

# MARKETING ANALYSIS FOR E-COMMERCE IMPROVEMENT IN SMALL AND MEDIUM ENTERPRISE OF BATIK USING E-COMMERCE MARKETING MIX MODEL

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**Abstract.** E-commerce through internet opens opportunities for small and medium enterprises (SMEs) to market and expand business networks, not least for SMEs of Batik in Surakarta. Besides, e-commerce emerges marketing-mix model which it is different than as usual. Even most of the SMEs have use e-commerce, there is no information about performance of the SMEs on utilize e-commerce. Because of that, this study aims to analyze the use of e-commerce from the SMEs using the e-commerce marketing mix model. The model measures elements of e-commerce marketing-mix with two indicators, namely level of importance and performance of the SMEs. This research shows that there are gaps between the level of importance and the performance of the SMEs on utilize e-commerce. The highest gap is on the information about the shipping costs element, and it is followed by the temporal dynamics of commodity price changes element. Based on that, a events calendar is built as a recommendation for the SMEs to improve their e-commerce performance. The result of this research also will be used for Regional Industry and Trade Office of Surakarta City for arrange improvement program for the SMEs.

## 1. Introduction

According to Regional Chamber of Commerce & Industry of Pangandaran Regency, in the modern era and global competition, information moves very fast and becomes a key factor to win the competition <sup>[1]</sup>. The use of information technology or e-commerce in products marketing for small and medium enterprises (SMEs) will expand market and business network<sup>[1]</sup>. If the SMEs does not follow technology trend, the SMEs will be left behind and lose in competition, no exception for SMEs of Batik in Surakarta City. E-commerce has advantages, such as SMEs can gain efficiency on marketing process and perhaps the SMEs can obtain greater profits. Besides, e-commerce also has unlimited access, all products displayed on the internet can be accessed by visitors from various cities and countries.

The importance of e-commerce has been realized by Government of Surakarta City by realizing Kampung Batik Laweyan, a small village community in sub-district Laweyan that has many fabrics of batik and became a tourist destination. Then, since 2016, the SMEs in the kampong are encouraged to utilize e-commerce on e-market place or social media <sup>[2]</sup>. From Arifin <sup>[2]</sup>, it was known that most of the SMEs in the Laweyan has used e-commerce. However, the research did not inform the performance of e-commerce implementation at that place. Performance of e-commerce utilization by the SMEs is important not only for them, but also for the Government to improve the SMEs, e.g. giving a



comprehensive training program on optimizing utilization of e-commerce using e-market place such as Bukalapak, Tokopedia and others, or e-social media such as Twitter, Instagram or Facebook.

Because of that, this study will seek the use of e-commerce by the SMEs of Batik. The e-commerce marketing mix model is used in this research. In the marketing mix, there are four P, Place, Product, Price, and Promotion, as a set of tools for a company to achieve their marketing goal [3]. Difference with the obsolete concept of 4P, in the e-commerce marketing mix model, Place is not fixed because a company will use internet media (online) as a virtual place, which is well known as e-commerce. Despite the fact that online marketing has different rules than the traditional marketing, the basic principles of both environments are the same: knowledge of the target market, understanding the demographic characteristics, targeting the right market segment, making the right strategic decisions and implementation etc. As a conclusion we can say that the Internet is a complementary medium of the offline environment [10]. The e-commerce marketing mix model that is used in this research refers to model from Pogorelova [4]. The model maps elements of e-commerce marketing mix for two indicators, level of importance and performance. The hypothesis of this research is there are some aspects (or elements) of e-commerce from SME of batik that still can be improved to make e-commerce marketing even better. By analysis the model, it is expected there is a recommendation or suggestion for SMEs of Batik in Surakarta to improve their e-commerce activities.

## 2. Methods

### 2.1. E-commerce Marketing mix

Marketing mix consists of several dimensions that can affect the demand for a product known as 4P, that is product, price, place, and promotion[3]. Talpau[11] explained that in traditional 4P criteria product elements change in 4Ps e-commerce this is because on the internet products lose some important features such as tangibility, taste, smell. In order to mitigate this disadvantage, online stores must provide complex information to the potential clients, attractive pictures with very good resolution showing the product from as many angles possible, with the option to zoom in or out on the product and see all its existing varieties. The technology allows the consumer to see the product in different ways . For the price, the criteria in 4P e-commerce is changed from traditional 4Ps criteria, due to the low cost of storage, advertising, not needing to rent a central location and other, the online environment often allows lower pricing. Thus, in many cases, the price is one of the main advantages in the online environment. In the element of promotion, the criteria change in 4Ps e-commerce, because in e-commerce promotion is the star component of the marketing mix and refers to the means of communication used to inform the target market and convince potential customers and other stakeholders, to choose a company and/or its products. The online communication is done through a number of channels, and promotion methods that are based on the same principles of marketing and communication, but with new functionality. Place in the context of traditional 4P changes in 4P e-commerce, this is because The Internet, in general, significantly reduces office costs and distribution costs, thus allowing significant price reductions. Companies in this environment need to understand the power that price comparing websites give to customers. Besides these aspects, the major advantages are the possibility of rapidly changing prices to take advantage of certain opportunities in the environment.

The traditional marketing mix dimension has been modified and expanded from 4Ps to 7Ps by adding three new Ps which are people, process, and physical evidence. This new marketing variable is a fundamental marketing variable for the success of any service company. The use of 3P in this study is to assess companies not only in terms of product, price, promotion, and place, but also from the side of people, process, and physical evidence, because the elements of people, process, and physical evidence are considered important in a company or SME. In the element of people in e-commerce marketing mix according to www.digitalerra.com, there are 2 important points, that is the type of personal selling, and the level of customer service (customer service), people have an important role in service delivery, they are relied upon to deliver and maintain transactional marketing and people play an important part in the customer relationship. While the process element has 1 element, that is standard operating procedures

(SOP), All services need to be underpinned by clearly defined and efficient processes. In other words, you know your objectives to perform<sup>[5]</sup>. Finally, Pogorelova, et al. Mentions that physical evidence in e-commerce is converted into virtual evidence which has 2 elements, namely websites and communities on social networks, and mobile applications.

## 2.2. Compile the Questionnaire Items

In order to create a questionnaire, the first step is identifying the construct. Construct is variables that still cannot be measured. The construct in this study is e-commerce marketing mix. To be operationally defined, the construct must be described in such a way into dimensions, and data elements that can be measured. The e-commerce marketing mix construct consisting of 7 dimensions, which is product, price, promotion, place, people, process, and virtual evidence. The dimensions also consists of elements. Elements is behavior that can be observed and measured from a construct or dimension. In the context of this research the element is measured by 2 indicators, namely the level of importance (A) and performance (B) for each element, so that there are 2 items or questions in each element. The dimensions, and elements used in this study can be seen in table 1 as follows:

**Table 1.** Dimensions, Item Numbers and Elements For E-commerce Marketing

<b>Dimension</b>	<b>Item No.</b>	<b>Elements</b>
<b>Product</b>	1.	Diversity of product offering on the market
	2.	Characteristics, description of the product features
	3.	Information about product updates
<b>Price</b>	4.	The comparative analysis of the prices of goods by salesmen
	5.	The temporal dynamics of commodity price changes
<b>Place</b>	6.	Information about the methods and shipping costs
	7.	Ratings of online stores
	8.	Ratings of logistics intermediaries
<b>Promotion</b>	9.	Customer reviews about products
	10.	Information about sales, promotions, discounts
<b>People</b>	11.	Personal selling
	12.	Rating of Customer Service
<b>Proses</b>	13.	Standard operating procedure
<b>Virtual Evidence</b>	14.	A website and community pages in social networks
	15.	Mobile applications

Furthermore, each element will be measured according to indicators in the reference Pogorelova, et al, namely from the level of importance (A) and performance (B) in each element. The scale on the interest assessment indicator uses a 5-point Likert scale from "1" = very unimportant to "5" = very important, according to Pogorelova, et al, while the performance indicator uses 5 points Likert scale with different measurements according to the performance of the element measured. For element

number 6 in table 2.3, that is, information about the methods and shipping costs made into 2 different elements, namely information about shipping methods (speed) and information about shipping costs, because shipping methods and shipping cost information have 2 different performance measures. So, there will be total 16 elements. The complete list of performances of elements that measured can be seen in appendix A. From the appendix A, it can be known that there are various measurement of performance that measured using 5 point Likert scale, for example element number 2 about the characteristic, description of the product features measured by the complete description of characteristics and features displayed on e-commerce pages, where point 1 means "very incomplete" to point 5 = "very complete".

### 2.3. Questionnaire Validity Test

The questionnaire validity test is using Pearson Correlation Moment that taken from Singarimbun<sup>[13]</sup>. With calculating the correlation for each question item with the total score, then there will be results of correlation number for each question item, if the correlation number is more or equal to 0.3, then the question item is valid. After that, from the results of the questionnaire validity test, the results obtained from 32 items of questions, there is 1 invalid question, this can occur because the question is not good in the form of words or sentences<sup>[13]</sup>. Then the question is fixed in the order of words or sentences, before being distributed to real respondents.

### 2.4. Questionnaire Reliability Test

Reliability is an index that shows which can be measured or relied upon<sup>[13]</sup>. Reliability calculation method is done by using the test-retest method, that means the same respondents will answer the questionnaire twice in different time intervals (around 15 or 30 days). Then the results of the measurement of questionnaire 1 and the results of measurement of questionnaire 2 were correlated with product moment correlation formula. If the correlation number obtained exceeds the criterion in the r value table, the correlation is significant, that means measurement 1 and measurement 2 are relatively consistent. Thus the scale of the questionnaire is reliable. The number of respondents for the reliability test questionnaire is 19 respondents. The result is rxy value of 0.863. In the table of critical value with 17 degrees of freedom with a significance level of 5% the value is 0.456, because the value of  $r_{xy} \geq$  the value of rtable then the questionnaire is reliable.

## 3. Result and Discussion

### 3.1. Data Sufficiency Test

Questionnaires were distributed to 35 respondents that is SME of batik and using e-commerce for their marketing, of which 32 respondents were from Laweyan and 3 respondents from the Pusat Grosir Solo. The distribution of questionnaires was carried out using simple random sampling method. The data sufficiency test is conducted to find out whether the data obtained is sufficient to be processed<sup>[10]</sup>. Testing of the sufficiency of the data using the degree of accuracy 5%, and the confidence level of 95%, which indicates the magnitude of the gauge's confidence in the accuracy of the questionnaire data, meaning that the average measurement data is allowed to deviate by 5% from the average actually. The result of the data sufficiency test is the value of a number of theoretical data (19) is lesser than the number of real data (32), then the amount of data used can be said to be sufficient, and can be continued for further data processing.

### 3.2. Mapping the Level of Interest of E-commerce Marketing Mix Elements to E-commerce Performance

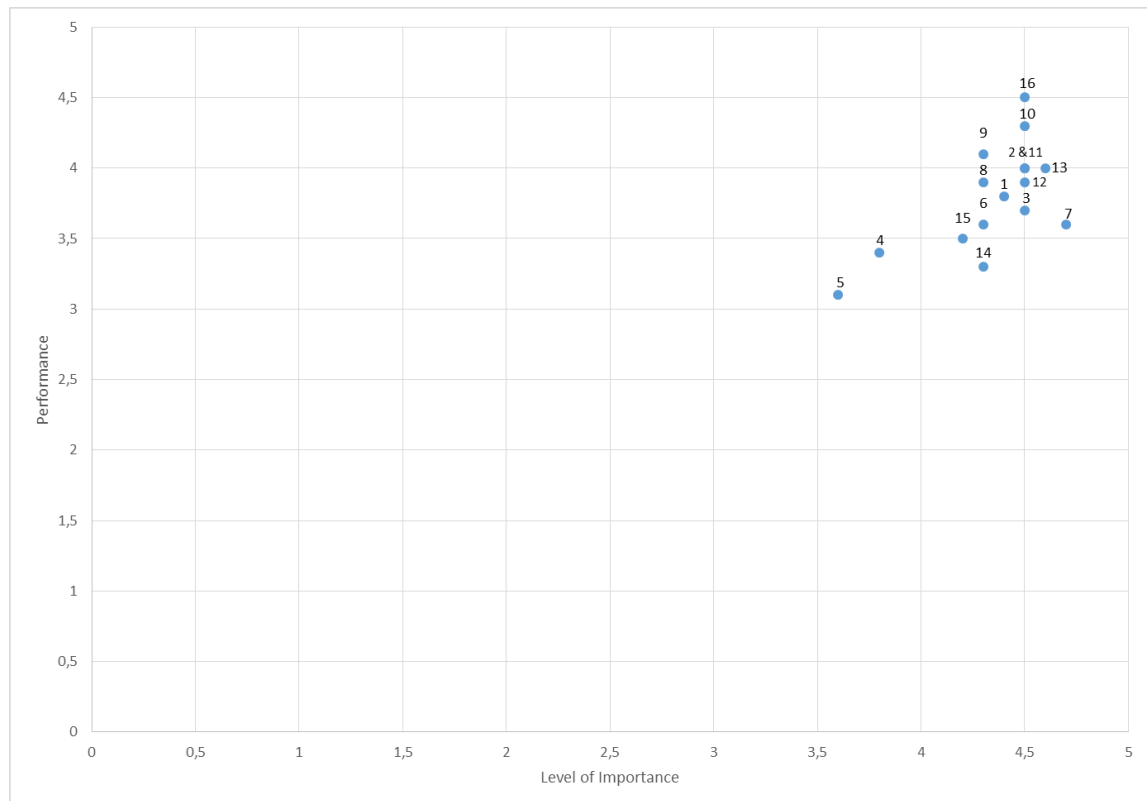
After the data sufficiency test, the next step is mapping the level of importance of e-commerce marketing mix elements of e-commerce performance based on the average response of each item questionnaire measured based on 2 indicators, that is the level of importance and performance of e-commerce IKM batik. For the average answer each item can be seen in table 2 below:

**Table 2.** The Average Answer For Each Item On The Questionnaire Question

Item No.	Elements	Average Response	
		Level of Importance	Performance
1.	Diversity of product offering on the market	4.3	3.7
2.	Characteristics, description of the product features	4.3	3.8
3.	Information about product updates	4.3	3.6
4.	The comparative analysis of the prices of goods by salesmen	3.8	3.5
5.	The temporal dynamics of commodity price changes	3.2	2.7
6.	Information about the shipping methods	4.3	3.6
7.	Information about the shipping costs	4.5	3.4
8.	Ratings of online stores	4.2	3.8
9.	Ratings of logistics intermediaries	4.2	3.9
10.	Customer reviews about products	4.4	4
11.	Information about sales, promotions, discounts	4.4	3.8
12.	Personal selling	4.1	3.5
13.	Rating of Customer Service	4.3	4
14.	Standard operating procedure	4	3,1
15.	A website and community pages in social networks	4	3,1
16.	Mobile applications	4.5	4.4

From the table above it can be known that the value of the importance of e-commerce marketing mix elements have an average value higher than the performance of the marketing mix element, so it can be said that small and medium batik enterprise owner thinks that the elements in the marketing mix are important but the performance of the marketing mix element is still below the level of importance expected by e-commerce players.

After that, the average yield data is mapped into the X Y chart to see the average distribution for each element. The mapping results can be seen in Figure 1 below:

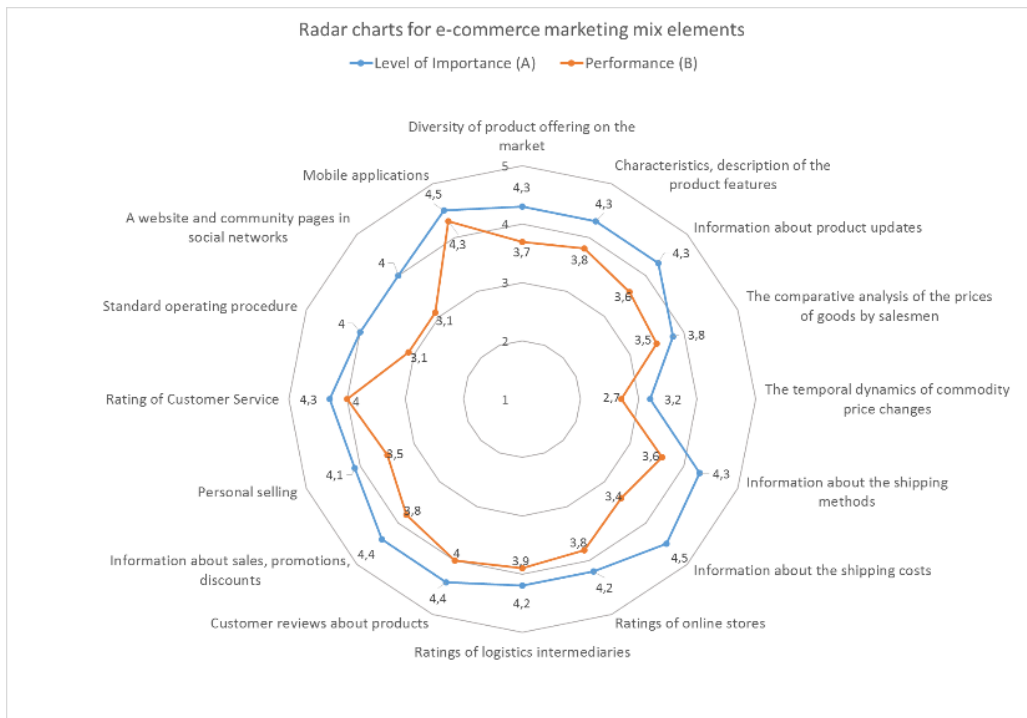


**Figure 1.** Data distribution chart for each element of e-commerce marketing mix on batik

From the graph above, it can be seen that the value of the importance of e-commerce marketing mix elements have an average value higher than the performance of the marketing mix element, so it can be said that the owner of batik's SME thinks that the elements in the marketing mix are important, but the performance of the marketing mix element is still below the level of importance expected by the owner of batik's SME. From the distribution of the data above, it can be seen that element number 5 that is temporal dynamics of commodity price changes, has the lowest level of importance and performance, while element number 7 is information about shipping costs and number 16 elements, namely the cellular application has the highest level of importance, while the high performance is owned by element number 16, the mobile applications.

The highest gap between the level of importance and performance owned by element number 7, information about the shipping cost, with a gap value of 1.1, and the smallest gap is mobile application, with a gap value of 0.2.

The gap between the level of importance and performance can be seen in figure 2 below:



**Figure 2.** Radar charts for e-commerce marketing mix elements

From figure 2, three values are taken which have the highest and lowest level of importance and performance. The element that has highest level is information about the shipping costs, and mobile applications with value of 4.5, then customer reviews about products, and information about sales, promotion, and discounts with value of 4.4, and last, the diversity of product offering on the market, characteristics, description of the product features, information about product updates, comparative analysis of the prices of goods by salesmen, temporal dynamics of commodity price changes, information about shipping methods, information on shipping costs, rating from online stores, logistics intermediary rating , reviews from customers about products, information about sales promotions, and discounts, personal selling, and customer service with a value of 4.3. Three best performance value is owned by the element of the mobile application with value of 4.3, then customer reviews about products, and the level of customer service with value of 4, and finally ratings of logistics intermediaries element with a value of 3.9.

After that, three elements that have the lowest level of importance are the temporal dynamics of commodity price changes with a value of 3.2; the comparative analysis of the prices of goods by salesmen with a value of 3.8, finally standard operating procedure, and website and community pages in social networks with a value of 4. Furthermore, three elements with the lowest performance are the temporal dynamics of commodity price changes with a value of 2.7; standard operating procedures, and website and community pages in social networks with a value of 3.1, and information about the shipping costs with a value of 3.4.

**4. Analysis**

From the results of the pre-test questionnaire distributed to 30 respondents, it was found that 31 question items were valid and 1 question was invalid, i.e. the question item could occur because the question item was too confusing or unclear so the question was fixed before questionnaires were distributed to real respondents. After testing the validity, the next is reliability testing, to determine the reliability of the questionnaire that has been made. From the calculation results obtained is rxy has value 0.863, which means the questionnaire has a very high level of reliability. So, from the results of the validity and

reliability testing of the questionnaires that have been carried out, the questionnaire can be distributed to real respondents.

From the average answer of the 35 respondents, the element with the highest level of interest is owned by elements number 7 and 16, namely information about shipping costs, and cellular applications, then the element with the highest performance is owned by element number 16, the cellular application, this can happen because mobile devices are more practical than using a laptop or computer so that the level of usage or cellular performance has a very high value. Then, the lowest element is owned by element number 5, namely the temporal dynamics of commodity price changes with a value of 2.7, this means that the SME batik owner rarely makes changes in batik prices. Using the Pareto principle (also known as the 80-20 rule) states that for many events, about 80% of the effects are caused by 20% of the causes. That means, from 16 elements of e-commerce marketing mix, taken 3 elements that has highest gap between level of performance and performance, which is information about the shipping cost with a value 1.1, standard operating procedure, and website and community pages in social networks with gap value 0.9.

Shipping cost has the highest gap between the level importance and performance, because some of the SMEs of batik owner think that they use the same logistic intermediaries as well as their competitors. It has a high score for the level of importance with 4.5 values, it means that SMEs of batik's owner think that element is important, but it has a low score for performance with 3.4 values, that means the shipping cost is same with other competitor. To make the score higher, which is meant the cheaper shipping cost, SMEs of batik owner can use these tips to make their shipping cost is lower than the competitor <sup>[10]</sup>:

1. Look for cost information to various shipping services or intermediaries.

By comparing the rates of all shipping services, SMEs of batik owner will find cheaper shipping costs, also by considering the security of the goods.

2. Pack the shipment right

For large but light shipment packages, the packing method must be appropriate and arrange the items in the packing to be neat so that the package size is not too large.

3. Delivery place or office

In order to be more efficient and fast, choose a representative headquarters or local branch, usually every single city or district has a representative branch, so it's not through an agent or counter.

4. Negotiation

If possible, negotiate with the employee or manager about the rate or the size of the shipment, by asking for discounts or price discounts.

Improvement of e-commerce also can be done by ameliorate the element with a lower performance score that has been mentioned before, the temporal dynamics of commodity price changes, which has a value of 2.7. There are 3 causes of changes in product, commodity prices, that is when competitors offer low prices on the market, when demand for these commodities increases, and when a commodity supply in the market experiences scarcity <sup>[6]</sup>. However, because batik is a product that has a fairly tight competition, a slight price change may be taken into consideration by customers, especially if customers shop through online so that customers cannot directly ensure the quality of the batik product. To find out when the time is right to play the price of the product, guidelines are needed for important events that can affect the price of batik products. There are 10 best times of online shopping, as follows <sup>[7]</sup>:

1. Independence Day (August 17)
2. Ramadhan
3. Christmas (December 25)
4. End of year (Clearance sale)
5. National online shopping day (December 12)
6. During the payday date (the average ranges from 25-28 and 1-3 each month)
7. Chinese New Year
8. Flash Sale
9. Online shop anniversary
10. National Batik Day (2 October)



Those are event that can be considered for the owner of SMEs of batik to change the price of their product, so that they can offset the commodity prices of their products.

## 5. Conclusion

From the 7 dimensions of e-commerce marketing mix that has been described into 16 elements of e-commerce marketing mix, and been measured using 2 indicators which is level of importance and performance, the results show that from the average answer of 35 respondents, the element's performance is below the level of importance of e-commerce marketing mix elements, which means the small and medium enterprise of batik owner in Surakarta thinks that these elements are important but the performance of their marketing mix elements is not in accordance with the level of importance they think.

From the analysis of the results that have been done, it is known that elements that have a gap between the level of importance and the highest performance is element number 7, which is information about the shipping costs, with a gap value of 1.1. Whereas, the lowest performance value is owned by the elements of the temporal dynamics of commodity price changes, with a value of importance level of 3.2 and a performance value of 2.7.

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