

# A case study of the analysis of business process modelling and notation for purchase order and Product receipt in small medium-sized enterprises

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**Abstract** — This research was aimed to analyze the business process of product purchase and product receipt on small and medium retail enterprises. The most of problem that appeared on Small and Medium Enterprises (SME) was lack of awareness to fix and improve the business process, because the appropriate business process could help the development of organization. The illustration of business process used Business Process Modeling Notation (BPMN). BPMN could really help the making of business process to be understood easier by the users and could be analyzed, so it produced improvement suggestions on the business process in order to achieve business effectiveness. This research was a qualitative research, which the research data was collected through observation and interview techniques in PO Dolopo Grosir which was one of the biggest wholesale shops in Madiun District. The research result referred the deficiency on the business process of product purchase and product receipt in PO Dolopo Grosir. The deficiencies on this business process could be risky to cause problems such as error of purchase decision, forgetfulness of product return, and less strict checking standard on product receipt process.

**Keywords** — Business Process Management, Business Process Management Notation, Small Medium Enterprises (SMEs), Purchase Order.

## I. INTRODUCTION

A good and appropriate business process is the key to build a successful business. The good business process is believed to be able to help the organization in error and fault prevention during work and poor workflow [1]. The business process is a collection of activities that needs one or more inputs and forms an output which the customer wants [2]. This business process is also explained as a set of interrelated activities which is aimed to achieve business goals that will be accomplished in order or parallel, by human or system, either inside or outside of organization [3]. The business process is designed to settle down strategic goals of an organization [4]. The business process is designed with a good system, so it will produce benefits for the organization. Nowadays, the technological advance requires the organization to conform their business process into technology, so it is able to increase their profit, organizational development, and innovation [5]. But unfortunately, there are still many organizations that do not aware yet about the better change of business process, because the change of business process is also depended on the environmental condition of organization and organization's ability to change [6]. The solid support from many circles in the organization can realize the business process well, because the business process that has been well-planned cannot be realized by one party alone. The organization cannot realize the good business process, if it does not receive support from both director and employee, so they are the one who can run the business operational activities.

The complexity of business process encourages the organization looking for ways to model the business process. The business process modeling is used to evaluate and perform the future improvement of business process [7]. In the large organization, the business process modeling tends to be analyzed and presented in more



detail than in the small organization, due to the greater organization scale and complexity. The benefit of business process modeling is to ease the comprehension on the integrated process flow, the purpose of business process modeling is to define the steps that should be taken to achieve a goal. The diagram of business process model is a tool which is used to achieve a goal, not the performance result of a process [8]. The final outcome of business process model is to evaluate and fix the business process method. This business process modeling can be performed in certain standards, for instance BPMN (Business Process Modeling and Notation). BPMN is a de factor standard in business process modeling in an industrial field [9]. BPMN provides an easy-to-understand notation for all business users, including to the business analysis which creates initial draft from the process until the technical developer who takes responsibility of running the process [10]. The presence of advanced supporting and easy-to-use software turns BPMN is widely used by business analysis to formulate the integrated business process and the outcome can be directly used by the programmer to design and develop the business process. The aim of BPMN is to ease the users to understand the business process in the organization.

The development of micro, small and medium enterprises in Indonesia is lately growing rapidly, if it is compared to the previous years. The micro, small, and medium enterprises cannot be underestimated for their contribution to the economy, especially in Indonesia. Overall, the micro, small, and medium enterprise is a huge media of employment with a significant contribution to the gross domestic product [11]. The data from Minister of Cooperatives and Micro, Small and Medium Enterprise has shown that in last 2018, there are about 64.194.057 micro, small, and medium enterprises in Indonesia and they have hired about 116.978.631 labors. There are a lot of startup business in Indonesia which can successfully prove their achievement to the world level, for example Go-jek, Traveloka, and Tokopedia, those startup businesses almost reached unicorn startup level [12]. But, since the pandemic of Covid-19, Indonesia which is dominated by micro, small and medium enterprises which support national economy has been affected seriously, not only on aspects of production and income, but it also on reduction of total manpower due to the pandemic situation [13]. In fact, the rate of worldwide startup failure has reached until 90% [14]. A lot of micro, small and medium enterprises are just running their business with ordinary profit amount, even with minimal income, thus, they cannot contribute positively for the well-being of business owner, especially in the business development [15]. The micro, small and medium enterprises are demanded to be able adjusting their business into the new model of business development, since the sustainable business is a responsive business over time development, hence, the formula and design of BPMN for micro, small and medium enterprises is needed, so the business effectiveness can be achieved. PO Dolopo Grosir is one of retail enterprises which have about 50 employees who sell off a variety of basic household needs. PO Dolopo Grosir does not find yet the significance of business process modeling in order to develop their business activity. The problem which often arises in PO Dolopo Grosir is about the product purchase. The product purchase and stock management are the cores of business process of retail industry and the important factors to achieve maximum profit. The product purchase is a business process which should be concerned, because PO Dolopo Grosir is a retail industry which must receive goods at the lowest possible prices, so this industry can compete with other modern retail industries. One of competition forms found in retail industries that often gets people's attention is about price competition [16].

The frequent pile of return goods, items that have not run out before the restock schedule, decision error on the number of items purchased, and less strict product input checking process are still the problems occur at PO Dolopo Grosir. PO Dolopo Grosir still finds difficulties to prevent those problems and find solutions to avoid the same failure in the future. Therefore, this research is aimed to evaluate the business process of product purchase system at PO Dolopo Grosir by using BPMN tool.

## II. METHOD

This research was categorized into an applied research design, it was a research which observed theoretical use in a particular field or applied theory in order to find solution to overcome the problem occurrence. This research was an explorative research design which was aimed to explore or deepen knowledge or look for new ideas about certain things. Moreover, this research was a case-study research, which it needed analysis over the problems. The case-study research was a method implemented in order to understand individuals more deeply which was carried out in integrative and comprehensive manners, with the purpose of settling down problems and development [17]. The techniques of data collection in this research were observation and interview.

## III. RESULT AND DISCUSSION

The identification of business process on product purchase system at PO Dolopo Grosir was carried out by using BPMN tool. This tool was aimed to analyze which part that should be evaluated, so it could result suggestion for business process improvement. Po Dolopo Grosir has two types of restock product purchase, which each type of product purchase system has the different procedures.

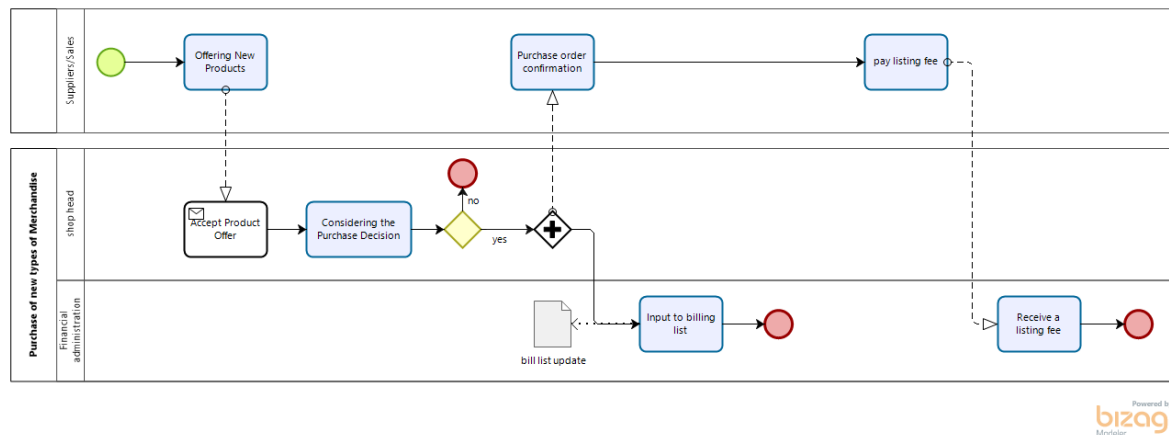


Figure 1. BPMN Purchase of New Types of Merchandise As Is

The purchase of new type of product was defined as a purchase of product which was not sold earlier, and it was potential to be restocked periodically if the product speed and turnover were fast moving. The difference between this new purchase type and other product purchase types was that the new product purchase was occurred when the sales from certain suppliers who offered their products that the store has never sold before. According to BPMN illustration, the head of store was a party which has a full authority of purchase decision.

The possibility of purchase decision fault performed by the head of store might be a risk of unsold product piles to occur. The product piles were aroused from unsold goods during the restock schedule, which it would hamper the store's money turnover. This situation could cause the lack of store cash at the time of debt payment schedule. It was better to determine the purchase earlier, which the head of store should discuss with the booth section. Po Dolopo Grosir has booth section which has responsibility to keep the goods booth, serve customer, fill the goods in booth if it was ran out, and do a routine check on product stock in the warehouse according to the booth product. Po Dolopo Grosir was a retail industry which sold up to thousand products, so it was very reasonable when the head of store did not remember about all kinds of product sold in the store, while the booth section was demanded to remember and know all kinds of product that were displayed on their booths. Thus, they could provide suggestions and advice such as which product has been sold in the store, so there was no need to buy the similar product with relatively the same quality, and state opinion that which product that was mostly searched by the customers, inasmuch as the booth section was a factor that was involved and related directly with the customers.

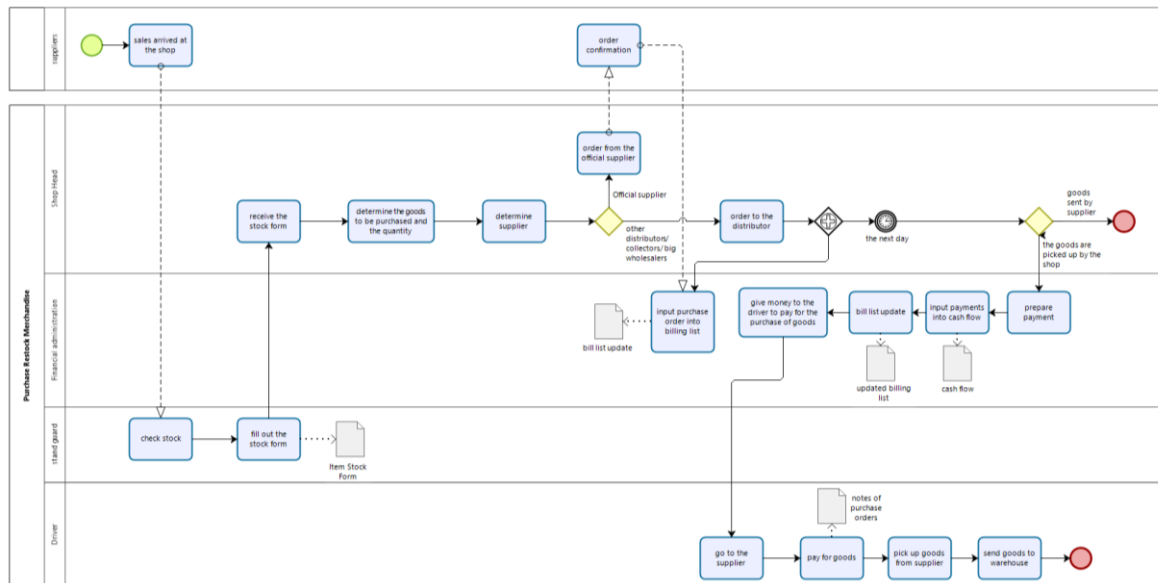


Figure 2. BPMN of Restcok Merchandise Purchase As Is

The restock product purchase was repurchasing of goods that have been sold before, due to the lack of stock left or out of stock. The procedure of restock product purchase was applied to the restock products, which the supplier or sales who sold the product have attachment to the store. This attachment of involvement could be in form of payment term, sales target, bonus, and deal. Also, for the products which the store was not attached to any sales or suppliers, yet it has a fast moving, so the store party should restock the products periodically. Due to the involvement with the supplier, the sales of supplier would come to the store at the time of debt payment, and also offer the restock products. However, before the debt collection, the sales were usually straight ahead to certain booth in order to check remaining stock in the warehouse.

During the product checking, the booth section would fill the product stock form and then submitted the form to the head of store. Based on the form of product stock, it could be detect the product stock history in the previous weeks, moreover, based on the form, the head of store could identify the store selling power for a product, and this information was used to determine the quantity of next restock purchase. The information of store selling power was also able to decide how long the product would be restocked monthly, weekly, or quarterly. This method could avoid the piles of product due to the excessive product restocking and unfitted situation to the store selling power, which it could interfere the money turnover in store. But, on the other hand, if the store party purchased products in a minimum quantity, then it was feared that the store would not get any discount or bonus, therefore the decision of head of store was really significant for determining the quantity of product restock.

PO Dolopo Grosir has superiority in the cheaper price sector when it was compared to the other competitors such as Indomaret and Alfamart, then; PO Dolopo Grosir was sensitive over the price of product purchase. Every restock schedule, the head of store would recheck first on the price of similar goods sold by collectors other than official suppliers to get the best price. If the best price was found in the collectors, so the head of store would buy the product in the collectors, but under the condition that the payment must be paid cash when the goods came or no debt or term. The head of store has an important role to decide the restock product purchase including the product quantity that would be restocked, supplier, and consideration on price, bonus, and discount decision.

Based on the result of interview, some booth sections have only reported about the product stock via product stock form during the sales visit in the store, then, when the product stock ran out before the schedule of sales visit, the store would not have product stock be sold and displayed in the store. This situation was a problem found in the store due to the fact that the product stock availability was regarded as the key of trading company,

because the main activity of organizational operational was buying and selling [18]. Therefore, the booth section must report to the head of store when the product stock ran out, so the store could restock the product.

During the sales visit in the store for debt payment and offer for restock item, they usually received complaints of return products. During the process of product checking, the store usually forgot to complain the return products, as well as the supplier. Whereas, the negligence of defect product return was also one of factors that could cause loss, which the defect product should be a sold item, and the money could be rolled back for debt payment or product purchase. The next loss potential which affected by the piles of return product was a decrease of customer satisfaction, the customers who would buy the product tended to cancel buying the product when they found the product was out of stock due to the piles of defect product.

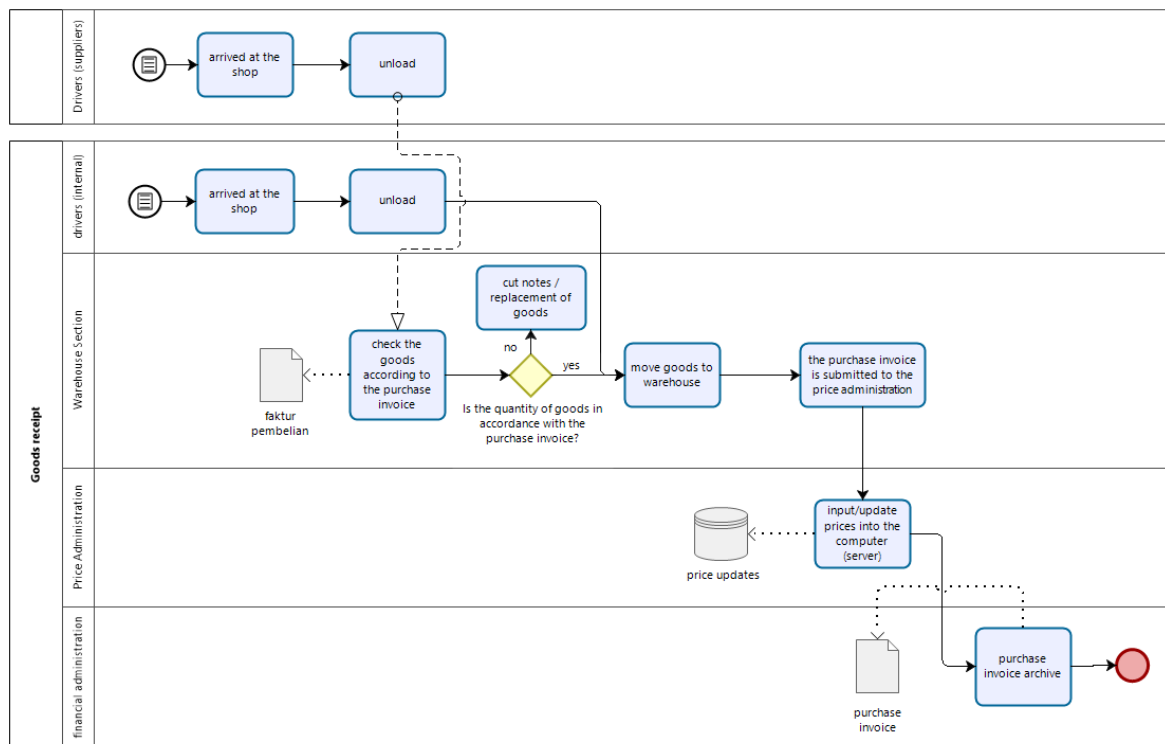


Figure 3. BPMN of Goods Receipt As Is

Receiving was also called as the main gate of goods entry which was ordered for organizational needs, thus, the receiving aspect was an important part of receiving process of all incoming goods [19]. Every product that came into the store, it should be checked first. This product checking included the total product, product condition, and product weight. Hence, the warehouse sections were not only obliged to move the product into determined place, but they were also obliged to check the product in order to minimize the supplier cheating. In the condition when the store party who took the goods from the supplier place, the store driver has usually checked the goods starting from the total box, weight, and goods condition, but they did not open the box. There were some policies about the receiving products that were not appropriate to the purchase invoice, as the inappropriate items would be returned and then deducted from the purchase order note, or the items would be changed with the new items. After the process of checking, the warehouse sections would move the products into the warehouse according to the space that has been determined. After the products were put into the place, the warehouse sections would hand the order invoice to the price administration section. This section would input price into the computer or server, so the product price was updated. The price update could affect the selling price, because the purchase price in the earlier period might be different with the current purchase price.

Based on the interview result with the head of store, many cases happened when the product was purchased from unofficial supplier or collector, in which the product was approaching to expired date. This factor caused loss for the store, since the official supplier would not accept the product return when those products have





reached a month before the expired date. To prevent this factor, the checking standard during the product receipt should be more done in detailed and tightened, not only on the product quantity, box or product condition, but also on the expired date. The receiving employees must have documentation of specification standard, so they could assure that the products were proper according to the correct quality, type, shape, and size aspects. They must also have copy of purchase order in order to compare the product quantity, quality, and price that has been negotiated [20].

During the process of product receipt, it needed to add product receipt book, this product receipt book was used by the warehouse sections when they have received and checked the incoming products, then they must input the product information into the book of product receipt. This strategy was used to ease the financial administration section and head of store during the debt payment to know if the products received in the warehouse were according to the order invoice, or even when the defect products were found, so it could ask for deduction of purchase order or item replacement. This product receipt book was used to not various information relating to the product receipt and employee data who received and checked the products, so when the error was found during product checking, the head of store could identify the employee who took responsibility for the problem.

## VI. CONCLUSIONS

In the implementation of business activities, PO Dolopo Grosir has deficiencies in its business process of product purchase and product receipt, this factor could arise some problems, for instance the error in product purchase decision, negligence of product return to the supplier, and no use of product receipt note. The error of product purchase decision could cause the piles of unsold product, which it would interfere money turnover at PO Dolopo Grosir. Moreover, the carelessness of product return could hamper the store's money turnover, because the defect products should be actually sold in the store, so the money could be rolled back for the debt payment or product restock. No use of product receipt note was also the deficiency on the business process of product receipt, this note or book was aimed to ease the financial administration section during the debt payment to know whether the products received were appropriate to the order invoice or when the inappropriate items were found during the product checking, the store could ask deduction of purchase invoice or item replacement. This product receipt book would contain information relating to the product receipt and employee who has received and checked the products, so when the error was found during the product checking, the head of store could find the employee who should take responsibility of this error making and reduce the problems on product receipt.

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