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Analysis of Sales Business Process Modeling and Stock Control at Raja Optik

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Abstract— The purpose of this research is to offer modeling of new business processes to overcome the problems of the sales cycle and stock control. The method used is a qualitative method that directly observes the object of study, the Raja Optik MSME. Researchers use BPMN to describe ongoing business processes (as is) and to design and propose new business processes (to be). The results showed that there were several weaknesses in the sales process and stock control due to technology, method, material, and human factors. There is no mutually integrated system between branch stores and warehouse. There is also the risk of fraud by changing the denomination of the invoice, as the invoice remains in the form of an invoice. The process of moving archive notes from branch stores to be submitted to the admin every week causes the risk of losing invoices. This manual people to people process carries a high level of risk during the sales reporting process. As part of the lens inventory movement, the store contacts the warehouse to inquire about stock availability. With so many branch stores, stocks cannot be presented in real time to facilitate stock transfers between branches. Additionally, manual inventory reconciliations are required when moving inventory between stores or warehouses. As a result, information systems for sales and stock control did not function effectively and efficiently. Computer-aided business process modeling for sales and stock control has been proposed in hopes of overcoming the weaknesses identified in the current Raja Optik.

Keywords—Accounting Information System; Sales; Stock Control; BPMN

I. INTRODUCTION

Micro, small and medium enterprises (MSMEs) play an important role in the economy and have experienced rapid growth in recent years. In the face of increasingly fierce competition, MSMEs need to maintain good business performance to maintain market share and attract new customers. Business process modeling helps MSMEs develop effective sales and inventory management strategies. Raja Optik is an eyeglass store that sells eye glasses in retail and wholesale. This optic is located in South Kalimantan and has a total of 5 branches. Glasses protect the eyes from the sun's rays, serve as eye support for visually impaired eyes such as minus, plus, cylinders and can be used as accessories [1]. In practice, recording processes such as sales and inventory are recorded via Microsoft Excel. However, Raja Optik experienced some problems due to various factors such as:

a. Technology: There is no mutually integrated system between branch stores and warehouses.

b. Method: Inventory data was not displayed in real time.

c. Material: Invoices are lost because at least once a week an invoice is submitted to the admin for input.

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d. Human: The admin must input manually and wait for the receipt to be submitted no later than a week and when transferring stock to a branch store and warehouse, each must make stock adjustments.

A smooth sales process is very important when running a business. A well-defined sales process flow helps improve efficiency, effectiveness, and customer satisfaction [2]. A clear sales process flow allows companies to identify the steps to be taken in the sales process and optimize each step. This helps businesses complete the sales process faster and more efficiently [3]. Furthermore, inventory is a corporate resource that can provide economic value to the business continuity of a company [4]. Therefore, this study can propose modeling of sales business processes and inventory management to help companies improve customer satisfaction.

In this study, Business Process Management Notation was used to model in detail all the processes involved in sales transactions and stock control, which can be used as initial process flows for information system design. MSMEs are expected to continue to refrain from sales transactions and manually manage inventory. Of course, as the demand for products increases, companies need computerized systems to help speed up their business operations.

II. LITERATURE REVIEW

2.1. Sales Accounting Information System

A sales accounting information system is a system designed to help business owners make decisions to increase sales [5]. A sales accounting information system codifies a set of procedures and methods for generating, analyzing, distributing, and collecting information to support sales decisions [6]. Based on this definition, a sales accounting information system aims to help companies increase their sales.

2.2. Stock Accounting Information System

An inventory accounting information system is a system responsible for keeping inventory records, which can provide information when inventory levels are required and when material purchases are made. In manufacturing companies, inventory systems control the level (quantity) of raw materials and the number of finished goods [7]. This system was established to prevent excessive reduction or expansion of inventories of products and raw materials [8].

2.3. Business Process Modelling

Business process modeling is a general diagram that implicitly represents a sequence of processes, actions and deliverables [9]. Business process modeling is very important in an organization's performance improvement plan. Business process activities accomplished according to goals or problems to be addressed can be identified through modeling [10]. The end result of business process diagrams is to improve the actual business process [9].

2.4. Business Process Modelling Notation (BPMN)

Business Process Modeling Notation (BPMN) is a standard business process model that provides a comprehensive graphical notation for describing business processes [11]. BPMN describes technology-based business process flowcharts structured to create a graphical model of an organization with flow activities and controls that define work cycles [12]. Bizagi is a tool for creating, optimizing, and demonstrating workflow diagrams for modeling business processes to improve process efficiency and control in all parts of your organization. Bizagi is a free application, so it can be purchased without paying a license fee [13]. A BPMN diagram created with Bizagi consists of the following four elements [11]:

1. Swimlane

   Swimlane is a mechanism for organizing and separating roles and responsibilities within a process. The notation used is pool and lane. A pool is a single-process container. Lanes, on the other hand, are process partitions that indicate suborganizations, positions, or roles.

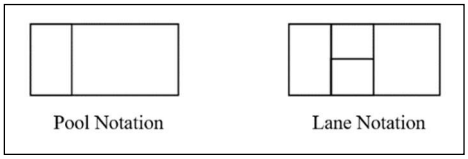

Fig. 1. The Notation used in Swimlane

2. Connecting Object

A connection object is a connection of objects that flow within a process. The notations used are Sequence Flow, Message Flow, and Association. A sequence flow is a connector that connects objects flowing within a process (pool). A message flow is a connector that connects objects flowing between processes (different pools). Associations are connectors that connect fluid objects to artifacts.

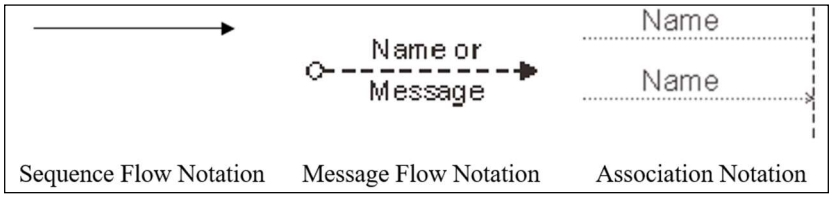

Fig. 2. The notation used in Connecting Objects

3. Artifacts

Artifacts are additional information in the process. The notations used are annotations, groups, data objects, and data stores. Annotations are descriptions of fluid objects. A group, on the other hand, is a grouping of multiple fluid objects. Data objects are files and documents used and produced by activities. Data storage, on the other hand, is the systems and applications used and created by the activity.

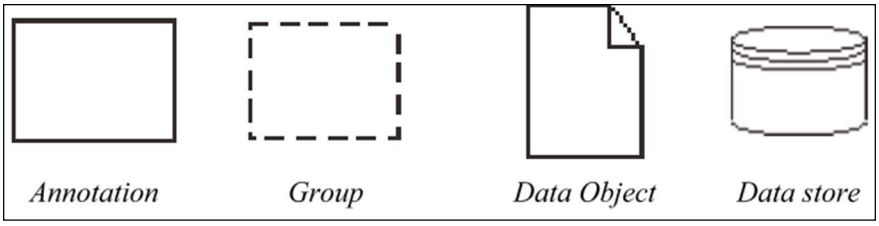

Fig. 3. The notation used in Artifacts

4. Flow Object.

A flow object is an object that flows through a process. The notations used are events, activities, and gateways. An Event is an occurrence, passive (something that happened). An activity, on the other hand, is an activity that is actively performed (does something). A gateway is a multi-activity interrupter.

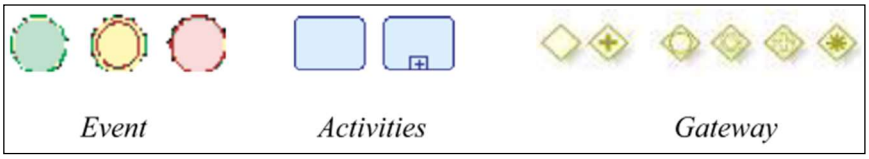

Fig. 4. The notation used in Flow Object

III. RESEARCH METHODS

The type of research conducted in this study is qualitative research with a case-study approach to designing object business processes. This research was conducted at Raja Optik, Jl. Tanjung Rema RT.05, Martapura, South Kalimantan. The methodology of this study is to understand the analysis and modeling of business processes using BPMN concepts through a literature survey on BPMN and direct observation in the field of case studies to find business processes in progress, Raja Optik.

The data sources used in this study are primary and secondary data. Primary data was obtained through direct observation at Raja Optik and interviews with employees involved in sales and warehouse processes. Secondary data is obtained through literature research on the Internet, books, articles, etc. on business processes. The data obtained are analyzed by procedural analysis and described in diagram form using his BPMN concepts using the Bizagi software.

IV. RESULT AND DISCUSSION

4.1 Problem Analysis

This chapter describes the analysis results of the problems included in the research project. Analysis is performed using the business process management framework and provides real-world results about problems occurring in the business processes of the enterprise.

4.1.2 Sales Business Process Analysis

The following is the business process for selling glasses at Raja Optik:

1. Clients are instructed to have their eyes examined first. The waiter then creates the recipe.
2. After receiving the lens prescription, the customer is asked to select frames available in the store.
3. The waiter will check if the required lenses are available. When the stock of lenses in the branch is depleted, the waiter will contact the central warehouse to inquire about lens availability. If the lens is already in stock, the store clerk will tell you the manufacturing period of the lens.
4. The waiter hands the recipe to the cashier and creates an order note certifying that the customer has ordered the glass. This memo consists of his three parts. If the customer has paid in full, the first copy will be white. If the customer has not paid in full, the second copy will be green. The third copy is red and will be saved as an archive.
5. The cashier records the sale in the ledger and reports it to the manager by sending a photo of the receipt via WhatsApp message.
6. The manager aggregates the sales records of all branches and reports them to the director.

Raja Optik's current sales process has some weaknesses. As explained above, if the store does not have a supply of lentils, the waiter should check the lentil availability at the central warehouse. This process will take longer as we have to wait for a response from the central warehouse. There is also concern about the possibility of fraud by changing the denomination of banknotes, as banknotes remain in the form of banknotes. With archived invoices transferred weekly from branches to be submitted to management, there is a risk of invoices loss. This manual, person-to-person process carries a high level of risk during the sales reporting process.

As Raja Optik has multiple branches, managers receive sales reports for each branch personally by email. Due to the large number of branch personal accounts, it is difficult for administrators to keep track. This makes the checking and summarizing process inefficient, as administrators must collate the sales reports contained in every email they receive from the store. Electronic personal messages, especially financial data sent from his WhatsApp or personal email, are at risk of loss or misuse. From the above explanation, we can see that reporting the sales of each store centrally is inefficient from a management point of view. Management does not have direct control over store sales reporting.

4.1.3 Inventory Management Business Process Analysis

Below is Raja Optik’s inventory management business process:

1. The store manager requests lens stock from the warehouse.

2. Check the lens inventory in the warehouse. If the item is available, we will contact the branch to request a pick-up. When inventory is depleted, the warehouse places an order with the supplier and tells them to wait for the inventory to arrive at the store.
3. The branch delivers the goods directly to the warehouse.
4. Stores and warehouses record lens inventory adjustments.

Raja Optik's current share transfer process still has some weaknesses. For example, there is no mutually integrated system between branch offices and warehouses. As a result, store clerks regularly inquire about lens availability. Due to the sheer number of stores, it is not possible to display real-time inventory to facilitate the movement of goods between stores. Additionally, manual inventory reconciliations are required when moving inventory between stores or warehouses.

4.2 Business Process Modeling

4.2.1 Sales Business Process Modeling

Based on Raja Optik's analysis of the sales business process, researchers design a new business process. Business Process Modeling Notation describes the process flow from start to finish with the parts that play a role. Below, Figure 5 shows the sales business process model as implemented (as is) and Figure 6 shows the business process modeling notation as designed and proposed (to be).

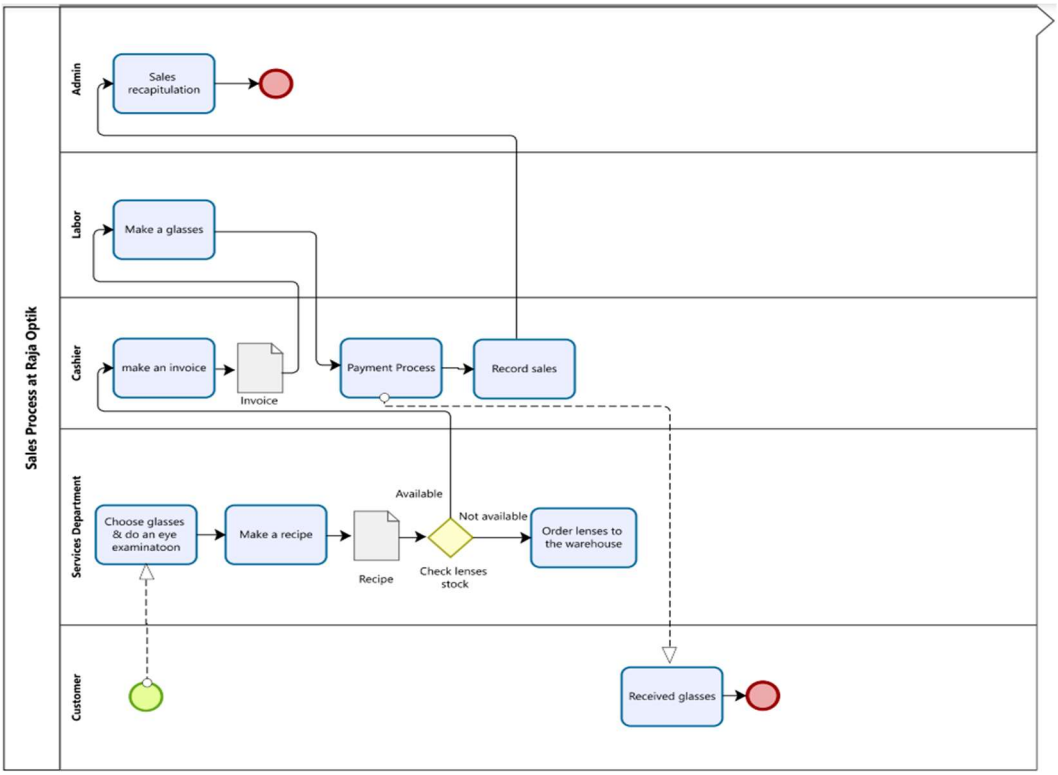

Fig. 5. Sales Process At Raja Optik (as is)

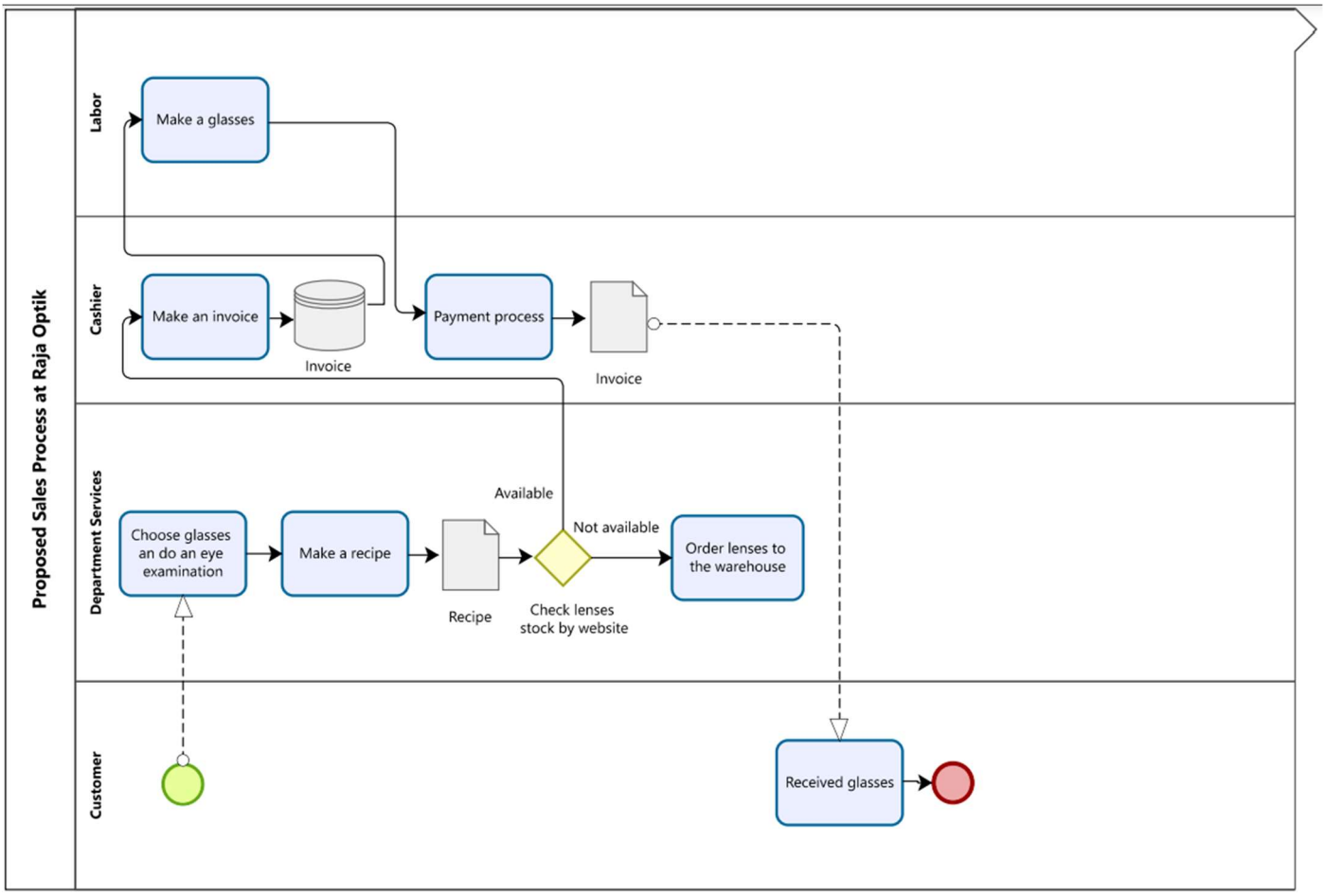

Fig. 6. Proposed Sales Process at Raja Optik (to be)

The proposed sales process reduces some steps and shortens the business process. In Figure 6, an integrated system between stores and warehouses is already in place, so merchants with computerized systems can check inventory levels through the website without having to check directly with the warehouse. The creation of order details has been computerized by entering the order details. Create invoices and enable submission of sales reports. Cashiers no longer need to record sales or send pictures of receipts via WhatsApp. In this proposal process, the note-taking process is computerized, allowing researchers to eliminate an interpersonal process that carries the risk of losing physical notes. The proposed sales business process can make the business process more effective and efficient and reduce the risk of fraud in changing the invoices.

4.2.2 Stock Control Business Process Modeling

Based on an analysis of inventory management business processes, Raja Optik goes through the process of manually transferring lens inventory by contacting warehouses to inquire about stock availability. Figure 7 below is the migration business process model as implemented (as is) and Figure 8 is a representation of the designed and proposed (to be) business process modeling.

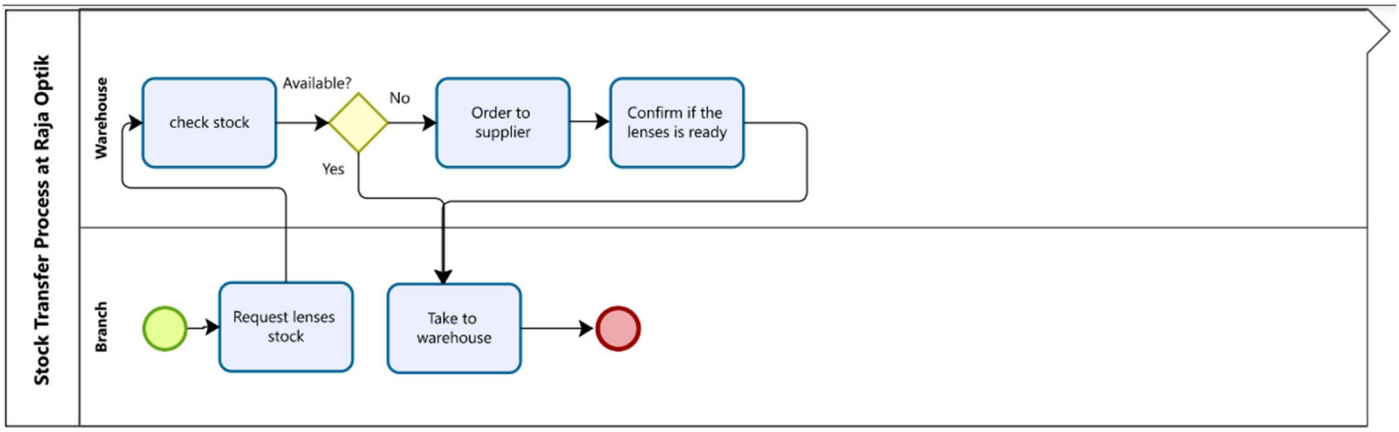

Fig. 7. Stock Transfer Process at Raja Optik (as is)

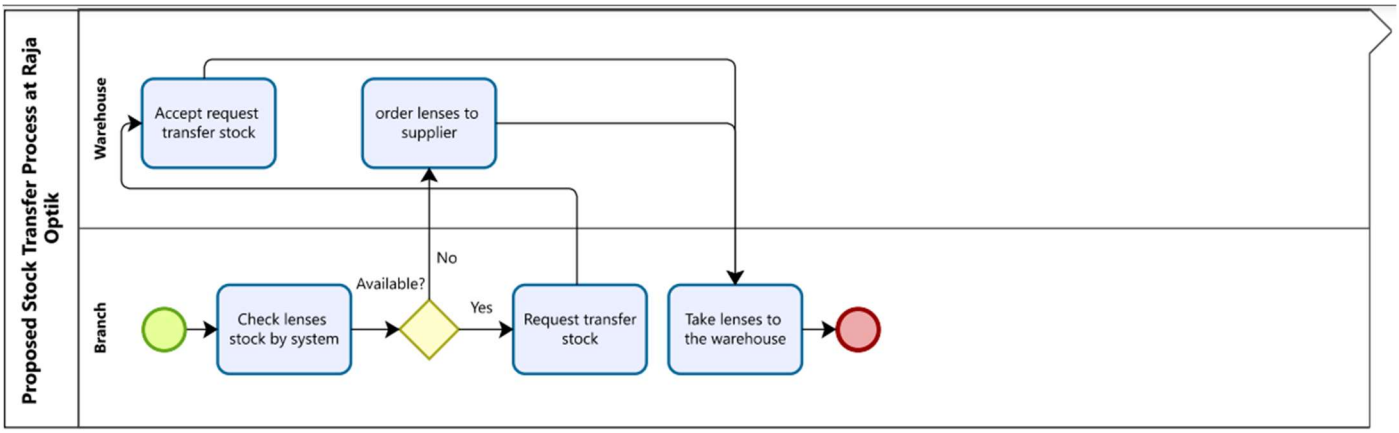

Fig. 8. Proposed Stock Transfer Process at Raja Optik (to be)

The proposed relocation process resulted in the integration of branches and warehouse with each other. In the future, it is expected that stores will be able to check the lens inventory through the website without asking the warehouse, shortening the confirmation work. Inventory adjustments are made automatically when inventory is transferred through the system. Stores and warehouse no longer need to adjust inventory, as warehouse inventory is automatically reduced and store inventory is increased.

V. CONCLUSION

As a result of the above research and examination, it is expected that the problems that arise in the field of logistics and warehouse management (warehouse transfer) will be resolved based on the existence of a new business process proposal composed of an accounting information system is provided. Raja Optik's sales process was not initially computerized, which had some weaknesses. Another weakness of the company is that the inventory management (transfer stock) process between warehouse branches is not integrated. These problems can be overcome by using BPMN with the ability to analyze, test, implement and improve processes.

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