Supply Chain Management Design For Kasongan Pottery MSMEs

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Post-COVID 19 pandemic raises new challenges for Kasongan Bantul Pottery Micro, Small and Medium Enterprises (MSMEs), in addition to significantly changing the economic landscape, MSMEs experience challenges in marketing systems that are not yet optimal and increasingly fierce product competition is a serious obstacle. This is one of the challenges for Kasongan Pottery MSMEs so that the businesses built can succeed and be able to survive, one of which is to use a system that integrates the needs of business actors, consumers (costumers), capital owners, raw material suppliers (suppliers) and collectors without space limits. The purpose of this research focuses on the Supply Chain Management (SCM) model to improve efficiency in the supply chain of Kasongan Pottery MSMEs. The research method used is qualitative with a descriptive analysis approach. The population in this study was 303 Kasongan Pottery MSMEs, while the sample taken was 25% of the population, namely 76 MSMEs.

***KeyWords**: Kasongan Pottery, Supply Chain Management, Post-Pandemic*

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1 Introduction

The impact of the COVID-19 pandemic has an impact on the Micro, Small and Medium Enterprises (MSMEs) sector which affects the condition of the Indonesian economy, the contribution of MSMEs is very large in various other fields. The number of Indonesian business units as of 2018 totaled 64.2 million businesses with the number of MSME units amounting to 64.1 million (99.9%), the contribution of the total workforce in MSMEs was 116.9 (97%), the contribution to GDP as of 2018 totaled 14,038,598 billion, the contribution of MSMEs to GDP was 8.573,895 billion (61.07%), contribution to non-oil and gas exports as of 2018 293,840 billion (14.37%), contribution to investment as of 2018 totaled 4,244,685 billion, with the contribution of MSMEs to investment amounting to 2,564,549 billion (60.42%). The impact of the COVID-19 pandemic on MSMEs is 1,785 cooperatives and 163,713 MSME players. Most cooperatives affected by COVID-19 are engaged in daily necessities, while the most affected MSMEs are food, beverages, creative industries, agriculture and handicrafts. In a pandemic situation, according to KOMENKOP UMKM, there are around 37,000 MSMEs that report that they are affected with sales decreasing by around 56%, 22% in the aspect of financing, 15% in the aspect of distribution of goods, and 4% in the aspect of raw material difficulties[1].

MSMEs in the handicraft sector have experienced a significant decline due to the COVID-19 pandemic, the global economic downturn and government policies that have impacted productivity and sales of handicrafts, especially Kasongan pottery MSMEs. Internal factors aggravate the situation because the marketing system has not been optimized with a narrow target, the lack of technology-based promotion has resulted in a decline in purchasing power and lack of enthusiasts. Competition in terms of handicraft products is getting higher with the existence of other craft products that are more varied modern, cheaper prices, product information is easily available to be a tough challenge to compete for Kasongan Pottery MSMEs[2]. A significant decline in sales of around 70% per month, with an initial nominal of around 18-30 million to 5.4-9 million per month. Productivity and sales of pottery handicrafts are declining due to declining sales factors, resulting in a decrease in production and eventually many Kasongan Pottery MSMEs went out of business[3].

without reducing the value of the products made. One of the efforts to reduce these costs is through optimizing the distribution of materials from suppliers, the flow of raw materials in the production process to the product distribution process to consumers. Optimal distribution can be achieved through the application of the Supply Chain Management (SCM) concept. This concept emphasizes the patterns involved in the process of product flow from suppliers, manufacturers, retailers to consumers. Activities between suppliers and end consumers are one of the major barriers, so that the information mechanism between these various elements takes place transparently[4]. The use of technology towards digitalization is also very important, especially the internet. Therefore, supply chain management (SCM) is one of the parts that can be developed with internet resources. The internet can play a role in facilitating SCM activities. This is because SCM activities require communication between the parties involved in this matter. Supply Chain Management (SCM) can be developed effectively by using the internet. This is because the drastic growth of the internet has an impact on the business world so that it can change the entire supply chain process towards a better direction than conventional systems. With the internet, SCM can be developed into e-SCM[5].

2 Theoretical Foundation

2.1 Supply Chain Management. Supply Chain Management is a concept that emphasizes the process pattern of product flow from suppliers, manufacturers, retailers to consumers. In addition to being a place to share information and collect information about suppliers to process supply and product sales planning so that it can be done properly[6]. According to[7] the goal of Supply

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Chain Management is to maximize customer value and gain competitive advantage in the market. According to [8] Supply Chain Management strategies are as follows: managing customer complaints, building long-term relationships with customers, increasing customer satisfaction, effective cooperation with suppliers, responsibility for product success, strategic tactics, general market conditions, information about customers. According to[9] Chain 1-2: Suppliers -> Manufactures The first chain is connected to the second chain, namely manufactures or plants or assemblers or fabricators or other forms that do the work of making, producing, assembling, converting, or finishing goods (finishing).

2.2 Micro and Medium Enterprises (MSMEs). According to the Law of the Republic of Indonesia Number 20 of 2008 concerning Micro, Small and Medium Enterprises[10] is a productive economic business owned by individuals and or individual business entities that are not subsidiaries or branches of companies that are owned, controlled, or part of either directly or indirectly.

2.3 Supply Chain. Supply chain education is the relationship or process flow of a good or service from the stage of supplying raw materials to the final product that reaches consumers. In the supply chain there is a relationship between goods or services, money, and information[11]. The supply chain does not only include manufacturers and suppliers, but also warehouses, retailers, and business flows, such as suppliers, manufacturers, distributors, retailers, and customers[12]. The supply chain includes all functions. This may include new product development, marketing, operations, distribution, finance, and customer service.

2.4 Kasongan Pottery Tourism Village. Kasongan Pottery Tourism Village is one of the tourist villages in Bantul Regency, Yogyakarta Special Region. The village is famous for its ceramic pottery, located in Pedukuhan Kajen, Bangunjiwo Village, Kasihan District, Bantul, Yogyakarta. Kasongan is perhaps more famous than its village name, Bangunjiwo. Driven by more than 300 pottery artisans, who absorb more than a thousand workers, this craft tourism center is able to penetrate the international pottery market[13]. The UMKM Pottery Ceramic Industry sector in Kasongan has 9 companies and 303 individual owners, with an average daily production of around 500 pottery[14]. The average unit price of pottery is around Rp. 1,000 - Rp. 10,000, with the main raw material of clay delivered in the Godean area. The average workforce is 10 people consisting of men and women.

2.5 XAMPP. Xampp is software that supports many operating systems which is a compilation of various programs. Xampp functions as a stand-alone server for various programs such as Apache, Http Server, MySQL database, and programming language translators such as PHP and Perl. The name Xampp itself stands for X (four operating systems), Apache, MySQL, PHP, and Perl. Xampp is available in GNU which serves Dynamic web page display and can be downloaded directly from the official website for free[15].

2.6 MySQL. MySQL is a standard interface for relational management systems that operate on personal computers, MySQL allows users to know the location and information is organized. MySQL can generate query sets for information stored on computers at different locations. MySQL is also a programming language designed to send a query command to a database[16].

2.7 PHP (PHP Hypertext Prerocessor). PHP (PHP Hypertext Prerocessor) is a server-side script language that in web development is inserted in HTML documents. PHP is an open source software that is widely distributed and obtained for free through its official website[17].

3 Research Methodology

3.1 Literature Review. Research by [18] entitled "Data Flow Diagram Modeling for Web Applications Supporting E-Business Activities and MSME Business Directories" Research by [19] entitled "AHP-TOPSIS on Choosing the Best Marketplace to Start E-Business Activities" Research by [20] which is entitled "Utilization of Local Resources to Improve Umkm Dusun Pulo Gulurejo". Research by [21] entitled "Training on Melinjo Skin Processing as a Healthy Snack to Increase Income Kwt Sejahtera Dusun Kepuh Kulon Wirokerten Village". Research by [22] entitled "SME Development with the Utilization of Business License Management Facilitation (Case Study of SMEs in Banguntapan Bantul District)". Research by [23] entitled "Analysis of Supply Chain Management (SCM) Planning at Pt. Xyz Bandung West Java". Research by [24] entitled "E-Supply Chain Management: Marketing Efficiency of Beef Supply Chain in Banyuwangi Regency". Research by [4] entitled "Analysis of Supply Chain Management (SCM) Planning in Fruit Sari Drink Production Ukm Larasati". Research by [5] entitled "Design of Electronic Supply Chain Management (E-SCM) at Pt. Indofood Cbp Sukses Makmur Tbk". Research by [25] entitled "Design of Mushroom SME Supply Chain Model in Langsa City Using the Scor Method". Research by [26] entitled "A New Multi-Objective Mathematical Model for A Citrus Supply Chain Network Design: Metaheuristic Algorithms". Research by [27] entitled "Cooperative Coevolutionary Bare-Bones Particle Swarm Optimization with Function Independent Decomposition for Large-Scale Supply Chain Network Design with Uncertainties".

3.2 Research Tool. The tools used in the study are:

(1) Laptop with AMD A9-9420 RADEON R5 processor, 5 COMPUTE CORES 2C+3G 3.00 GHz, 4 GB RAM.
(2) Microsoft Excel 2016 as an application for data processing.
(3) Microsoft Visio as an application to visualize the system process flow.
(4) Xampp as the database management application.
(5) Balsamiq Mockups 3 as a prototype design application.

3.3 Data Collection. Data collection was carried out by taking at UMKM Gerabah Kasongan.

3.4 Business Process. Business Process Design can be seen in Figure 1.

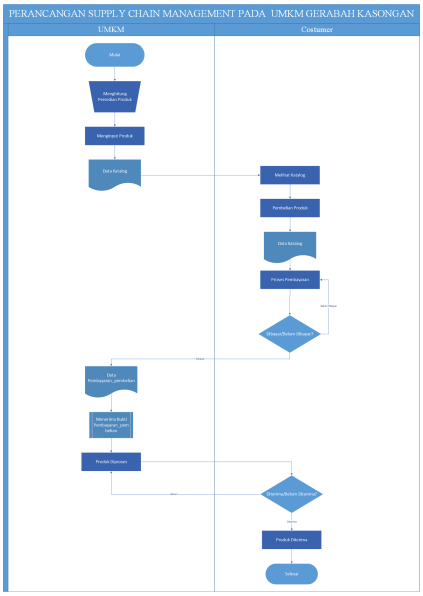

Fig. 1 Business Process

3.5 Use-Case Diagram. The design of the program diagram can be seen in Figure 2.

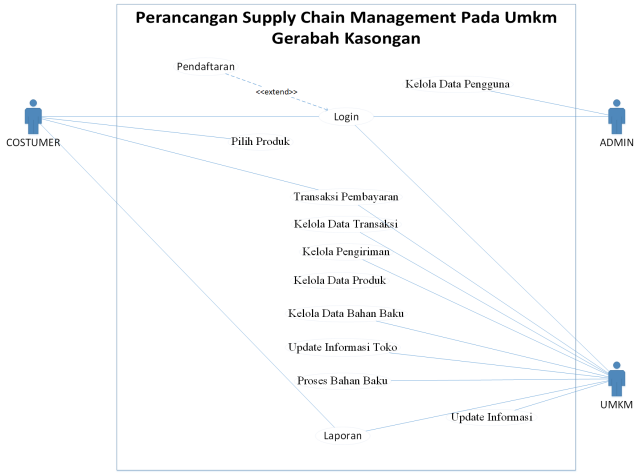

Fig. 2 Use-Case Diagram

3.6 Context Diagram. Is an overview of several users on the system seen in Figure 3.

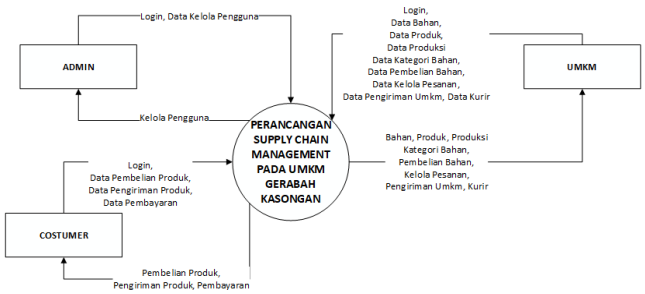

Fig. 3 Context Diagram

3.7 Data Flow Diagram Level 0. Data Flow Diagram Level 0 is a troubleshooting of the context diagram. Can be seen in Figure 4.

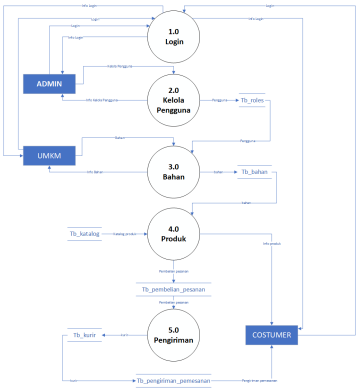

Fig. 4 Data Flow Diagram Level 0

3.8 Data Flow Diagram Level 1. DFD Level 1 is a table of materials, where MSMEs enter material data, then it is produced by MSMEs and customers can see the data filled in by MSMEs. Can be seen in Figure 5.

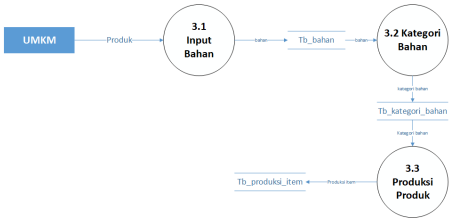

Fig. 5 Data Flow Diagram Level 1

3.9 Data Flow Diagram Level 2. DFD Level 2 is a table of products, where the customer chooses the product to be selected. Can be seen in Figure 6

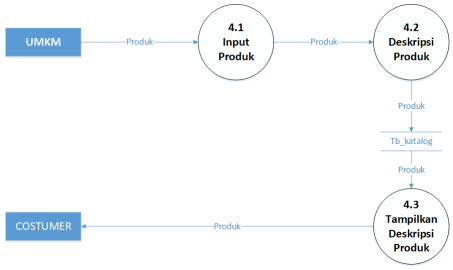

Fig. 6 Data Flow Diagram Level 2

3.10 Database Design. The database structure is used by the system to store all data and data flows that are interrelated with each other. The Database Structure form can be seen in Figure 7.

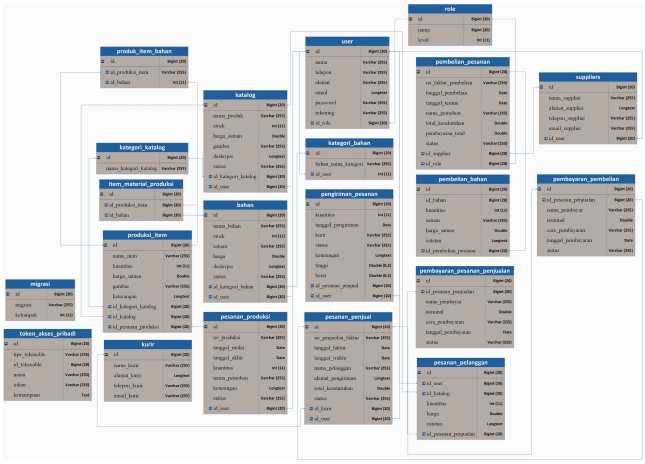

Fig. 7 Database Design

4 Implementation

The design of Supply Chain Management is built using the Laravel framework with the programming languages PHP, HTML, CSS, Java Script and others. The following is the appearance of the Login page, admin home page, MSME home page, Custumer home page on the web Design of Supply Chain Management in Kasongan Pottery MSMEs.

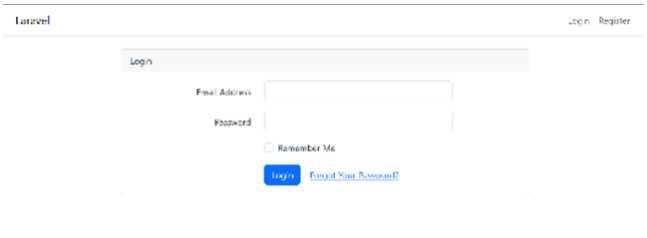

Fig. 8 System Initial Review

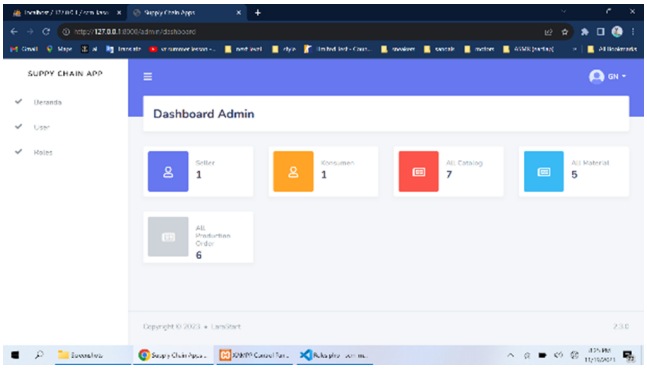

Fig. 9 Admin Home View

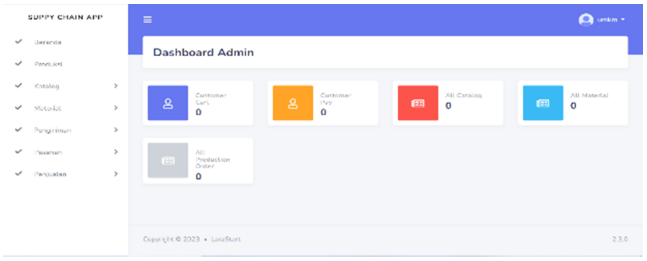

Fig. 10 MSME Home View

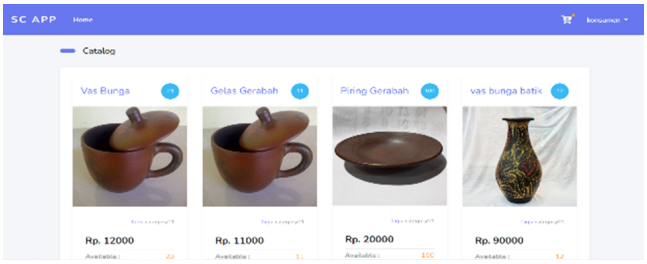

Fig. 11 Customer Home View

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