



# ANALYSIS AND DESIGN E-MARKETPLACE FOR MICRO, SMALL AND MEDIUM ENTERPRISES

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**Abstract**— The Ministry of Cooperatives and Small and Medium Enterprises launched in 2018 the number of Micro, Small and Medium Enterprises (MSMEs) in Indonesia as many as 58.97 million people. It is predicted that the number of MSMEs players in 2019 will amount to 59.2 million. This shows that the Indonesian people have made changes in the field of family economics which initially as consumptive are now productive. The community prefers to carry out activities that can increase family income. Future MSMEs remain the mainstay of the national economy. In accordance with the government roadmap, in 2020 e-commerce transactions are predicted to reach Rp1,300 trillion or equivalent to USD130 billion. According to data from the Central Statistics Agency (BPS), the contribution of MSMEs to Indonesia's Gross Domestic Product (GDP) reached 61.41%, with the number of MSMEs reaching almost 60 million units. However, only around 8% or 3.79 million of the 59.2 million MSMEs players have used online platforms to market their products. Based on the above problems, researchers conducted research on the analysis and display of E-Marketplace for MSMEs in Indonesia. The type of research used is action research. The object of research is MSMEs which are under the Office of Industry and Trade of Sragen Regency. The method of data collection is by techniques: (1) interview, (2) documentation (3) observation, (4) literature study. The researcher uses the waterfall method in developing the system. The research team has successfully analyzed the E-Market place according to the results of data collection. The research team has succeeded in designing the E-Marketplace for MSMEs. E-Marketplace designed can be used by admin, MSME and user. Admin is in charge of managing E-Marketplace and has full access rights. MSMEs can register online and manage their products in E-Marketplace. Users or buyers can search data in E-Marketplace as desired. To make transactions, users can interact directly with MSMEs according to the data provided in E-Marketplace. E-Marketplace can be used for marketing together MSMEs products. This e-marketplace can be accessed at [www.umkmonline.com](http://www.umkmonline.com)

**Keyword**— Analysis; design; MSMEs; E-Market place; Online;

## I. INTRODUCTION

The world has entered the era of globalization marked by the use of communication and information technology in all fields. This is also called the Industrial Revolution Era 4.0, which is marked by the use of communication and information technology to make it easier to complete work. There are also experts who say that the Industrial Revolution Era 4.0 means that data and information are in the grip. Communication and information technology at this time is needed to move the wheels of community registration.

The technology that developed when it was Internet technology. With the internet everyone can access all information easily and efficiently. Currently, there are many government and private agencies that have used the internet to help their work. Even individuals already have personal websites ranging from just writing down what they have done to being used to publish what ideas or opinions they have. With the existence of internet technology we can connect in all parts of the world.

The Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UKM) launched in 2018 the number of Micro and Small and Medium Enterprises (MSMEs) in Indonesia as many as 58.97 million people and is predicted in 2019 to reach 59.2 million. This shows that Indonesian society has made changes in the field of family economy which initially as a consumptive has now become productive. People prefer to do activities that can increase family income.

In the future MSMEs will remain the mainstay of the national economy. In accordance with the government's roadmap, by 2020 e-commerce transactions are predicted to reach Rp1,300 trillion, or the equivalent of USD 130 billion. According to data from the Central Statistics Agency (BPS), the contribution of MSMEs to Indonesia's Gross Domestic Product (GDP) reached 61.41%, with the number of MSMEs reaching almost 60 million units. However, only about 8% or as much as 3.79 million of the 59.2 million MSMEs players have utilized the online platform to market their products, namely utilizing the main market place platforms in the country, such as Blibli, Tokopedia, Lazada and Bukalapak. The existing market place platform has not been able to overcome the problem for MSMEs because the existing platform is intended for all business performers, not specifically for MSMEs. To encourage this sector to use ICT, it needs the support and encouragement of all parties. If they do not keep up with the times (digitization), the MSMEs will be left behind.

**Based on surveys in several MSMEs, researchers obtained information as follows:**

1. Types of commodities / goods in business are not fixed, or can be changed at any time
2. Where to run a business can move at any time
3. His business has not yet implemented administration, even personal finance and business finance are still unified
4. Human resources (HR) in it do not have a qualified entrepreneurial spirit
5. Normally the level of HR education is still low
6. Usually SMEs do not yet have banking access, but some have access to non-bank financial institutions
7. In general do not have a business permit or legality, including NPWP
8. Marketing of the results of their business is still done individually by being marketed in markets, shops and taken by larger businesses

Based on the problem above, the researcher wants to conduct research on the analysis and design of the E-Marketplace for MSMEs in Indonesia. This is in accordance with the field of science occupied by researchers, namely the field of information systems.

## **II. THEORY**

### **2.1. Prior Research**

According to Robert Marco, Bernadheta Tyas Puspa Ningrum (2017) in his research entitled: Analysis of E-Marketplace Information Systems in Small and Medium Enterprises Bamboo Crafts in Brajan Hamlet, it can be concluded that the bamboo handicraft of small and medium businesses in Brajan village is one of the creative industry in Yogyakarta that produces unique and diverse bamboo crafts. During this time, to make sales there are still several issues in promoting and selling products, so consumers are less aware of what goods are produced. The solution to solve the above problem, e-marketplace is the best choice to overcome the problem of selling handicraft items. With the internet, sellers will have the convenience of promoting and selling products in a wider market. In the process of making a website, analysis, design, coding of programs, testing and maintenance are very necessary. Making emarketplace using PHP and MYSQL programming languages as a data processing base. Based on the test results, this system is able to process all functional requirements. The results show that this system is capable of processing product sales made by sellers, processing orders and transactions. This system also helps consumers to order products and make payments.[1]

According to Eko Kus Prasetyo, Rudy Hartanto, Selo (2016) in his research entitled: Designing a Public E-Marketplace Website for Micro, Small and Medium Enterprises (MSMEs) in Temanggung Regency, it is hoped that with this public e-marketplace website, MSMEs in Temanggung Regency can expand market share and increase competitiveness in the era of global competition. With the influence of global economic competition, which causes the demand for rapid distribution of information, increasingly educated consumers, rapid innovation and increasing product complexity, electronic marketplace (e-marketpleace) based on the internet as one of the adoption of technology in the business and marketing sector is increasingly popular to use.

With the use of this e-marketplace cross-country transactions can be realized and it is possible to create new market shares. E-marketplaces must be able to bridge interactions between sellers (sellers) and buyers (buyers), so they must contain clear information about how to transact, product specifications and warranties, seller addresses and other supporting information that can be validated. [2]

According to research conducted by Harya Bima Dirgantara (2016) entitled: Analysis and Design of Web-Based E-Commerce Applications on CV. Dimasindo, explained that the application proposed for use in CV Dimasindo has features: (1). E-commerce sales system, (2). Order status via e-application, (3). Payment confirmation, (4). Interact through private messages. E-commerce applications that are made can make it easier for customers to order products without the constraints of distance and time. E-commerce applications that are made can make changes to the ordering and selling systems that already exist on CV DIMASINDO, with this new system can facilitate the ordering process and transactions.[3]

E-Market utilizes digital media such as the internet to create an environment or place that facilitates sellers and buyers to carry out business processes ranging from marketing products, offering products, developing communication between sellers and buyers so as to achieve satisfaction with both. E-Market as a meeting place for online sellers and buyers has benefits such as, expanding networks and increasing sales, especially for small businesses and independent businesses with lower middle capital or new entrepreneurs who are pioneering businesses or businesses, e-markets are very suitable for facilities sales introduce products and even maintain communication and increase relationships, because it does not require large costs as well as making the physical market, e-markets are not limited by time and geographical conditions can be accessed anywhere and anytime so it is very good for increasing sales and product introduction in broader scope.

In line with the ease and progress of internet technology and to create market variations based on technology, make it easier for people to conduct business transactions without being limited by space and time, improve social communication and encourage economic growth especially the lower middle class because e-market applications are very suitable for small entrepreneurs and just starting its business, e-market applications that take advantage of internet technology and aim at uniting various sellers in one website where each seller can promote their products by uploading product photos and details of the products in separate special pages based on the desired product category. Members of this application can communicate via messages like e-mails, comment on newsletters, comment on products, provide testimonials of satisfaction, all facilities are made so that interaction occurs so as to create an exchange of information between sellers and buyers directly[4]

## **2.2. Basic Theory**

According to Susena, Edy (2017) Management Information System (Management Information System) is the application of information systems within the organization to support the information needed by all levels of management.[5]

According to Raymond McLeod, Jr. (2004) In general, an information system can be defined as a system within an organization that is a combination of people (people, facilities, technology, media procedures and controls aimed at obtaining important communication lines, processes certain types of routine transactions, signaling to management and others for important internal and external events and providing a basis for information for decision making. Information systems are systems that have the ability to gather information from all sources and use various media to display information.[6]

In general, according to the Central Bureau of Statistics, the notion of data collection is a process of proof that is found from the results of research that can be used as a basis for studies or opinions. Technically, the meaning of data collection is a process that is more related to the collection empirically. more associated with empirical collection.

## **III. METHOD**

### **3.1. Research methodology**

The type of research used is action research. The object of research is MSMEs under the Sragen Regency Industry and Trade Office. The data collection method is by: (1) interview, (2) documentation (3) observation, (4) literature study.

### **3.2. Research design**

The type of research used is Action Research. The object of research is Micro, Small and Medium Enterprises (MSMEs). The data collection methods are by: (1) interviews, (2) documentation (3) observations, (4) literature studies. As for the analysis and development of the information system using the Waterfall method. To conduct research, researchers use the following research designs:

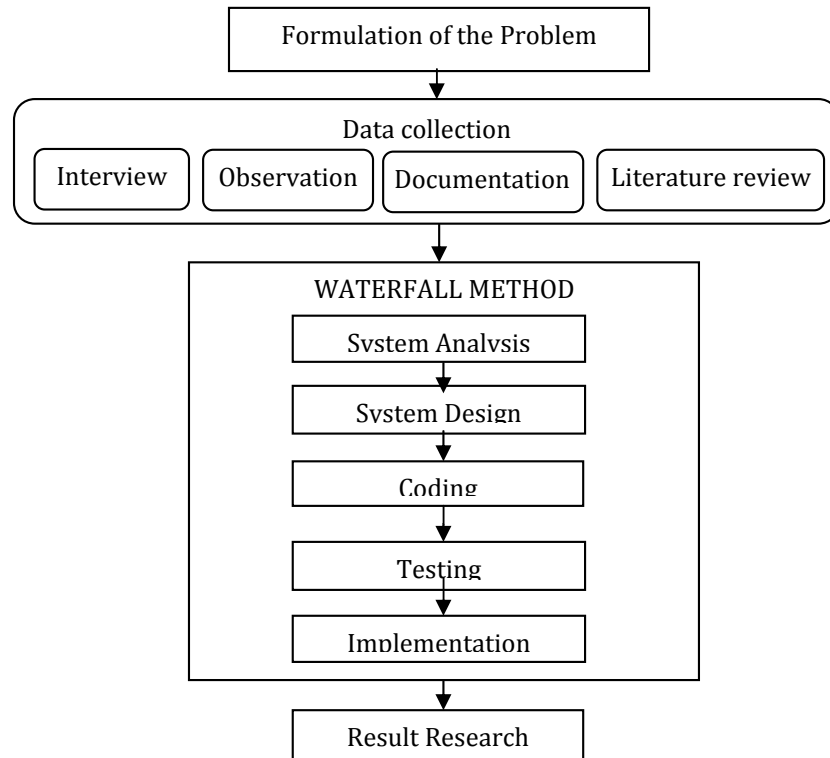


Figure 1. Research Design

#### IV. RESULT AND DISCUSSION

The research team has conducted research in accordance with the methods that have been mapped. The results of this study are as follows:

##### 4.1. Requirements Analysis

In this study the researchers used the following data collection methods:

##### 1. Data collection

###### a. Interview

Data collection uses interview methods with several informants, namely MSMEs. The interview gets the following information:

- 1) MSMEs do not understand how to promote their products online
- 2) The work done is still of a small scale
- 3) Difficulties in marketing their products and businesses
- 4) Types of commodities / goods in business are not fixed, or can be changed at any time
- 5) The place of doing business can move at any time
- 6) The business has not yet implemented administration, even personal finance and business finance are still unified
- 7) Human resources (HR) in it do not have a qualified entrepreneurial spirit
- 8) Usually the level of HR education is still low
- 9) Usually MSMEs do not yet have banking access, but some have access to non-bank financial institutions
- 10) Generally do not have a business permit or legality, including NPWP
- 11) Marketing of the results of their business is still done individually by being marketed in markets, stores and taken by larger business people

###### b. Documentation

Researchers have obtained data about MSMEs including:

- 1) MSMEs Identity
- 2) MSMEs products produced

- c. Literature review  
The team has learned the basics of theory in accordance with the problems faced by researchers. Besides that the research team has also referenced the results of previous studies, which has been described in the Literature Review in Chapter II.
- d. Observation  
In observation the research team observed the activities carried out in several MSMEs in Sragen and Sukoharjo

## 2. E-Marketplace needs analysis results

Researchers have collected data, the data collected have been analyzed to determine the functional requirements of the system. Following are the results of the analysis of the functional needs of the E-Marketplace for MSMEs:

### a. E-Marketplace Function

This e-marketplace is used as an online joint market place to sell MSME products. E-Marketplace functions to:

- 1) As an online shared market
- 2) Accommodate MSMEs data
- 3) Accommodate MSMEs products
- 4) There is a Search facility to facilitate users in finding the name of MSMEs or its products
- 5) If the product you are looking for is found then the product that matches the search will be displayed on the web
- 6) If you click on the name of MSMEs it will display MSMEs profiles and special products
- 7) If the SME product is clicked it will display product details
- 8) If you want to make a purchase the user can choose the product and enter the shopping basket
- 9) Payment transactions are carried out directly by the user and MSMEs

### b. Access rights

E-Marketplace has 3 access rights, namely:

- 1) Admin, tasked with managing e-Marketplace, among others:
  - a. Manage web display and e-Marketplace layout
  - b. Entitled to accept and reject new MSMEs registration
  - c. Entitled to select products that are included by MSMEs
  - d. Can see purchase transactions from all users and MSMEs
- 2) MSMEs, can:
  - a. Manage products - products that will be displayed on e-marketplaces
  - b. Change the username and password
  - c. Change the MSMEs profile
  - d. Can receive reports on purchases made by users
- 3) User (Buyer), can:
  - a. Search for MSMEs and their products
  - b. Make a purchase transaction

### c. Registration Procedure

- 1) New MSMEs must have E-mail as a registration medium, because the username and password will be sent to e-mail
- 2) New MSMEs that will sell their products must register with the system
- 3) Every registration has Terms and Conditions in force
- 4) It is planned that there is a registration fee with the amount can be determined by the admin
- 5) If the MSMEs is already registered, the name MSME appears in the system

### d. Procedure for entering the product

- 1) MSMEs can login to enter their products into the system
- 2) MSMEs can manage their products including product types, pictures, prices, information

## 4.2. System Design

The following is an outline diagram of the E-Marketplace Context:



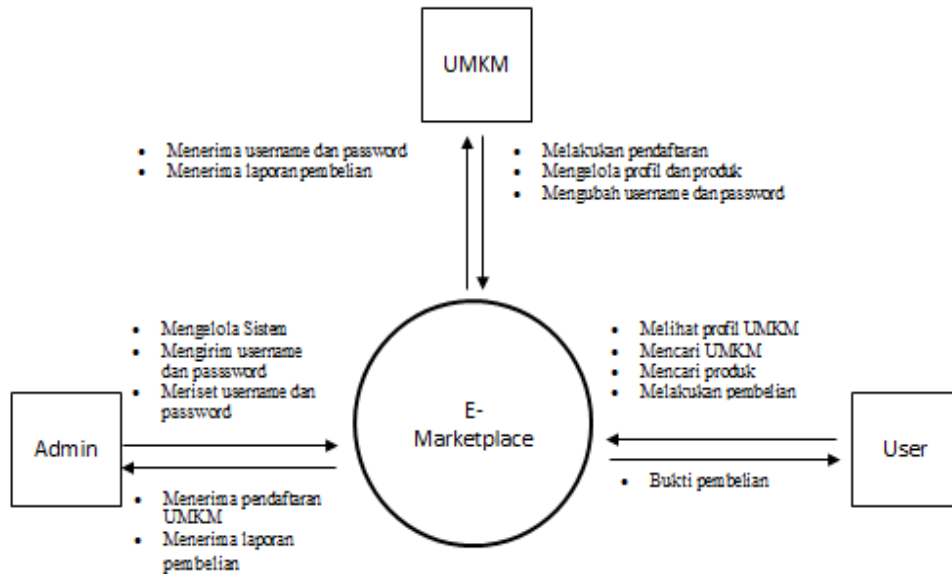


Figure 2. Context Diagram

#### 4.3. Coding

The development of E-Marketplace for MSME uses the PHP programming language with the MyAdmin database with XAMPP V 3.2.2 connection

#### 4.4. Testing

System testing has been carried out with a white box system that is by means of testing every input that is entered, the process carried out by the system and the resulting output shows in accordance with the results of the analysis, so the system is ready to be implemented.

#### 4.5. Implementation

To use the Small Medium Industry Management Information System with the following guidelines:

For the user's main view, type in the browser the following address: <http://umkmonline.com>, the following page will appear:

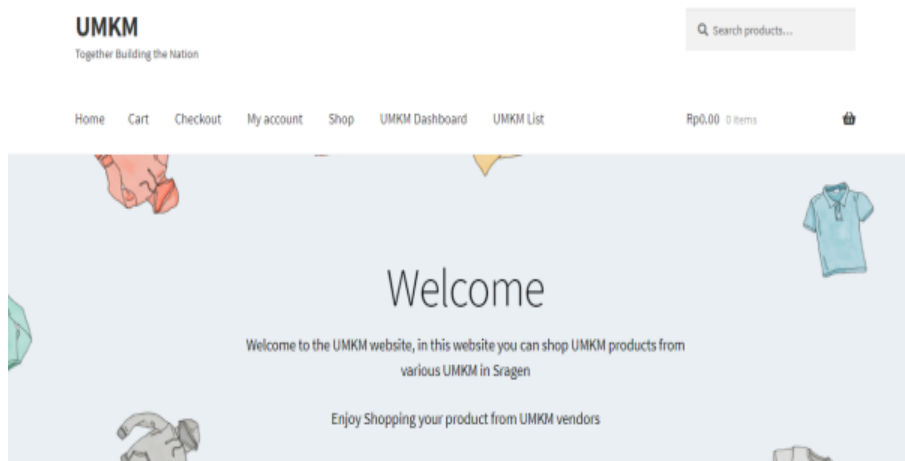


Figure 3. User Main Display

If selected UMKM, it will display the products that are being sold. Following is the look of MSME products:

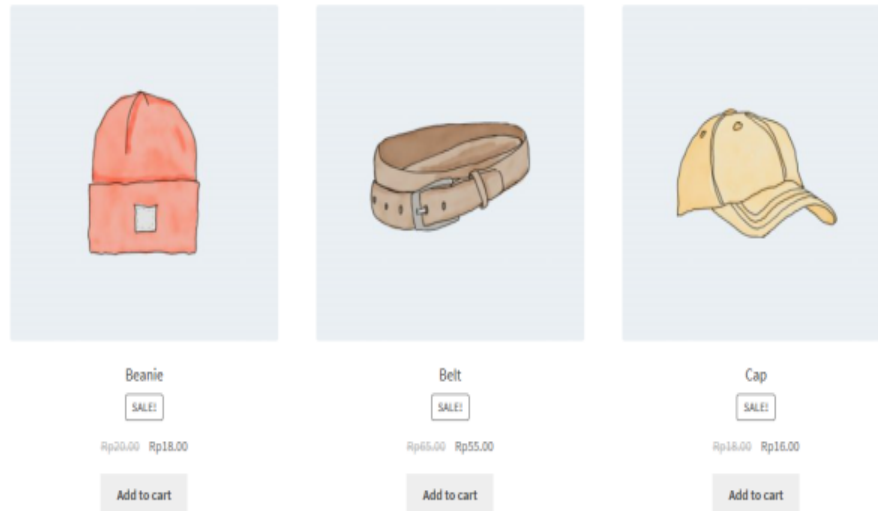


Figure 4. MSMEs Product Display

There are 2 logins, namely Admin login and UMKM login. Admin Login functions to manage UMKM registration, process UMKM data and products sold and control activities in the Marketplace. Following is the appearance of the UMKM registration page to the system:

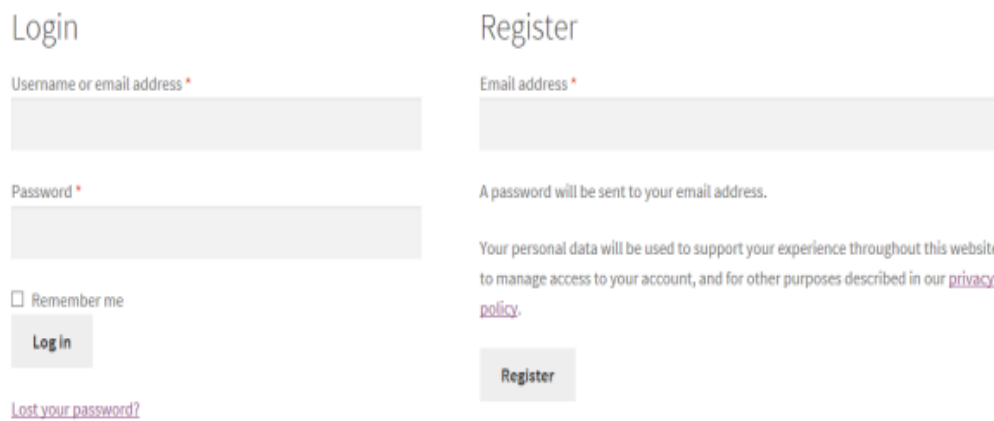


Figure 5. Display of UMKM Registration and Login Page

To manage the E-marketplace, you can log in to the admin, here is the main admin page:

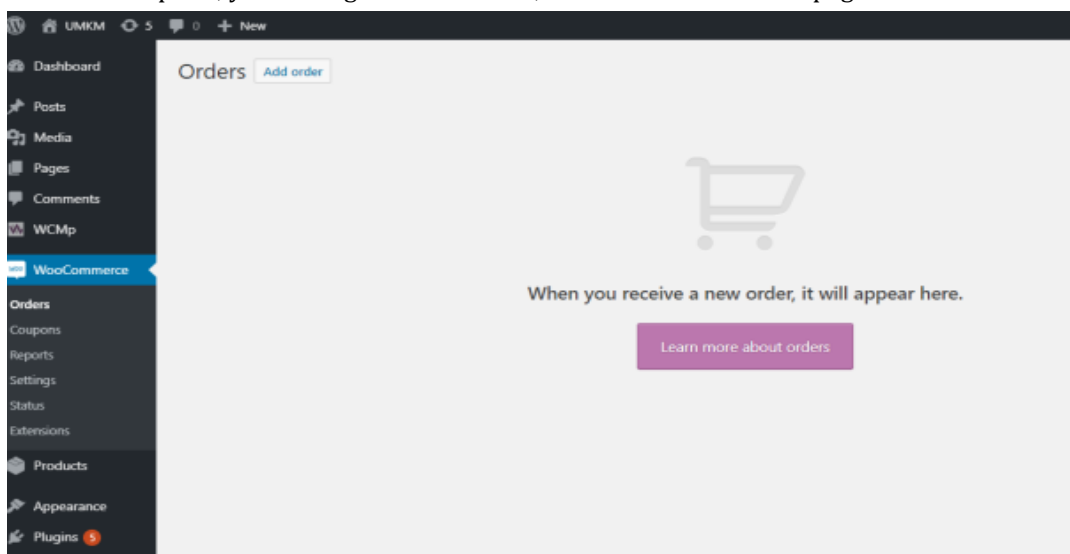


Figure 6. Display Admin Main Page

To view a list of MSMEs that are registered in the E-Marketplace system, select MSME List. The following is a list of MSMEs:

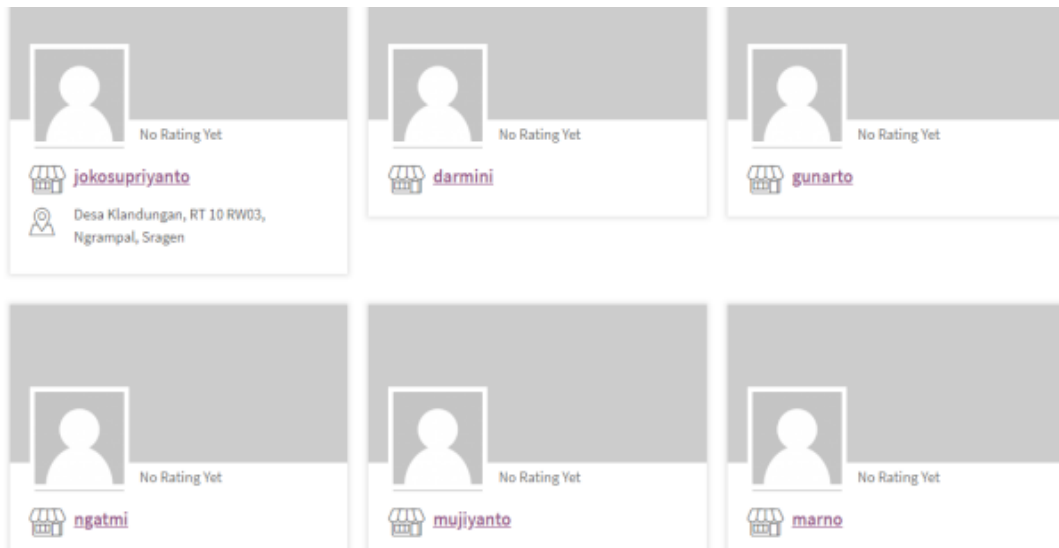


Figure 7. Display List of MSMEs that have been Merged

Sedangkan tampilan detail UMKM dapat dilihat sebagai berikut:

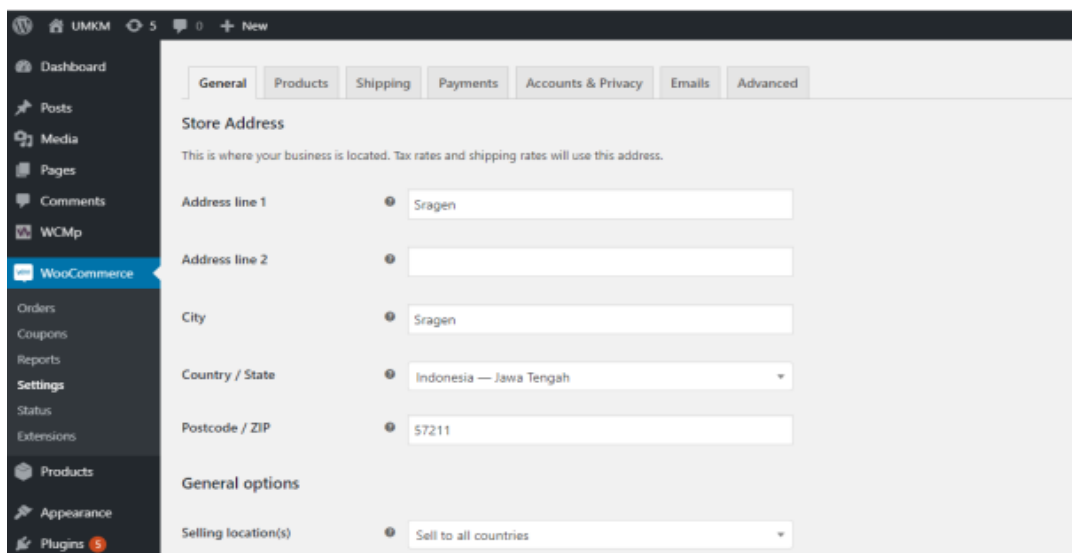


Figure 8. Detail Display of MSME

## V. CONCLUSION

Based on the results and discussion above, the researcher can draw the following conclusions:

1. The research team has successfully analyzed E\_Marketplace in accordance with the results of data collection
2. The research team has successfully designed the E-Marketplace for MSMEs
3. The e-Marketplace that is designed can be used by admins, MSMEs and users
4. Admin is in charge of managing the E-Marketplace and has full access rights
5. MSMEs can register online and manage their products in the E-Marketplace
6. Users or buyers can search data in the E-Marketplace as desired
7. To conduct transactions, users can interact directly with MSMEs in accordance with the data provided in the E-Marketplace



Based on the results of the E-Marketplace design above, researchers provide the following suggestions:

1. Display E-Marketplace can be developed so that it is more interesting and communicative
2. E-Marketplace socialization is needed to be known by all MSMEs in Indonesia
3. The next researcher can develop by adding interesting and building features so that this E-Marketplace is more in demand by MSMEs and Users (buyers)
4. Collaborating with the government to succeed and encourage efforts to utilize and optimize the use of digital technology for MSMEs practitioners through various policies and programs in developing MSMEs towards digital economy"

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