



Marketing Strategy Analysis on Features Live Shopping with Game Theory (Case Study: Live Shopping Users in Surabaya City)

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ABSTRACT

In business competition, it is necessary to have a strategy in dealing with competition as a tool to improve business quality so that an appropriate and optimal strategy is needed for companies to win market share. This research aims to determine the optimum marketing strategy for the live shopping marketplace features of Shopee, Tokopedia, and Lazada to increase sales through the live shopping feature. One way that can be used to analyze the right marketing strategy is by applying game theory to find out the optimal strategy for players. The results of this study in Shopee's first game against Tokopedia resulted in a game value of 26 so that Shopee, could increase profits from 23 to 26. At the same time, Tokopedia could reduce losses from 30 to 26. In the second game, Shopee against Lazada resulted in a game value of 21, so Shopee can increase profits from 15 to 21, while Tokopedia can reduce losses from 28 to 21. In the third game, Tokopedia against Lazada resulted in a game value of 19, so Tokopedia can increase profits from 15 to 19, while Lazada can reduce losses from 29 to 19.

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1. INTRODUCTION

The development of the digital economy is inseparable from the influence of rapid technological developments. Therefore, the convenience of technology through the marketplace can be used as an economic transaction to make accessing a service easier (Sumarjiyanto et al., 2020). A marketplace is a place where everyone can start and conduct business transactions with the help of telecommunications which includes various types of transactions made online, including online banking transactions, online retail

business, online transportation, and online shopping. In its development, the marketplace is launching a new feature, namely the live broadcast feature or live shopping. *Live shopping* is a marketing strategy combining three elements: promotion, interaction, and transactions (Fransiska & Paramita, 2020). Live shopping is a combination of e-commerce and social media or social networking. In live shopping, consumers can buy products that are sold directly with a few touches on the cellphone screen. Several services from live shopping can improve the shopping experience, reduce uncertainty, and increase buyer

confidence in the products being sold, thereby generating buying interest (Pamungkas et al., 2022).

Based on the results of the Snapcart survey for the 11th year 2022 period involving 1,000 marketplace users in Indonesia, in the age range 15-50 years, it was reported on the Koran Tempo website, which discusses the characteristics of consumer behavior and preferences in online shopping, stating that, the type of consumer wandering customers shop because they are interested with a variety of entertainment features on the marketplace such as live shopping so that consumers feel comfortable when shopping. The survey results from state that the type of consumer is wandering customers, users of live shopping entertainment features in the highest marketplace, Shopee, with a user percentage of 50%. Then the second place was occupied by Tokopedia with a user percentage of 16%. Then the third place is occupied by Lazada with a ser percentage of 1% (Snapcart, 2022). In facing business competition through the live shopping feature, marketplace companies need a strategy to deal with competition as a tool to increase market share, so an appropriate and optimal strategy is needed for companies to win market share and directly increase sales.

One of the ways that can be used to analyze the optimum marketing strategy for marketplace companies through the live shopping feature to win a good market share is using game theory. In this study, an analysis of the marketing strategy of the live shopping feature used by the marketplace will be carried out. Judging from the large percentage of live shopping users, this research will analyze the marketing strategy for the live shopping feature by using game theory based on the marketing mix. Using this method is expected to determine the optimal marketing strategy by comparing each strategy owned by players so they can find out the advantages and weaknesses of each player. This game theory is commonly used in situations of conflict or competition between various competing interests as competitors. An advantage for one is a loss for the other (Satriani & Nohe, 2022). The use of Game theory is used to determine the optimal strategy for the players (Fitrie & Ritonga, 2022).

2. LITERATURE REVIEW

Marketing strategy is an effort to market a product in the form of goods and services, using specific patterns and strategies to increase sales. Marketing strategy can also be defined as a series of efforts made by a company to achieve particular goals because opportunities to sell what is offered are limited to those who know it (Haque-fawzi et al., 2022). Within the strategic planning framework, marketing has two aspects, namely, the current time perspective and the future time perspective. The contemporary time perspective refers to the interactions between the firm and its environmental conditions. The future view does include future interactions, and it is hoped that they will link the courses of action necessary to achieve goals. Marketing strategy is a form of planning directed at marketing to obtain maximum results. There are two factors related to the marketing strategy, namely: (a) The target/target market is the homogeneous consumer group that is the company's target, (b) The marketing mix is a form of controlled marketing variables that the company combines to achieve maximum results.

A marketing mix is a marketing tool that includes product, price, promotion, and distribution to get the desired response from target market. Based on the understanding of the experts above, it can be concluded that the marketing mix is a good marketing tool within the company, where the company can control it in such a way that it can influence the reaction of the target market. According to Anoraga in Arifka, (2021), the elements contained in the marketing mix consist of seven main aspects. The four traditional aspects relate to the marketing of goods, and the following three aspects relate to the marketing mix expansion. Four traditional aspects, namely: product, price, distribution, and promotion. The three aspects of the expansion of the marketing mix are people, physical evidence, and process (Machali, 2018). According to Ningrum (2020), dynamic business implementation according to consumer needs leads to the fact that the elements in the marketing mix increase and are continuously updated. Currently, the (9P) approach has been developed, which includes:

product, price, distribution, promotion, people, physical evidence, process, payment, and packing. *Game theory* uses mathematical methods to describe competition and conflict between various interests. Game theory is used to find the best strategy in-game activity, where each player equally gets the highest utility (Wijayati, 2019). Game theory has the basic concept of solving a competition, including the number of players, player values, and game strategy (Mastura et al., 2022). This theory starts with situations where decision-makers must deal with other people with conflicting interests. The future is based on the choices he makes, influencing the choices of others. This means one person's gain or gain equals another person's loss. Resolving conflicts between two competing parties is the essence of game theory; in other words, making decisions in a conflict is called game theory. Therefore game theory involves two conflicting parties, player I chooses a strategy after evaluating the strategy chosen by Player II. Likewise, player II chooses a strategy after evaluating the strategy chosen by player I. The mathematical theory of this game is presented to explain how each opponent or player chooses the best strategy.

According to Kartono in Anas, (2019) the payoff matrix is a table in the form of a rectangle and its elements which are the large numbers of payments under the strategies used by both parties. The gain matrix from the game's results is called the yield matrix. Values in the form of numbers in the yield matrix are obtained from different game strategies, namely, practical measures such as money, market share percentage, or use (Ariyani, 2010). The general form of the payoff matrix is as follows:

Table 1. Matriks payoff

		Player 2				
		i j	1	2	3	...
Player 1	1	a_{11}	a_{12}	a_{13}	...	a_{1n}
	2	a_{21}	a_{22}	a_{23}	...	a_{2n}
	3	a_{31}	a_{32}	a_{33}	...	a_{3n}
	⋮	⋮	⋮	⋮	⋮	⋮
	m	a_{m1}	a_{m2}	a_{m3}	⋮	a_{mn}

Where :

- m : the number of strategy player 1
- n : the number of strategy player 2
- a_{ij} : payment value according to the i strategy for player 1 and the j strategy for player 2

In game theory, two strategies can be used to solve problems: pure strategy and mixed strategy. Pure strategy can be solved according to the criteria of dominance, maxims, or minimax. When the pure strategy does not find a Nash equilibrium, the optimal strategy is determined using a mixed strategy. A mixed strategy can use several methods, such as analytic, simplistic, graphical, and matrix (Aditya et al., 2023).

3. RESEARCH METHOD

3.1 Location and time of research

The location of the research was carried out in the city of Surabaya. The time of the research was conducted from April to May 2023.

3.2 Identification and definition of operational variables

The identification of the variables used in this study is as follows: (a) Dependent Variable. The dependent variable is called the output, criterion, or consequence variable. The dependent variable is a variable that is influenced by the independent variable. In this study, the dependent variable is the optimum marketing strategy for the live shopping feature on the marketplace, (b) Independent Variable. Independent variable is the variable that influences or causes the change or the emergence of the dependent variable. The independent variable in this study is the 9P marketing mix, including product, price, distribution, promotion, people, physical evidence, process, payment, and packing, which consists of attributes to assess the performance of the live shopping feature on the Shopee, Tokopedia, and Lazada marketplaces. The identification of the variables used in this study are as follows:

Table 2. Variable operational

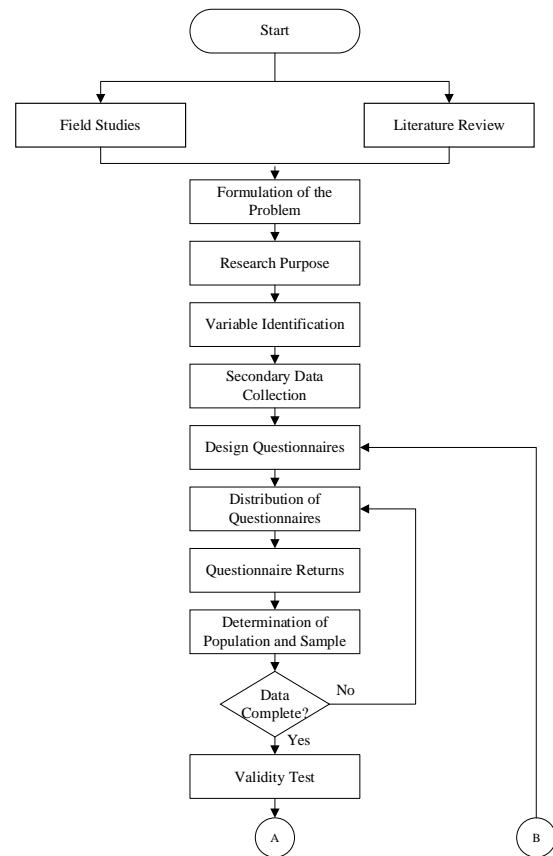
Variable	Description	Attribute
Product	Completeness of products offered during live shopping	Product Completeness

Variable	Description	Attribute
Price	Offers lots of discounted prices	Discount
	The price of products offered during live shopping is more affordable	Price Affordability
Promotion	Actively holding flash sales during live shopping	Flashsale
	Offer cashback purchases during live shopping	Cashback
	Offer free shipping promotions	Free Shipping
Place	Offers a wide range of shipping service options	Choice of Expedition Services
People	The Streamer expertise in operating the live shopping feature	Reliability Streamer
	The streamer communication style during live shopping is attractive so that it influences buying products	Streamer Communication Style
Process	Easy application design that users easily understand	Design application
	Ease of use of the live shopping feature	Ease of Features
Physical Evidence	The authenticity of the product	Product authenticity
	There is a warranty service on the product	Warranty Service
Payment	Ease of payment by providing a choice of payment methods	Ease of Payment

Variable	Description	Attribute
Packaging	Product packaging is sturdy and resistant to impact or physical damage, protecting the product from damage during shipping and storage.	Security Packaging

3.3 Flowchart

The problem-solving steps used in this study are as follows:



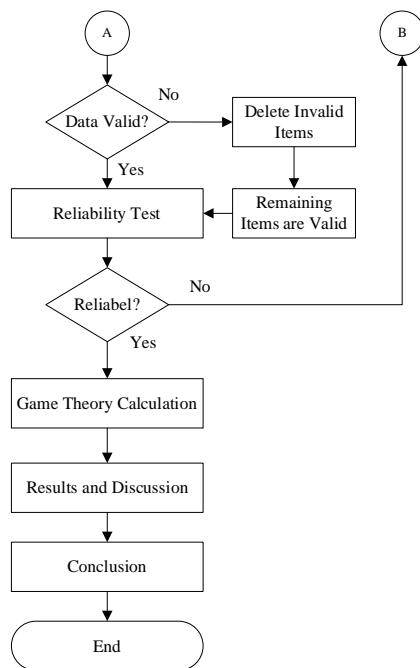


Fig. 1 Flow of research thinking

(1) Start. (2) Literature Studies. The literature study was carried out to find primary references in research. The references used at the literature study stage come from books, journals, theses, and the internet. (3) Field Study. Field studies from this research regard the features of the live shopping marketplace that are most in demand and the different marketing strategies of each marketplace. (4) Problem Formulation The problem discussed in this study is how the optimal marketing strategy is at Shopee, Tokopedia, and Lazada through the live shopping feature. (5) Research Purpose. Research purposes were determined based on the problems encountered to determine the optimal marketing strategy through the live shopping feature on Shopee, Tokopedia, and Lazada. (6) Identification of Research Variables. Variables are identified to achieve the research objectives, a clear explanation is needed regarding the target variable being studied. (7) Data Collection. The data used in this study are primary data and secondary data. Preliminary data were obtained from the questionnaire results, while secondary data was obtained from the Snapcart survey period 11 years 2023 on wandering customers. (8)

Preparation of Questionnaires. The questionnaire contains questions related to the identity of the respondent. It assesses the live shopping marketplace features of Shopee, Tokopedia, and Lazada based on the indicators set. (9) Distribution of Questionnaires. The questionnaire was distributed online via the Google form; then, the questionnaire was distributed via social media via a link. The questionnaires were distributed to users of the live shopping feature on the Shopee, Tokopedia, and Lazada marketplaces in Surabaya. (10) Population and Samples. The population is residents in Surabaya who have used or bought products through the live shopping feature on the Shopee, Tokopedia, and Lazada marketplaces. The sample measurement in this study uses the Lemeshow formula because the population of users of the live shopping feature on the Shopee, Tokopedia, and Lazada marketplaces is unknown. (11) Validity Test. The validity test aims to determine how well the instrument measures what is desired or the power and accuracy of the research. (12) Reliability Test. The reliability test is carried out to show how much a meter can be trusted or relied upon. The variables in the questionnaire are consistent with the actual situation and follow the real problem. (13) Game Theory Calculation. Game data processing is carried out at this stage as a game matrix. The value used in the game matrix was obtained from respondents' assessment of each Shopee, Tokopedia, and Lazada live shopping feature. (14) Result and Discussion. These results are analyzed and discussed to determine the optimum marketing strategy for each Shopee, Tokopedia, and Lazada live shopping feature. (17) Conclusion. The results that have been analyzed and discussed need to be drawn conclusions and suggestions, and (18) End.

3.4 Population and Sample

This study's population is residents in Surabaya who have used or bought products through the live shopping feature on Shopee, Tokopedia, and Lazada. The research sample was taken

using a purposive sampling technique. The sample measurement in this study uses the Lemeshow formula. This is because the population of users of the live shopping feature on Shopee, Tokopedia, and Lazada marketplaces in Surabaya has yet to be discovered. For the formulation of sample measurement, Lemeshow uses the following calculations:

$$n = \frac{Z^2 P(1-P)}{d^2} \quad (1)$$

Where:

n = sample

Z = score for the level of confidence 95% = 1,96

P = estimated maximum = 50 = 0,5

d = alpha (0,10) or sampling error = 10%

3.5 Data Collection Technique

In this study, the data collected was in the form of secondary data and primary data. Secondary data was obtained from a Snapcart survey on wandering customers for the 11th year 2022 period. In this research, the primary data was obtained by using a questionnaire. The measurement used in the questionnaire is the Likert scale, with a score of 1 to 5. Data collection is in the form of attributes collected in the questionnaire.

3.6 Data Analysis Technique

(a) Validity test. The validity test was carried out with the help of SPSS software. This validity test aims to determine how well the instrument measures what is desired or the power and accuracy of the research. (b) Reliability test, The reliability test is carried out to show how much better can be trusted or relied on. The variables in the questionnaire are consistent with the actual situation and are following the situation, (c) Calculation Game Theory Calculations with game theory are presented in matrix form. The value used in the game matrix is obtained from respondents' assessment of each Shopee, Tokopedia, and Lazada direct shopping feature. Then set the game value by specifying the saddle point value. If no saddle point values are found, then the next stage is calculated with linear programming and simplex.

4. RESULT AND DISCUSSION

4.1 Dissemination of Questionnaire

From the questionnaires distributed by regional

representatives in Surabaya, namely Central Surabaya, East Surabaya, North Surabaya, South Surabaya, West Surabaya, and South Surabaya, 132 questionnaires were returned. On returning the questionnaires, 125 questionnaires were declared valid or appropriate. As many as seven questionnaires were invalid or inappropriate because 5 of them had never used or purchased a product with the live shopping feature on the Shopee, Tokopedia, and Lazada marketplaces, and one other respondent did not meet the respondent's age criteria. So the research questionnaire was invalid and could not be used in this study. So the data to be processed are 125 questionnaires.

4.2 Sample Measurement

From the result of the questionnaires filled in the formulation of sample measurement, Lemeshow uses the following calculations:

$$n = \frac{Z^2 P(1-P)}{d^2} \quad (2)$$

$$n = \frac{1,96^2 \times 0,5(1-0,5)}{(0,1)^2} = 96,04 \approx 97$$

The results of calculating the minimum sample determination using the Lemeshow formula above show n = 97, so it can be seen that the minimum sample value (n) is 97 respondents. In this study, it was found that 132 questionnaires had been returned, 125 questionnaires were considered valid or valid, and one other was considered invalid or valid because the respondent did not meet the respondent's criteria. So that the sample obtained in this study is sufficient because it has reached the minimum sampling limit.

4.3 Validity Test

Testing the validity of the data from the questionnaire results was carried out using the help of SPSS 25 software with a total of 125 respondents, so that df = 125-2 = 123 with a significance level of 5%, the r table value was 0.176. Testing the validity of the data is declared valid if the value of r count (corrected item total correlation) > the value of r table (0.176).

Table 3. Validity test of Shopee Live Shopping feature

Attribute Strategy	r count	r table	Description
Product Completeness	0,727	0,176	Valid
Discount	0,629	0,176	Valid
Price Affordability	0,723	0,176	Valid
Flashsale	0,609	0,176	Valid
Cashback	0,645	0,176	Valid
Free Shipping	0,686	0,176	Valid
Choice of Expedition Services	0,655	0,176	Valid
Reliability Streamer	0,764	0,176	Valid
Communication Style	0,694	0,176	Valid
Design application	0,737	0,176	Valid
Ease of Features	0,71	0,176	Valid
Product authenticity	0,744	0,176	Valid
Warranty Service	0,796	0,176	Valid
Ease of Payment	0,53	0,176	Valid
Security Packaging	0,699	0,176	Valid

Based on Table 3, the fifteen attributes that have been tested, it can be seen that all attributes have a calculated r-value that is greater than the r-table value (0.176). So the fifteen attributes of the live shopping feature strategy in the Shopee marketplace are declared valid.

Table 4. Validity test of Tokopedia Live Shopping feature

Attribute Strategy	r count	r table	Description
Product Completeness	0,727	0,176	Valid
Discount	0,629	0,176	Valid
Price Affordability	0,723	0,176	Valid
Flashsale	0,609	0,176	Valid
Cashback	0,645	0,176	Valid
Free Shipping	0,686	0,176	Valid
Choice of Expedition Services	0,655	0,176	Valid
Reliability Streamer	0,764	0,176	Valid
Communication Style	0,694	0,176	Valid
Design application	0,737	0,176	Valid
Ease of Features	0,71	0,176	Valid
Product authenticity	0,744	0,176	Valid
Warranty Service	0,796	0,176	Valid
Ease of Payment	0,53	0,176	Valid
Security Packaging	0,699	0,176	Valid

Based on Table 4, the fifteen attributes that have been tested, it can be seen that all attributes have a calculated r-value that is greater than the r-table value (0.176). So the fifteen attributes of the live shopping feature strategy in the Tokopedia marketplace are declared valid.

Table 5. Validity test of Lazada Live Shopping feature

Attribute Strategy	r count	r table	Description
Product Completeness	0,727	0,176	Valid
Discount	0,629	0,176	Valid
Price Affordability	0,723	0,176	Valid
Flashsale	0,609	0,176	Valid
Cashback	0,645	0,176	Valid
Free Shipping	0,686	0,176	Valid
Choice of Expedition Services	0,655	0,176	Valid
Reliability Streamer	0,764	0,176	Valid
Communication Style	0,694	0,176	Valid
Design application	0,737	0,176	Valid
Ease of Features	0,71	0,176	Valid
Product authenticity	0,744	0,176	Valid
Warranty Service	0,796	0,176	Valid
Ease of Payment	0,53	0,176	Valid
Security Packaging	0,699	0,176	Valid

Based on Table 5, the fifteen attributes that have been tested, it can be seen that all attributes have a calculated r-value that is greater than the r-table value (0.176). So that the fifteen attributes of the live shopping feature strategy in the Lazada marketplace are declared valid.

4.4. Reliability Test

The reliability test was carried out using the SPSS 25 software. The reliability test aimed to measure the ability of the data to maintain relatively the same results if repeated measurements were carried out in similar studies. Data can be reliable if $r \text{ alpha} > r \text{ table}$. The results of testing the reliability of the live shopping feature on the Shopee, Tokopedia, and Lazada marketplaces using the SPSS software are as follows:

Table 6. Reliability test

Marketplace	r alpha	r table	Description
Shopee	0,921	0,176	Reliable
Tokopedia	0,897	0,176	Reliable
Lazada	0,906	0,176	Reliable

Based on Table 6, the calculation of the reliability test in Table 1, the three marketplaces have a value of $r \text{ alpha} > r \text{ table}$, so the reliability test of the Shopee, Tokopedia, and Lazada

marketplaces is declared reliable.

4.5. Game Theory calculation

The first step in data processing with game theory is to form a game matrix. This research aims to achieve a saddle point to obtain the optimal solution to the existing problems. Pure and mixed strategies are two types of strategies that can be used. The pure strategy is the initial strategy that will be used, but if the saddle point is not reached, a mixed strategy will be applied to determine the solution

a. Shopee against Tokopedia

In this study, the questionnaire was filled out by comparing the existing attributes. The variables used by each player are the same, X is a variable for Shopee, and Y is for Tokopedia, the attributes in the game will be used as variables can be seen in the following Table 7.

Table 7. Attributes Strategy of the Shopee vs. Tokopedia

Attribute Strategy	Shopee	Tokopedia
Product Completeness	X1	Y1
Discount	X2	Y2
Price Affordability	X3	Y3
Flashsale	X4	Y4
Cashback	X5	Y5
Free Shipping	X6	Y6
Choice of Expedition Services	X7	Y7
Reliability Streamer	X8	Y8
Streamer Communication Style	X9	Y9
Design application	X10	Y10
Ease of Features	X11	Y11
Product authenticity	X12	Y12
Warranty Service	X13	Y13
Ease of Payment	X14	Y14

The attributes in the game that underlie the formation of values competition matrix between live shopping features, can be seen in the follow

Table 8. Matrix pay off Shopee (P1) Vs. Tokopedia (P2)

		Tokopedia (P2)															Min
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	
Shopee (P1)	X1	39	33	28	18	28	24	26	29	18	20	30	12	22	25	30	12
	X2	41	27	27	27	25	22	31	22	35	35	27	38	35	21	37	21
	X3	24	35	22	24	7	14	34	15	30	28	14	31	29	13	35	7
	X4	38	27	29	16	18	35	35	-11	3	-11	38	10	12	36	31	-11
	X5	36	39	25	32	24	18	21	20	26	30	21	38	4	20	37	4
	X6	6	40	23	36	30	-12	21	24	35	33	30	11	17	21	41	-12
	X7	9	26	23	27	24	18	21	20	33	36	37	39	31	23	30	9
	X8	6	21	35	-4	21	30	8	36	14	33	23	31	15	17	37	-4
	X9	-10	3	11	20	25	11	-1	-10	27	25	14	32	32	-4	32	-10
	X10	40	39	-11	28	21	16	22	23	34	-5	39	24	36	16	31	-11
	X11	29	39	26	27	23	31	24	27	37	38	30	34	37	31	35	23
	X12	-13	31	13	27	15	12	15	-10	26	17	11	27	24	10	28	-13
	X13	19	32	15	20	18	11	18	16	29	29	15	35	32	14	31	11
	X14	9	33	19	24	3	20	18	24	36	31	21	37	30	10	37	3
	X15	36	26	16	13	7	9	-8	5	19	15	12	17	21	3	24	-8
Max		41	40	35	36	30	35	35	36	37	38	39	39	37	36	41	
		Minmax															

Based on Table 8, the game Shopee (P1) against Tokopedia (P2) obtained the maximin value, namely the maximum value of the minimum row of 23, and the minimax value, namely the minimum value of the maximum row of 30. So there are no saddle points in the game of Shopee (P1) against Tokopedia (P2), so this game cannot be solved using pure strategy. Furthermore, it will apply the dominance principle to eliminate ineffective

strategies. The X12 line strategy is dominated by the X1 to X15 line strategy. Then the Y15 column strategy is dominated by the Y1 to Y14 column strategy, so the X12 line and Y15 column strategies are eliminated. So the domination principle is applied to the row and column strategy, producing a game modification matrix between Shopee (P1) against Tokopedia (P2), as shown in Table 9.

Table 9. Matrix modification Shopee (P1) Vs. Tokopedia (P2)

		Tokopedia (P2)														
		P2 P1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14
Shopee (P1)	X1		39	33	28	18	28	24	26	29	18	20	30	12	22	25
	X2		41	27	27	27	25	22	31	22	35	35	27	38	35	21
	X3		24	35	22	24	7	14	34	15	30	28	14	31	29	13
	X4		38	27	29	16	18	35	35	-11	3	-11	38	10	12	36
	X5		36	39	25	32	34	18	21	20	26	30	21	38	4	20
	X6		6	40	23	36	30	-12	21	24	35	33	30	11	17	21
	X7		9	26	23	27	24	18	21	20	33	36	37	39	31	23
	X8		6	21	35	-4	21	30	8	36	14	33	23	31	15	17
	X9		-10	3	11	20	25	11	-1	-10	27	25	14	32	32	-4
	X10		40	39	-11	28	21	16	22	23	34	-5	39	24	36	16
	X11		29	39	26	27	23	31	24	27	37	38	30	34	37	31
	X13		19	32	15	20	18	11	18	16	29	29	15	35	32	14
	X14		9	33	19	24	3	20	18	24	36	31	21	37	30	10
	X15		36	26	16	13	7	9	-8	5	19	15	12	17	21	3

From Table 9, matrix modification data processing will be solved with linear programming using POM-QM 5 software to determine the optimum marketing strategy for the live shopping feature in the Shopee (P1) vs. Tokopedia (P2) game. Linear programming is an alternative method of solving mixed strategy game theory, divided into row players

and column players. Line players play the role of players who maximize profits, while column players play the role of players who minimize losses. Based on Table 9, the simplex results obtained are used to produce the optimal solution for the Shopee (P1) vs. Tokopedia (P2) game, which is solved by the following calculation:

Table 10. Optimal solution Shopee vs. Tokopedia

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	RHS	Dual	
<i>Maximize</i>	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
1	39	33	28	18	28	24	26	29	18	20	30	12	22	25	≥	1	0,00846
2	41	27	27	27	25	22	31	22	35	35	27	38	35	21	≥	1	0,00855
3	24	35	22	24	7	14	34	15	30	28	14	31	29	13	≥	1	0
4	38	27	29	16	18	35	35	-11	3	-11	38	10	12	36	≥	1	0
5	36	39	25	32	34	18	21	20	26	30	21	38	4	20	≥	1	0,0036
6	6	40	23	36	30	-12	21	24	35	33	30	11	17	21	≥	1	0,0006
7	9	26	23	27	24	18	21	20	33	36	37	39	31	23	≥	1	0
8	6	21	35	-4	21	30	8	36	14	33	23	31	15	17	≥	1	0
9	-10	3	11	20	25	11	-1	-10	27	25	14	32	32	-4	≥	1	0
10	40	39	-11	28	21	16	22	23	34	-5	39	24	36	16	≥	1	0
11	29	39	26	27	23	31	24	27	37	38	30	34	37	31	≥	1	0,01778
12	19	32	15	20	18	11	18	16	29	29	15	35	32	14	≥	1	0
13	9	33	19	24	3	20	18	24	36	31	21	37	30	10	≥	1	0
14	36	26	16	13	7	9	-8	5	19	15	12	17	21	3	≥	1	0
Solution	0	0	0	0,00807	0,00843	0,0016	0,0085	0,01239	0	0	0	0	0	0	0,03899		

Based on Table 10, the simplex results obtained are used to produce the optimal solution for the Tokopedia (P2), which is solved by the following calculation:

$$W = \frac{1}{V} = 0,03899$$

$$V = \frac{1}{W} = \frac{1}{0,03069} = 25,648 \approx 26$$

$$y_1 = \frac{Y_1}{W} = \frac{0}{0,03899} = 0$$

$$y_2 = \frac{Y_2}{W} = \frac{0}{0,03899} = 0$$

$$y_3 = \frac{Y_3}{W} = \frac{0}{0,03899} = 0$$

$$y_4 = \frac{Y_4}{W} = \frac{0,00807}{0,03899} = 0,20698 = 21\%$$

$$y_5 = \frac{Y_5}{W} = \frac{0,00843}{0,03899} = 0,21621 = 22\%$$

$$y_6 = \frac{Y_6}{W} = \frac{0,0016}{0,03899} = 0,04104 = 4\%$$

$$y_7 = \frac{Y_7}{W} = \frac{0,0085}{0,03899} = 0,218 = 22\%$$

$$y_8 = \frac{Y_8}{W} = \frac{0,01239}{0,03899} = 0,31777 = 32\%$$

$$y_9 = \frac{Y_9}{W} = \frac{0}{0,03899} = 0$$

$$y_{10} = \frac{Y_{10}}{W} = \frac{0}{0,03899} = 0$$

$$y_{11} = \frac{Y_{11}}{W} = \frac{0}{0,03899} = 0$$

$$y_{12} = \frac{Y_{12}}{W} = \frac{0}{0,03899} = 0$$

$$y_{13} = \frac{Y_{13}}{W} = \frac{0}{0,03899} = 0$$

$$y_{14} = \frac{Y_{14}}{W} = \frac{0}{0,03899} = 0$$

Based on simplex calculations, the optimum marketing strategy was obtained for the live

shopping marketplace feature Tokopedia (P2) is Y4 at 21%, Y5 at 22%, Y6 at 4%, Y7 at 22%, and Y8 at 32%, so that the Tokopedia live shopping marketplace feature can reduce losses from 30 to 26. Based on Table 10, the simplex results obtained are used to produce the optimal solution for Shopee (P1), which is solved by the following calculation:

$$Z = \frac{1}{V} = 0,03899$$

$$V = \frac{1}{Z} = \frac{1}{0,03069} = 25,648 \approx 26$$

$$x_1 = \frac{X_1}{Z} = \frac{0,00846}{0,03899} = 0,21698 = 22\%$$

$$x_2 = \frac{X_2}{Z} = \frac{0,00855}{0,03899} = 0,21929 = 22\%$$

$$x_3 = \frac{X_3}{Z} = \frac{0}{0,03899} = 0$$

$$x_4 = \frac{X_4}{Z} = \frac{0}{0,03899} = 0$$

$$x_5 = \frac{X_5}{Z} = \frac{0,0036}{0,03899} = 0,09233 = 9\%$$

$$x_6 = \frac{X_6}{Z} = \frac{0,0006}{0,03899} = 0,01539 = 2\%$$

$$x_7 = \frac{X_7}{Z} = \frac{0}{0,03899} = 0$$

$$x_8 = \frac{8}{Z} = \frac{0}{0,03899} = 0$$

$$x_9 = \frac{X_9}{Z} = \frac{0}{0,03899} = 0$$

$$x_{10} = \frac{X_{10}}{Z} = \frac{0}{0,03899} = 0$$

$$x_{11} = \frac{X_{11}}{Z} = \frac{0,01778}{0,03899} = 0,45601 = 46\%$$

$$x_{13} = \frac{X_{13}}{Z} = \frac{0}{0,03899} = 0$$

$$x_{14} = \frac{X_{14}}{Z} = \frac{0}{0,03899} = 0$$

Based on simple calculations, the optimal marketing strategy was obtained for the live shopping marketplace Shopee (P1) feature is X1 at 22%, X2 at 22%, X5 at 9%, X6 at 2%, and X11 at 46%, so that the Shopee live shopping

marketplace feature can increase profits from 23 to 26.

b. Shopee against Lazada

In this study, the questionnaire was filled out by comparing the existing attributes. The variables used by each player are the same, X is a variable for Shopee, and Y is for Lazada, the attributes in the game will be used as variables can be seen in the following Table 11.

Table 11. Attributes strategy of the Shopee vs. Lazada

Attribute Straregy	Shopee	Lazada
Product Completeness	X1	Y1
Discount	X2	Y2
Price Affordability	X3	Y3
Flashsale	X4	Y4
Cashback	X5	Y5
Free Shipping	X6	Y6
Choice of Expedition Services	X7	Y7
Reliability Streamer	X8	Y8
Streamer Communication Style	X9	Y9
Design application	X10	Y10
Ease of Features	X11	Y11
Product authenticity	X12	Y12
Warranty Service	X13	Y13
Ease of Payment	X14	Y14
Security Packaging	X15	Y15

With the attributes in the game that underlies the formation of values competition matrix between live shopping features, which can be seen in the following Table 12.

Table 12. Matrix pay off Shopee (P1) Vs. Lazada (P2)

		Lazada (P2)															Min
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	
Shopee (P1)	X1	35	27	23	25	22	22	20	27	34	40	8	39	24	12	35	8
	X2	22	12	15	15	38	38	13	23	29	22	19	29	33	12	37	12
	X3	18	16	9	12	8	9	10	19	15	23	12	30	39	10	33	8
	X4	46	35	37	45	18	31	28	27	33	15	26	21	34	23	36	15
	X5	24	22	14	18	16	30	2	23	13	31	18	35	39	29	34	2
	X6	24	11	27	14	32	16	19	29	25	-12	13	29	23	10	38	-12
	X7	22	18	16	-5	23	12	24	21	27	26	15	28	36	-5	27	-5
	X8	30	20	11	17	18	12	15	21	17	19	15	30	37	7	33	7
	X9	13	2	24	35	31	11	-4	18	20	14	29	41	8	2	34	-4
	X10	36	21	15	17	24	-8	15	-7	27	23	16	32	30	7	33	-8
	X11	22	26	23	24	14	19	16	26	26	28	22	28	37	-8	34	-8
	X12	45	29	14	7	15	23	-2	19	16	37	27	22	28	0	23	-2
	X13	16	16	26	30	30	31	13	31	24	21	20	26	23	3	21	3
	X14	22	32	15	16	13	13	9	18	24	24	13	33	34	3	33	3
	X15	26	25	-5	21	34	-1	17	11	18	21	-2	18	34	-10	19	-10
Max	46	35	37	45	38	38	28	31	34	40	29	41	39	29	38		
																Minmax	

Based on Table 13, the game Shopee (P1) against Lazada (P2) obtained the maximin value, namely the maximum value of the minimum row of 28, and the minimax value, namely the minimum value of the maximum row of 15. So there are no saddle points in the game of Shopee (P1) against Lazada (P2), so this game cannot be solved using pure strategy. Furthermore, it will apply the dominance principle to eliminate ineffective strategy. The

X4 line strategy is dominated by the X1 to X15 line strategy. Then the Y7 column strategy is dominated by the Y1 to Y15 column strategy, so the X12 line and Y15 column strategies are eliminated. So the domination principle is applied to the row and column strategy, producing a game modification matrix between Shopee (P1) against Lazada (P2), as shown in Table 13.

Table 13. Matrix modification Shopee (P1) Vs. Lazada (P2)

		Lazada (P2)													
		Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15
Shopee (P1)	X1	27	23	25	22	22	20	27	34	40	8	39	24	12	35
	X2	12	15	15	38	38	13	23	29	22	19	29	33	12	37
	X3	16	9	12	8	9	10	19	15	23	12	30	39	10	33
	X4	35	37	45	18	31	28	27	33	15	26	21	34	23	36
	X5	22	14	18	16	30	2	23	13	31	18	35	39	29	34
	X7	18	16	-5	23	12	24	21	27	26	15	28	36	-5	27
	X8	20	11	17	18	12	15	21	17	19	15	30	37	7	33
	X9	2	24	35	31	11	-4	18	20	14	29	41	8	2	34
	X10	21	15	17	24	-8	15	-7	27	23	16	32	30	7	33
	X11	26	23	24	14	19	16	26	26	28	22	28	37	-8	34
	X12	29	14	7	15	23	-2	19	16	37	27	22	28	0	23
	X13	16	26	30	30	31	13	31	24	21	20	26	23	3	21
	X14	32	15	16	13	13	9	18	24	24	13	33	34	3	33
	X15	25	-5	21	34	-1	17	11	18	21	-2	18	34	-10	19

From Table 13, matrix modification data processing will be solved with linear programming using POM-QM 5 software to determine the optimum marketing strategy for the live shopping feature in the Shopee (P1) vs. Lazada (P2) game. Linear programming is an alternative method of solving mixed strategy game theory, divided into row players and

column players. Line players play the role of players who maximize profits, while column players play the role of players who minimize losses. Based on Table 13. The simplex results obtained are used to produce the optimal solution for the Shopee (P1) vs. Lazada (P2) game, which is solved by the following calculation:

Table 14. Optimal solution Shopee vs. Lazada

	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	RHS	Dual	
<i>Maximize</i>	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
1	27	23	25	22	22	20	27	34	40	8	39	24	12	35	≥	1	0,00509
2	12	15	15	38	38	13	23	29	22	19	29	33	12	37	≥	1	0,007
3	16	9	12	8	9	10	19	15	23	12	30	39	10	33	≥	1	0
4	35	37	45	18	31	28	27	33	15	26	21	34	23	36	≥	1	0,02833
5	22	14	18	16	30	2	23	13	31	18	35	39	29	34	≥	1	0,00701
6	18	16	-5	23	12	24	21	27	26	15	28	36	-5	27	≥	1	0
7	20	11	17	18	12	15	21	17	19	15	30	37	7	33	≥	1	0
8	2	24	35	31	11	-4	18	20	14	29	41	8	2	34	≥	1	0
9	21	15	17	24	-8	15	-7	27	23	16	32	30	7	33	≥	1	0
10	26	23	24	14	19	16	26	26	28	22	28	37	-8	34	≥	1	0
11	29	14	7	15	23	-2	19	16	37	27	22	28	0	23	≥	1	0
12	16	26	30	30	31	13	31	24	21	20	26	23	3	21	≥	1	0
13	32	15	16	13	13	9	18	24	24	13	33	34	3	33	≥	1	0
14	25	-5	21	34	-1	17	11	18	21	-2	18	34	-10	19	≥	1	0
Solution	0	0	0	0,01303	0	0,00825	0	0	0,00837	0	0	0	0,01777	0	0,04743		

Based on Table 14, the simplex results obtained are used to produce the optimal solution for the Lazada (P2), which is solved

by the following calculation:

$$W = \frac{1}{V} = 0,04743$$

$$V = \frac{1}{w} = \frac{1}{0,04743} = 21,0837$$

$$\begin{aligned}
 y_2 &= \frac{Y_2}{W} = \frac{0}{0,04743} = 0 & ; y_3 &= \frac{Y_3}{W} = \frac{0}{0,04743} = 0 \\
 y_4 &= \frac{Y_4}{W} = \frac{0}{0,04743} = 0 \\
 y_5 &= \frac{Y_5}{W} = \frac{0,01303}{0,04743} = 0,27472 = 27\% \\
 y_6 &= \frac{Y_6}{W} = \frac{0}{0,04743} = 0 \\
 y_7 &= \frac{Y_7}{W} = \frac{0,00825}{0,04743} = 0,17394 = 17\% \\
 y_8 &= \frac{Y_8}{W} = \frac{0}{0,04743} = 0 & ; y_9 &= \frac{Y_9}{W} = \frac{0}{0,04743} = 0 \\
 y_{10} &= \frac{Y_{10}}{W} = \frac{0,00837}{0,04743} = 0,17647 = 18\% \\
 y_{11} &= \frac{Y_{11}}{W} = \frac{0}{0,04743} = 0 & ; y_{12} &= \frac{Y_{12}}{W} = \frac{0}{0,04743} = 0 \\
 y_{13} &= \frac{Y_{13}}{W} = \frac{0}{0,04743} = 0 \\
 y_{14} &= \frac{Y_{14}}{W} = \frac{0,01777}{0,04743} = 0,37466 = 37\% \\
 y_{15} &= \frac{Y_{15}}{W} = \frac{0}{0,04743} = 0
 \end{aligned}$$

Based on simplex calculations, the optimum marketing strategy for the live shopping marketplace Lazada (P2) feature is Y5 at 27%, Y7 at 17%, Y10 at 18%, and Y14 at 37%. So that the Lazada marketplace live shopping feature can reduce losses from 28 to 21

Based on Table 14. the simplex results obtained are used to produce the optimal solution for Shopee (P1), which is solved by the following calculation:

$$\begin{aligned}
 Z &= \frac{1}{V} = 0,04743 \\
 V &= \frac{1}{Z} = \frac{1}{0,04743} = 21,0837 \\
 x_1 &= \frac{X_1}{Z} = \frac{0,00509}{0,04743} = 0,10732 = 11\% \\
 x_2 &= \frac{X_2}{Z} = \frac{0,007}{0,04743} = 0,14759 = 15\% \\
 x_3 &= \frac{X_3}{Z} = \frac{0}{0,04743} = 0 \\
 x_4 &= \frac{X_4}{Z} = \frac{0,02833}{0,04743} = 0,05973 = 60\% \\
 x_5 &= \frac{X_5}{Z} = \frac{0,14780}{0,04743} = 0,1478 = 15\% \\
 x_7 &= \frac{X_7}{Z} = \frac{0}{0,04743} = 0 & ; x_8 &= \frac{X_8}{Z} = \frac{0}{0,04743} = 0 \\
 x_9 &= \frac{X_9}{Z} = \frac{0}{0,04743} = 0 & ; x_{10} &= \frac{X_{10}}{Z} = \frac{0}{0,04743} = 0
 \end{aligned}$$

$$\begin{aligned}
 x_{11} &= \frac{X_{11}}{Z} = \frac{0}{0,04743} = 0 & ; x_{12} &= \frac{X_{12}}{Z} = \frac{0}{0,04743} = 0 \\
 x_{13} &= \frac{X_{13}}{Z} = \frac{0}{0,04743} = 0 & ; x_{14} &= \frac{X_{14}}{Z} = \frac{0}{0,04743} = 0 \\
 x_{15} &= \frac{X_{15}}{Z} = \frac{0}{0,04743} = 0
 \end{aligned}$$

Based on simplex calculations, the optimal marketing strategy was obtained for the live shopping marketplace Shopee (P1) feature, namely X1 at 11%, X2 at 15%, X4 at 60%, and X5 at 15%. So that the live shopping marketplace feature Shopee can increase profits from 15 to 21.

c. Tokopedia against Lazada

In this study, the questionnaire was filled out by comparing the existing attributes. The variables used by each player are the same, X is a variable for Tokopedia, and Y is for Lazada, the attributes in the game will be used as variables can be seen in the following Table 15.

Table 15. Attributes strategy of the Tokopedia Vs. Lazada

Attribute Strategy	Tokopedia	Lazada
Product Completeness	X1	Y1
Discount	X2	Y2
Price Affordability	X3	Y3
Flashsale	X4	Y4
Cashback	X5	Y5
Free Shipping	X6	Y6
Choice of Expedition Services	X7	Y7
Reliability Streamer	X8	Y8
Streamer Communication Style	X9	Y9
Design application	X10	Y10
Ease of Features	X11	Y11
Product authenticity	X12	Y12
Warranty Service	X13	Y13
Ease of Payment	X14	Y14
Security Packaging	X15	Y15

With the attributes in the game that underlies the formation of values competition matrix between live shopping features, which can be seen in the following Table 16.

Table 16. Matrix pay off Tokopedia Vs. Lazada

		Lazada (P2)															Min	
		P2	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y1	Y13	Y1		Y15
Tokopedia (P1)	P1																	
	X1	9	33	22	10	-4	17	-5	-7	10	-6	-12	-11	6	-6	18	-12	
	X2	-5	-4	-8	-6	11	22	15	15	11	26	25	11	11	-10	-6	-10	
	X3	37	14	29	12	32	18	19	27	31	28	24	29	29	13	20	12	
	X4	26	-4	14	13	25	14	12	22	17	19	8	22	-15	6	14	-15	
	X5	36	-8	22	29	29	13	19	27	30	32	19	30	30	12	22	-8	
	X6	23	12	25	26	26	13	22	31	16	32	23	36	36	15	24	12	
	X7	40	20	23	17	22	29	21	34	36	32	26	30	35	32	15	15	
	X8	35	2	35	16	32	14	25	26	21	34	14	12	26	15	24	2	
	X9	28	22	4	-11	18	2	34	18	18	10	10	20	18	-4	12	-11	
	X10	29	-6	8	9	27	25	-12	24	21	15	23	17	16	-3	35	-12	
	X11	33	26	-11	28	28	16	17	27	26	24	15	42	27	10	21	-11	
	X12	24	16	3	19	12	17	27	16	13	15	-14	15	25	-8	5	-14	
	X13	29	-10	4	3	19	6	7	31	14	19	26	20	34	-6	7	-10	
	X14	30	4	22	18	30	30	15	28	27	30	20	36	28	25	33	4	
	X15	29	-11	11	-6	17	-14	23	13	11	13	29	18	17	-16	18	-16	
	Max	40	33	35	29	32	30	34	34	36	34	29	42	36	32	35		

Minmax

Based on Table 15, the game Tokopedia (P1) against Lazada (P2) obtained the maximin value, namely the maximum value of the minimum row is 15, and the minimax value, namely the minimum value of the maximum row is 29. So there are no saddle points in the game of Tokopedia (P1) against Lazada (P2), so this game cannot be solved using pure strategy. Furthermore, it will apply the dominance principle to eliminate ineffective

strategy. The X15 line strategy is dominated by the X1 to X15 line strategy. Then the Y12 column strategy is dominated by the Y1 to Y15 column strategy, so the X15 line and Y12 column strategies are eliminated. So the domination principle is applied to the row and column strategy, producing a game modification matrix between Tokopedia (P1) against Lazada (P2), as shown in Table 17.

Table 17. Matrix modification Tokopedia (P1) Vs. Lazada (P2)

		Lazada (P2)														
		P2	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y13	Y14	Y15
Tokopedia (P1)	X1	9	33	22	10	-4	17	-5	-7	10	-6	-12	6	-6	18	
	X2	-5	-4	-8	-6	11	22	15	15	11	26	25	11	-10	-6	
	X3	37	14	29	12	32	18	19	27	31	28	24	29	13	20	
	X4	26	-4	14	13	25	14	12	22	17	19	8	-15	6	14	
	X5	36	-8	22	29	29	13	19	27	30	32	19	30	12	22	
	X6	23	12	25	26	26	13	22	31	16	32	23	36	15	24	
	X7	40	20	23	17	22	29	21	34	36	32	26	35	32	15	
	X8	35	2	35	16	32	14	25	26	21	34	14	26	15	24	
	X9	28	22	4	-11	18	2	34	18	18	10	10	18	-4	12	
	X10	29	-6	8	9	27	25	-12	24	21	15	23	16	-3	35	
	X11	33	26	-11	28	28	16	17	27	26	24	15	27	10	21	
	X12	24	16	3	19	12	17	27	16	13	15	-14	25	-8	5	
	X13	29	-10	4	3	19	6	7	31	14	19	26	34	-6	7	
	X14	30	4	22	18	30	30	15	28	27	30	20	28	25	33	

From Table 17, modification matrix will be solved with linear programming using POM-QM 5 software to determine the optimum marketing strategy for the live shopping feature in the Tokopedia (P1) against Lazada (P2) game. Linear programming is an alternative method of solving mixed strategy game theory, divided into row players and

column players. Line players play the role of players who maximize profits, while column players play the role of players who minimize losses. Based on Table 13. The simplex result obtained are used to produce the optimal solution for the Shopee (P1) vs. Lazada (P2) game, which is solved by the following calculation:

Table 18. Optimal solution Tokopedia vs. Lazada

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y13	Y14	Y15	RHS	Dual	
<i>Minimize</i>	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
1	9	33	22	10	-4	17	-5	-7	10	-6	-12	6	-6	18	≥	1	0,0045
2	-5	-4	-8	-6	11	22	15	15	11	26	25	11	-10	-6	≥	1	0
3	37	14	29	12	32	18	19	27	31	28	24	29	13	20	≥	1	0
4	26	-4	14	13	25	14	12	22	17	19	8	-15	6	14	≥	1	0
5	36	-8	22	29	29	13	19	27	30	32	19	30	12	22	≥	1	0
6	23	12	25	26	26	13	22	31	16	32	23	36	15	24	≥	1	0,01856
7	40	20	23	17	22	29	21	34	36	32	26	35	32	15	≥	1	0,02167
8	35	2	35	16	32	14	25	26	21	34	14	26	15	24	≥	1	0
9	28	22	4	-11	18	2	34	18	18	10	10	18	-4	12	≥	1	0,0016
10	29	-6	8	9	27	25	-12	24	21	15	23	16	-3	35	≥	1	0
11	33	26	-11	28	28	16	17	27	26	24	15	27	10	21	≥	1	0,00616
12	24	16	3	19	12	17	27	16	13	15	-14	25	-8	5	≥	1	0
13	29	-10	4	3	19	6	7	31	14	19	26	34	-6	7	≥	1	0
14	30	4	22	18	30	30	15	28	27	30	20	28	25	33	≥	1	0
Solution	0	0,01964	0,00467	0	0	0	0,01026	0	0	0	0	0	0,00092	0,01701	0,05249		

Based on Table 18, the simplex results obtained are used to produce the optimal

solution for the Lazada (P2), which is solved by the following calculation:

$$W = \frac{1}{v} = 0,05249$$

$$V = \frac{1}{w} = \frac{1}{0,05249} = 19,05544$$

$$y_1 = \frac{Y_1}{W} = \frac{0}{0,05249} = 0$$

$$y_2 = \frac{Y_2}{W} = \frac{0,01964}{0,05249} = 0,37417 = 37\%$$

$$y_3 = \frac{Y_3}{W} = \frac{0,00467}{0,05249} = 0,08897 = 9\%$$

$$y_4 = \frac{Y_4}{W} = \frac{0}{0,05249} = 0$$

$$y_5 = \frac{Y_5}{W} = \frac{0}{0,05249} = 0$$

$$y_6 = \frac{Y_6}{W} = \frac{0}{0,05249} = 0$$

$$y_7 = \frac{Y_7}{W} = \frac{0,01026}{0,05249} = 0,19547 = 20\%$$

$$y_8 = \frac{Y_8}{W} = \frac{0}{0,05249} = 0$$

$$y_9 = \frac{Y_9}{W} = \frac{0}{0,05249} = 0$$

$$y_{10} = \frac{Y_{10}}{W} = \frac{0}{0,05249} = 0$$

$$y_{11} = \frac{Y_{11}}{W} = \frac{0}{0,05249} = 0$$

$$y_{13} = \frac{Y_{13}}{W} = \frac{0}{0,05249} = 0$$

$$y_{14} = \frac{Y_{14}}{W} = \frac{0,00092}{0,05249} = 0,01753 = 2\%$$

$$y_{15} = \frac{Y_{15}}{W} = \frac{0,01701}{0,05249} = 0,32406 = 32\%$$

Based on simplex calculations, the optimum marketing strategy for the live shopping marketplace Lazada (P2) feature is Y2 at 37%, Y3 at 9%, Y7 at 20%, and Y14 at 2%, and Y15 at 32%. So that the live shopping marketplace Lazada feature can reduce losses from 29 to 19. Based on Table 18, the simplex results obtained are used to produce the optimal solution for Tokopedia (P1), which is solved by the following calculation:

$$Z = \frac{1}{v} = 0,05249$$

$$V = \frac{1}{z} = \frac{1}{0,05249} = 19,05544$$

$$x_1 = \frac{X_1}{Z} = \frac{0,0045}{0,05249} = 0,08573 = 9\%$$

$$x_2 = \frac{X_2}{Z} = \frac{0}{0,05249} = 0$$

$$x_3 = \frac{X_3}{Z} = \frac{0}{0,05249} = 0$$

$$x_4 = \frac{X_4}{Z} = \frac{0}{0,05249} = 0$$

$$x_5 = \frac{X_5}{Z} = \frac{0}{0,05249} = 0$$

$$x_6 = \frac{X_6}{Z} = \frac{0,01856}{0,05249} = 0,35359 = 35\%$$

$$x_7 = \frac{X_7}{Z} = \frac{0,02167}{0,05249} = 0,41284 = 60\%$$

$$x_9 = \frac{X_9}{Z} = \frac{0,0016}{0,05249} = 0,03048 = 15\%$$

$$x_{10} = \frac{X_{10}}{Z} = \frac{0}{0,05249} = 0$$

$$x_{11} = \frac{X_{11}}{Z} = \frac{0,00616}{0,05249} = 0,11736 = 12\%$$

$$x_{12} = \frac{X_{12}}{Z} = \frac{0}{0,05249} = 0$$

$$x_{13} = \frac{X_{13}}{Z} = \frac{0}{0,05249} = 0$$

$$x_{14} = \frac{X_{14}}{Z} = \frac{0}{0,05249} = 0$$

Based on simplex calculations, the optimum marketing strategy for the live shopping marketplace Tokopedia (P1) feature is X1 at

9%, X6 at 35%, X7 at 41%, X9 at 3% and X11 at 12%. So that the live shopping marketplace feature Tokopedia can increase profits from 15 to 19

5. CONCLUSION

From the analysis and discussion results, the first game between Shopee (P1) and Tokopedia (P2) has been solved using a mixed strategy resulting in a value of game is 21. This means that the live shopping feature for the Shopee marketplace can use strategy of Product Completeness is 22%, Discounts 22%, Cashback 9%, Free Shipping 2%, and Ease of Features 46% to increase profits from 23 to 26. Meanwhile, the live shopping marketplace feature Tokopedia can play a Flashsale strategy of 21%, Cashback 22%, Free Shipping 4%, Expedited Service Options 22%, and Streamer Reliability 32% to to achieve the optimal strategy to reduce losses from 28 to 21. Then in the second game, Shopee (P1) against Lazada (P2) was then solved using mixed strategy, resulting in a value of game is 25. This means that the live shopping feature for the Shopee marketplace can use strategy Product Completeness 11%, Discount 15%, Flashsale 60%, and Cashback 15% to increase profits from 15 to 21. Meanwhile, the Lazada live shopping marketplace feature can play a Cashback strategy 27%, Expedition Service Options 17%, Application Design 18 %, and Ease of Payment 37%, to achieve the optimal strategy to reduce losses from 28 to 21. Then in the third game, tokopedia (P1) against Lazada (P2) was then solved using mixed strategy, resulting in a value of game is 13. This means that the live shopping feature for the Tokopedia marketplace can use Product Completeness 9%, Free Shipping 35%, Expedition Service Choices 60%, Streamer Communication Style 15% and Ease of Features 12%, so as to increase profits from 15 to 19. Meanwhile, the Lazada live shopping marketplace feature can play a 37% discount strategy. , Price affordability 9%, Expedition Service Options 20%, Ease of Payment 32% and Delivery Security 12%, to achieve the optimal strategy to reduce losses from 29 to 19.

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