

Selection of E-Marketplaces Factors Affecting Indonesian Women's Business Loyalty Using Simple Multi-Attribute Rating Technique (SMART) Method

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Abstract—Indonesian online sales are currently experiencing rapid growth and can provide solutions to the problems of marketing products for Micro, Small and Medium Enterprises (MSMEs) managed by women entrepreneurs. There are several obstacles in marketing the product including lack of e-marketplace information, HR skills, product design that is less attractive and the quality of the goods produced so that it can cause bankruptcy. The sample in this study was taken from MSMEs. managed by women entrepreneurs randomly in Indonesia. This study uses primary data obtained through questionnaire instruments. Data is processed using the Simple Multi-Attribute Rating Technique (Smart) Method. The results of this study found that market services, infrastructure, transaction security, costs, promotions, and value-added services had a positive impact on seller loyalty. Market service is a factor that has the greatest influence on the loyalty of women entrepreneurs in online sellers.

Keywords— MSMEs, SellerLoyalty, E-Marketplace Indonesia, SMART, Women

I. INTRODUCTION

One The emergence of small and medium enterprises (MSMEs) and the continued increase in the number of internet users, triggering the development of e-commerce in Indonesia. The development of e-commerce business is currently experiencing a very rapid development so that online business becomes a choice in doing business [1][2]. Marketing of MSME products managed by women businessmen has many problems in marketing their products including Push Force, Man, and Sources of Information [3]. Man is an internal obstacle, this obstacle can be overcome by MSMEs themselves by recruiting information technology staff, improving employee expertise by MSMEs owners and conducting e-commerce workshops for MSME employees. Push Forces is an aspect of management support where SME owners who are part of management have an important role in adopting e-commerce. And sources of information are a threat from large companies that use e-commerce as a container for the process of selling and buying online [4].

MSMEs in Indonesia are mostly owned and managed by families and utilization of e-commerce is still low

and has not been able to harmonize e-commerce activities in their business activities. the constraints faced by women businessmen in selling MSME products when adopting e-commerce are: [3]

1. Communication, including the delivery of goods, services, information, or payments through a computer network or through other electronic equipment.
2. Business processes, including the application of technology that leads to the automation of business transactions and workflow.
3. Services, including a tool that meets the desires of companies, consumers, and management to reduce service costs when improving the quality of goods and increasing the speed of delivery services.

There are many types of e-commerce, one of which is e-marketplace. Examples of E-marketplaces in Indonesia are Tokopedia, Bukalapak, Lazada, Matahari mall, Shoppe, and OLX. Many e-marketplaces make competition in business more competitive. To survive, e-marketplaces must be able to maintain and increase the number of their customers. Sellers are one of the main components of the e-marketplace business and have the freedom to choose to put their merchandise and easily switch to other e-marketplaces if they experience even the least inconvenience [5].

II. THEORETICAL REVIEW

A. Micro, Small and Medium Enterprises (MSMEs)-Women

Micro, Small and Medium Enterprises (MSMEs) is a form of small business which has employees between 1-19 people. And medium-sized businesses have employees between 20-99 people [6]. MSMEs in Indonesia still cannot maximize their sales using the internet. With the increasing interest of the Indonesian people to use the internet as a tool to shop, this must be maximized by business people to change their sales patterns or develop them into e-commerce. In Indonesia, the development of online sales has begun to develop in the field of women entrepreneurs, especially marketing products from home industries or MSMEs. To maximize electronic sales,

businesswomen must know what to buy and how buyers adapt to the electronic sales process. This information can be one of the keys to success that can be used to maximize electronic sales strategies [4].

B. Seller Loyalty to E-Marketplace

E-Marketplace provides a great opportunity for women entrepreneurs who manage MSMEs in delivering product information in the form of goods or services using internet technology. The many criteria provided by e-marketplace can cause sellers to choose to increase sales results to the maximum. Multi-criteria on business e-marketplace, as follows:

1. EBusiness view [5][7], e-commerce business models in Indonesia are usually based on Classifieds/listings / classified ads and C2C. Classified / listing / classified ad business models are models that display websites that do not facilitate online transaction activities and individual sellers can sell goods anytime, anywhere for free. Online sales do not use a shared account or escrow facilities. Transactions that occur directly between the seller and the buyer use the cash on delivery or COD method. C2C-based business model is a business model where the website concerned not only helps promote merchandise but also facilitates money transactions online. All online transactions must be facilitated by the relevant website and can be used by individual sellers, buying and selling activities on the marketplace website must use online transaction facilities such as escrow services or third party accounts to ensure transaction security. The seller will receive payment money after the item is received by the buyer. If the goods ordered by the buyer have not arrived, then the money will be deposited in a third party account. If an order transaction fails, then the money will be returned to the buyer. The seller has a large amount of stock and may already have a physical store.
2. Market service view [8][9], display the homepage design and layout that can help women businessmen to market their products online so that they can grow to attract buyers. By making website visitors believe about the product they want to buy, some features that can increase sales profits include clear logos, beautiful images or videos, and the "buy" button will meet the design. There is a place to offer discounts, freebies, promos at the top of the home page of an online store. The availability of the latest news services and popular products that can provide information to buyers about their best products. Providing Product Brands at the homepage at the beginning for the attention of buyers. Providing shopping cart facilities, login boxes and search boxes, every customer who registers can choose a personal login and password for further access and account owners can receive special discount offers from online store owners and participate in sales. The payment method features advance payment, credit, and debit cards. Features Social Media Links and telephone services and online chatting. The Trustmark feature is a thumbnail or logo that shows the security of external parties to show that shopping on this site is safe.
3. Third-party B2B E-Marketplace performance [9][3][10], the amount of market competition in Indonesia makes it difficult for women to market products produced by MSMEs with large businesses in the local and international markets. B2B can make a solution for MSMEs who want to develop digitally staff to manage it, such as providing website creation services, search engine optimization, Google, statistical data, content management, and other digital marketing services. Promotional transaction activities are carried out entirely by corporate sites that apply the B2B concept. For the Seller to join the company portal, must register as membership with fees that you want to get. the seller can only display some business information, such as business name, address, rating and review, view details, telephone number, e-mail, URL, business description, and location.
4. Transaction view [11][12], the application of payment technology from the marketplace must provide convenience in making shopping payments. The marketplace offers flexibility on cash on delivery, ATM transfers, Internet Banking until payment by Paypal. The more payment models offered, the better the marketplace.
5. Infrastructure view [13][14], the availability of a user registration service containing valid e-mail and cellphone data because the verification code will be sent to e-mail. Store Registration Service by registering one user one store or one user many stores. Product Listing Service contains the display of products based on discounts, best-selling product galleries, highest rated products in the Grid format. Social Network Integration Services, Social media can attract buyers quickly. Search Service, placed at the very top of the page. The search results can then be sorted by price. Testimonial services and product ratings describe customer satisfaction with the products they buy. Live Support service, a feature that contains the resolution of conflict problems between buyer sellers. Service The Dashboard page owned by the seller or buyer after logging in contains a menu to add products or view daily transaction records can integrate with SMS / Email so that every time a seller's transaction is sent a notification, the user specifically lists the items that have been purchased, the list of items that have not been sent and services for complaint and refund of goods. Mobile website service / Mobile App and provides Marketplace Technology in the form of GridLayout and Responsive design that can change the appearance of ListView, GridView or slider formats. And HTTPS security services and website security certificates.

C. Metode SMART (Simple Multi Attribute Rating Technique)

SMART (Simple Multi-Attribute Rating Technique) is a multi-attribute decision-making technique used to select several alternatives. Each alternative consists of a set of attributes that have an average value with a certain scale. Each attribute also has a weight compared to other attributes to obtain the best alternative. The weighting value uses a scale between 0 to 1, calculating the average and alternative for each alternative[15][1]

$$u(a_i) = \sum_{j=1}^m w_j u_i(a_i), \quad (1)$$

$i = 1, 2, \dots, m$

Information:

w_j = weighting criteria for criteria j and k criteria

$u(a_i)$ = the third utility criteria for i

SMART Method of Engineering:

1. Determine the number of criteria
2. The system by default gives a scale of 0-100 based on priority, then normalizes.

$$\frac{w_j}{\sum w_j} \quad (2)$$

Information :

w_j : the weight of a criterion

3. Give criteria for each alternative.
4. Calculate the utility value for each alternative

$$u_i(a_i) = 100 \frac{(C_{max} - C_{out i})}{(C_{max} - C_{min})} \% \quad (3)$$

Information :

$u_i(a_i)$ = utility criterion 1 for i

C_{max} = maximum criteria value

C_{min} = minimum criteria value

$C_{out i}$ = value criteria i

5. Calculate the final value of each criterion and alternative.

D. Multi Criteria Decision Making (MCDM)

MCDM is the Multi-Criteria Decision Making (MCDM) is a decision-making technique based on several existing alternatives or theories that explain the decision-making process by considering many criteria. The implementation of the MCDM method in selecting Indonesia's e-marketplaces business must be systematically explored. This method explains several system contributions that involve several MCDM methods [16][17]. This system has many domain applications. On the other hand, a comprehensive analysis will facilitate the understanding and development of systems that can identify dimensions that differentiate, explain, and categorize recommender multi-criteria systems, taxonomically based and existing categorizations used in the analysis and classification of sample online sales decisions.

Problems in MCDM can be formulated as follows: Research begins with observation and implementation of women's use of research begins with observation and implementation of online sales managed by women to see how important the selection of e-marketplace chosen is caused by the use of sales data, in this study used 100 female business respondents. Data is processed using descriptive analysis method to present a summary of the results of questionnaire surveys and interviews conducted manually on online sales in e-marketplaces in Indonesia[18].

III. RESEARCH METHODOLOGY

This study was conducted to find the main factors that influence the loyalty of women entrepreneurs who manage SMEs in the e-marketplace business using the Smart method, consisting of several criteria and alternatives:

Criteria for selection of business e-marketplace:

1. Business view
2. Market service view
3. Third-party B2B E-Marketplace performance
4. Transaction view
5. Infrastructure view

The chosen alternative consists of:

X_1 = Number of buyers and sellers

X_2 = Reputation of EM and Trust in marketing makers

X_3 = Customer loyalty

X_4 = Trading volume

X_5 = Reduction of transaction costs

X_6 = Reliability and Usability of the website

X_7 = Security and Privacy

With the concept of a research model, as shown below:

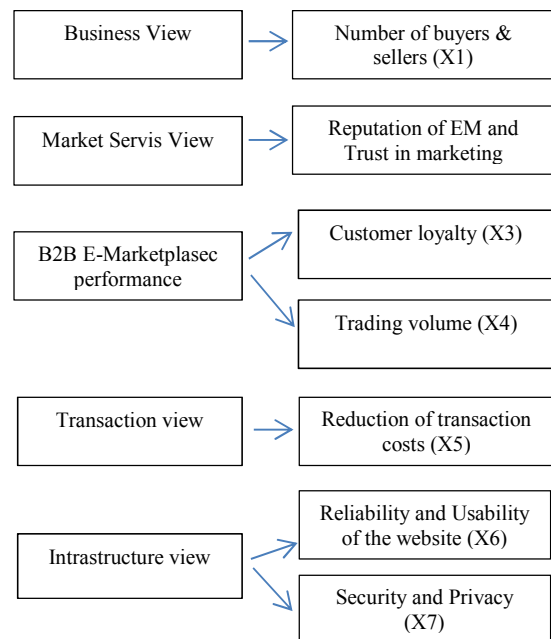


Fig 1. research model

IV. IMPLEMENTATION AND RESULTS

The initial step is to survey respondents' surveys and disseminate questionnaires and look for relevant research literature on seller loyalty managed by women in carrying out buying and selling transactions in Indonesian e-marketplace. A total of 20 respondents answered the survey. This group is broken down into 3 criteria of novice businessmen namely

business women who market their products rely solely on traditional marketing, small businessmen who are small businesses and able to market their products through online internet marketing and medium-sized business people, namely business women who process their products with large capital and already using online marketing.

A. Data collection

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B. Analysis

In the analysis phase, determining the selected criteria are a number of buyers and sellers, E-Marketplace reputation in the community, customer loyalty, promotion, trading volume, reduction of transaction costs, reliability and usefulness of the website, infrastructure security, and privacy. The e-business that is run requires supporting alternatives so that e-markets can be used including e-market business that is marketed, services in product marketing, B2B E-Marketplaces Performance on third parties and security of marketing transactions and payments.

This system provides an assessment to get recommendations that are in accordance with the assessments of women businessmen. Then the weighting stage will be carried out, at this stage the value has been converted. The results of data transformation were obtained from the questionnaire respondents, then calculated to determine the normalization value of each criterion value in each alternative with the following final results:

TABLE 1. SMART DATA ANALYSIS RESULTS TABLE

Alternative / Criteria	X1	X2	X3	X4	X5	X6	X7	The Final Result
Business View	4,36	4,15	4,3	4,4	4,45	4,5	4,2	4,35
Market Service View	4,4	4,34	5	4,2	4,26	4,5	4,3	4,46
Third-party B2B E-marketplace performance	4,3	4,56	4,6	4,43	4,33	4,35	3,9	4,38
Transaction View	4,24	4,39	5	4,23	4,56	4,4	3,8	4,40
Infrastructure View	4,34	4,46	4,7	4,43	4,71	4,35	3,7	4,39

1. Number of buyers and sellers

Against Business view criteria of (4.36), Third-party B2B E-Marketplace performance (4.3), Transaction view (4.24), Infrastructure view (4.34) produced the

highest criteria for Market service view (4.4) of the selected criteria.

2. A reputation of EM and Trust in marketing makers
Against the Business view criteria of (4,1524), Market service view (4,3429), Transaction view (4,3905), Infrastructure view (4,4571), resulting in the highest criteria Third-party B2B E-Market performance (4,5619). of the selected criteria.
3. Customer loyalty
Against Business view criteria of (4,3), Third-party B2B E-Marketplace performance (4,6). Infrastructure view (4,7), produced the highest criteria for Market service view (5), Transaction view (5), from the selected criteria.
4. Trading volume
Business view of (4.4), Market service view (4.2), Transaction view (4.2333), resulting in the highest criteria for Third-party B2B E-Marketplace performance (4,4333) and Infrastructure view (4,4333), from the selected criteria.
5. Reduction of transaction costs
Business view of (4.45), Third-party B2B E-Marketplace performance (4,4333), Market service view (4,2667), Transaction view (4,5667), resulting in the highest criteria Infrastructure view (4,7167), from the selected criteria.
6. Reliability and Usability of the website
Infrastructure view (4.35), Third-party B2B E-Market performance (4.35), Transaction view (4.4) produced the highest criteria of Business view by (4.5), Market service view (4.5). of the selected criteria.
7. Security and Privacy
Business view of (4.2), Third-party B2B E-Marketplace performance (3.9), Transaction view (3.8), Infrastructure view (3.7), generated the highest criteria for Market service view (4.3), from the selected criteria.

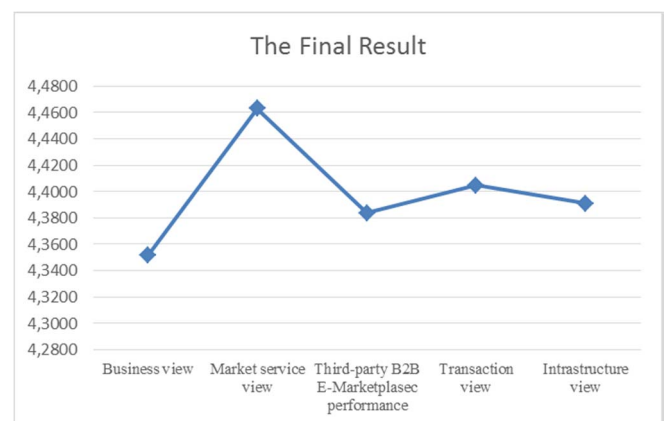


Fig 2. Graph of processing results using SMARTS

V. CONCLUSION

The results of the study show that the highest level of choice is found in the market service view (4,4631) which is chosen more by women-managed businesses in Indonesia and is expected to contribute to vendors of e-marketplace in order to keep increasing market service delivery to maintain seller loyalty. Another criterion was obtained that Infrastructure view (4,3519), Business view (4,3835), Third-party B2B E-

Market performance (4,4046), and Transaction view (4,3907). then it can be said that the quality of service is not in line with expectations. Attributes that have the lowest value indicate that the service performance has not been satisfactory in the business view attribute of (4.3519) which must be considered more to gain profit in the marketplace business. So that the benefits of SME products that are marketed online get maximum results. The security system in transacting is also an important factor in choosing an online transaction for businesses managed by women.

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