampling design is purposive sampling because the research did not choose the respondents randomly but the respondent should be the people that already have an experience on purchasing at three online shopping platform.

Data Collection Method

This research used primary data as the source of the research. Questionnaires used in this research. Questionnaires are an efficient data collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest. Questionnaires can be administrated personally.

Operational Definition of Research Variable

- 1. Brand Ambassador. A tool used by companies to communicate and correct with the public, regarding how they enhance sales.
- 2. Price. The most visible element of the marketing mix, and pricing policies are being questioned by consumers frequently. If consumers think that prices are unfair, they can leave the firm or spread negative information to other consumers.
- 3. Product Variety. The range of different models or types offered within a single product line or category.
- 4. Reputation. The perception of customers how well a company takes care of customers and really concerned about their prosperity. It is likely that a company with good reputation have more online shopping.
- 5. Security. Security of transactions and customer data is a major concern that must be faced by customers who purchasing products and services through online shopping. It shows that the internet is not an environment for secure online shopping, so security should be utilized and considered as something serious by online sites to protect customer's data.
- 6. Website Quality. Quality of a website based on features inside the websites that meet customer needs and were impressed by overall excellence of the sites. Some dimensions of quality sites can be categorized as the quality of information, and easiness of use.

Data Analysis Method

Multi-Criteria Decision Making

Most decision making involves complicated procedures in which decision makers rank the alternatives of a choice according to multiple criteria (Saaty, 2008). There have been many studies that have provided solutions for complicated decision making including multiple criteria. Multiple criteria decision making (MCDM) refers to making decisions in the presence of multiple, usually conflicting, criteria. MCDM problems are common in everyday life.

Analytical Hierarchy Process

Table 1. Scale of Analytical Hierarchy Process (AHP)

Intensity of Importance	Definition	Explanation
1	Equal importance	Two factors contribute equally to the objective
3	Somewhat more Important	Experience and judgment slightly favor one over the other.
5	Much more Important	Experience and judgment strongly favor one over the other.

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7	Very much more	Experience and judgment very strongly favor one over the other.
	Important	Its importance is demonstrated in practice.
9	Absolutely more	The evidence favoring one over the other is of the highest
	important.	possible validity.
2,4,6,8	Intermediate Values	When compromise is needed

Source: Saaty (1980)

Analytical Hierarchy Process method looks at the problem in three parts. The first part is the issue that needs to be resolved, the second part are the alternate solutions that are available to solve the problem. The third and the most important part as far as the AHP method is concerned is the criteria used to evaluate the alternative solutions (Juneja, 2015).

RESULT AND DISCUSSION

Result

Analytical Hierarchy Process (AHP) Results

The result of this research was obtained by using Analytical Hierarchy Process by comparing three e-commerce (Bukalapak, Tokopedia, and Shopee) based on several criteria (brand ambassador, price, product variety, reputation, security, and website quality). Respondents share their opinion by filling questionnaire, and select the most preferred e-commerce by comparing all the criteria.

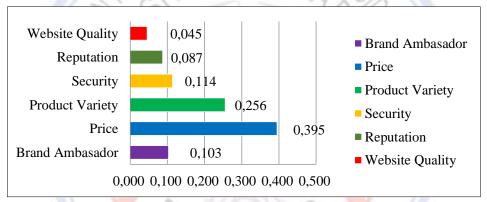


Figure 2. Result of Overall Criteria Source: Data Processed (2022)

Figure 2 shows the highest score is price (0.395). The second is product variety (0.256), security is in third position with score 0.114, followed by brand ambassador (0.103). The rest filled by reputation (0.087), and website quality as the lowest score (0.045). As the overall inconsistency = 0.04394, it means the data comparison in this result is valid and consistent.

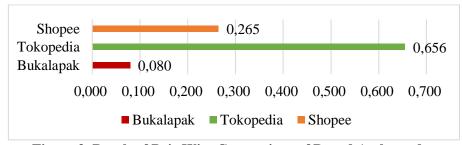


Figure 3. Result of Pair Wise Comparison of Brand Ambassador Source: Data Processed (2022)

Figure 3 shows that in brand ambassador criteria, Tokopedia is the most preferred e-commerce by respondents (0.656), second is Shopee (0.265), followed by Bukalapak with the lowest score by respondents

(0.080). The overall inconsistency for result of brand ambassador is (0.02805), it means the data comparison by respondents is valid and consistent.

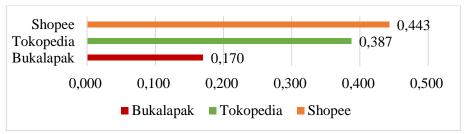


Figure 4. Result of Pair Wise Comparison of Price

Source: Data Processed (2022)

Figure 4 shows that in price criteria, Shopee is the most preferred e-commerce by respondents (0.443), followed by Tokopedia (0.387) and Bukalapak (0.170). The overall inconsistency for result of price is 0.01578, it means the data comparison by respondents is valid and consistent.

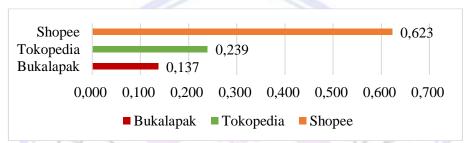


Figure 5. Result of Pair Wise Comparison of Product Variety

Source: Data Processed (2022)

Figure 5 shows that in product variety criteria, Shopee is the most e-commerce by respondents (0.623), followed by Tokopedia (0.239) and Bukalapak with score 0.137. The overall inconsistency for result of product variety is 0.01581, it means the data comparison by respondents is valid and consistent.

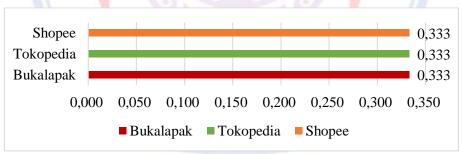


Figure 6. Result of Pair Wise Comparison of Security

Source: Data Processed (2022)

Figure 6 shows that in security criteria, Bukalapak, Tokopedia and Shopee have the same score 0.333, and the overall inconsistency for result of security is 0, it means the data comparison by respondents is valid and consistent.

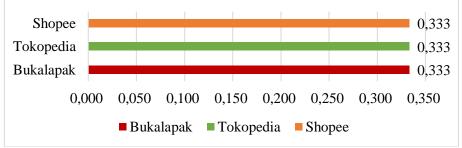


Figure 7. Result of Pair Wise Comparison of Reputation

Source: Data Processed (2022)

Figure 7 shows that in reputation criteria, Bukalapak, Tokopedia and Shopee have the same score 0.333, and the overall inconsistency for result of reputation is 0, it means the data comparison by respondents is valid and consistent.

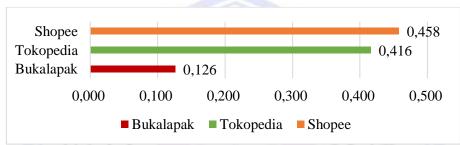


Figure 8. Result of Pair Wise Comparison of Website Quality

Source: Data Processed (2022)

Figure 8 shows that in website quality, Shopee is the most e-commerce by respondents (0.458), followed by Tokopedia (0.416) and Bukalapak with score 0.126, and the overall inconsistency for result of website quality is 0.00794, it means the data comparison by respondents is valid and consistent.

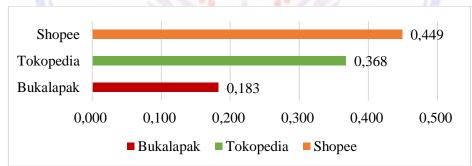


Figure 9. Result of Analytical Hierarchy Process of Consumer Purchase Decision in E-Commerce

Source: Data Processed (2022)

Based on Figure 9, this research shows that respondents choose Shopee as the most preferred e-commerce (online shopping platform) for them among the other alternatives. In figure 4.11 shows Shopee have the highest score with 0.449, in the second position is Tokopedia with score 0.368, and followed by Bukalapak in the last position with score 0.183. In this result the overall inconsistency indicated = 0.034, it shows that the comparison of data in this research is valid and consistent.

Discussion

Pair Wise Comparison for the Main Criteria Analysis

The most important criteria that influence customer is price. One of the most important reasons for consumer to buy in e-commerce is because the price that are offered is cheaper than usual. Second is product variety. Product variety is important because when the consumer want to purchase a product, they need to compare

that product, so if that e-commerce provide many product variety, they will decide to purchase in that e-commerce. Third is security. Purchase a product especially via online can make people feel paranoid or fear of being cheated by the seller that is why security is one of the three most important factors that influence the consumer to purchase in e-commerce. Have a high security will make the consumer feel safe to spend their money and purchase in that e-commerce. Fourth is brand ambassador. Brand ambassador is not just for marketing purposes, but also brand ambassador is important because it can make people convince to purchase in that e-commerce. E-commerce that have popular influencer or actors and actress will attract more consumers. Fifth is reputation. Reputation is important because when the consumers want to purchase a product, they will seek the reputation of that e-commerce. If the e-commerce had a bad reputation, it can affect the bad impact for that e-commerce, so the consumer will not purchase a product in there. The last position is website quality. Website quality is become the last factor that influence the consumer purchase decision. The website quality is not so important factor compare to the other factors. Website quality is the information that they provide, service quality such as the customer service for response the request, system quality and vendor-specific quality.

Pairwise Comparison Criteria in Alternatives Analysis

In criteria of brand ambassador Tokopedia become the most preferable by the consumers, second is Shopee, and third is Bukalapak. It means that the brand ambassador of Tokopedia can attract the consumers to purchase in there. There are two brand ambassador of Tokopedia, BTS and Blackpink, which is the famous boy and girl band nowadays. The current brand ambassador of Shopee is Arya Saloka and Amanda Manoppo, and Bukalapak are Vincent Rompies and Mahendra Desta.

In criteria of price, Shopee is the most preferred by respondents compare to the other two e-commerce. Shopee has the highest score in this criterion because they have a cheapest price among others. Shopee has the most affordable price compare to Bukalapak and Tokopedia. Second is Tokopedia. Bukaplapak has expensive price compare to Shopee and Tokopedia.

In product variety criteria, Shopee is the most preferred by respondents compare to the other two ecommerce. Shopee has the highest score in this criterion because they have many product variety, so the consumers can feel free to comparing the other products when they want to purchase a product. Second is Tokopedia. Based on the respondents, Bukaplapak has few product variety compare to Shopee and Tokopedia.

In criteria of security, Bukalapak, Tokopedia and Shopee have a same score. It means, three of them (Bukalapak, Tokopedia and Shopee) are tied in criteria of security. It also means that Bukalapak, Tokopedia and Shopee have a high security that can make the consumer feel safe to spend their money and purchase in that e-commerce.

In criteria of reputation, Bukalapak, Tokopedia and Shopee have a same score. It means, three of them (Bukalapak, Tokopedia and Shopee) are tied in criteria of reputation. It also means that Bukalapak, Tokopedia and Shopee have a good reputation. Bukalapak, Tokopedia and Shopee provide the feature for consumers to give the rating after they purchase the product transparently.

In criteria of website quality, Shopee is the most preferable by respondents compare to the other two e-commerce. It means that Shopee have a good website quality, how they give the information for customer, the response for request can make consumers feel satisfy, system quality and vendor-specific quality is good. Second is Tokopedia. And the last is Bukalapak, but it does not mean that Bukalapak have a bad website quality.

Result of Analytical Hierarchy Process of Consumer Purchase Decision of E-Commerce

Based on the overall data, the consumer choose Shopee as the most consumer purchase decision of e-commerce compares to the rest of alternatives. This result already shown in Figure 9 about result of the most preferred e-commerce (online shopping platform, it shows that when the consumer want to purchase a product, they choose Shopee as the most preferred e-commerce among the other alternatives. In all the criterion on this research, price is the most important criteria that influence preference in choosing e-commerce. Shopee become the most consumer purchase decision in e-commerce, it supported by the data above that the e-commerce are dominated and win in three criteria (price, product variety and security), which are the top three important criteria when the consumer want to decide to purchase a product in e-commerce. Second place is Tokopedia. Tokopedia win brand ambassador criteria, which is the fourth criterion that influence the consumer to decide to purchase a product. The last position is Bukalapak. It doesn't mean that Bukalapak is the worse, but compare to the other alternatives, Bukalapak has the lowest score based on the respondents.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the result of analyzing and discussing, then two conclusions can be purposed.

- 1. Based on six criteria (brand ambassador, price, product variety, security, reputation, and website quality), there are top three criteria that has the most influence for consumer of E-commerce shopping platform. In the first place and got the highest total is price. According to the data comparison that developed in pairwise comparison of Analytical Hierarchy Process (AHP), price became the most influenced criteria for consumer when they decide to choose an e-commerce (online shopping platform). Second position of the highest score is product variety and the third position is security. The data shows that price, product variety and security are the most important thing that influence consumer to choose an e-commerce shopping platform. The rest criteria that are brand ambassador, reputation, and website quality are not the main things that influence the consumers.
- 2. Based on the overall result that developed using Analytical Hierarchy Process (AHP), shows that Shopee become the most preferable e-commerce (online shopping platform) by the consumer, followed by Tokopedia and Bukalapak in the last place.

Recommendation

There are several recommendations that can be concluded from the overall result in this research, which are listed as follow:

- 1. Price, product variety, and security is the most important thing that influence the customer in choosing an e-commerce. Every e-commerce (online shopping platform) and the seller need to pay attention seriously toward these factors. The customer will choose a shop at the online shopping platform that have an affordable price and have many variety of product. The customers also highly concern about their privacy and security in using the online shopping platform.
- 2. In this research, Bukalapak got the last place in the most preferred e-commerce (online shopping platform) by the customers in Manado City. Bukalapak were got a last place in four criteria (brand ambassador, price, product variety, and website quality) and tied in other two criteria (reputation and security) compare to Shopee and Tokopedia. Bukalapak should improve their performance in every sector especially in the criteria that influence the customers in choosing e-commerce (online shopping platform). For Tokopedia that got the second place, even if they got the first place in brand ambassador criteria, they can beat Shopee in the other three criteria (price, product variety, and website quality) and tied with Shopee and Bukalapak in the rest two criteria (reputation and security). Tokopedia should improve their performance same as the recommendation for Bukalapak and should keep their brand ambassador to attract more customers to choose Tokopedia as their preferred e-commerce.

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