



Improvement business process model and notation on the drink distribution industries using six core element

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ABSTRACT

The development of distribution and market segmentation has become the company's background in improving business processes. The purpose of this research is to analyze the business processes of beverage companies using Business Process Management (BPM) modeling and improvised based on six core element management. In the analysis process, it is found that there is no stock forecasting system in forecasting sales stock that must be fulfilled. The results of the study show that the Business Process Management model is improved with the addition of a stock forecasting system, so that business processes become more controlled with the presence of a product stock inventory forecasting system in the company.

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1. INTRODUCTION

The development of information technology today brings many changes to operational processes, especially in industrial companies, where the use of information technology in industrial companies aims to make every business process run more effectively and efficiently, and the processes in it can be well directed and controlled. Business processes are a core part of an organization, whose purpose is to facilitate the exchange of operational and strategic information related to the business [1], [2].

Business processes can be represented in the form of business process modeling which includes how the business works and how values are designed to meet various stakeholders [3]. In a company, business process modeling has an important value as a catcher of organizational dimensions related to actors, company activities, and company workflows [4]. In addition, the business process model forms the basis of knowledge transfer, quality objectives, regulations, communication between internal and external collaborative partners, and overall documentation [5],[6]. Depending on the strategic direction, the steps taken for the implementation of BPM as a consequence should lead to the achievement of the objectives set initially [7].

In this research, we focus on the company's marketing distribution business process model in the field of drinking water products. Analysis of the business process of a drinking water company, then we improvise with a business process modeling design by adding several systems such as forecasting warehouse inventory and product sales.

Business process modeling has an important role in mapping the process framework within the company, so there needs to be strategic alignment, governance, methods, information technology, human resources, and

culture within the company [8]. Where these elements are the core of business process management with the term six core elements of BPMN. Six core elements of BPMN are defined as critical success factors of business process management, so it is important for a company to consider every element of the company's business in order to be successful in implementing the Business Process Model (BPM) [10].

Business process management modeling deals with the mundane aspects of both the inherent representation of coordinating activities and the emphasis on the properties and boundaries of a business process activity [9]. The implementation of business processes requires an analysis of the resources and tools needed in the creation of a professional business process model. Knowledge transfer, quality objectives, regulation, communication between internal and external collaborative partners, or documentation in general are the basis for building business models [11].

In previous studies, model-based methods were used to create automated business process execution simulation code. Increased computational and complex aspects of collaborative business processes. BPMN standard explanation according to a well-presented syntax is used as a business process characterization, to reduce dependence on additional languages. The implemented simulation code can be executed based on the eBPMN language, which is a domain-specific language of the original BPMN standard that maintains semantic behavior [12], [13].

This study aims to evaluate the business process elements in the company's sales distribution that are aligned with the six core elements of BPMN, by identifying each business process element which will then be improvised to meet the standards of the elements proposed from previous research.

2. METHOD

In this study, we carried out 3 core stages, namely information collection, data analysis, improvement design and closed with the conclusion of the research results. The following is the flow of the research methodology that the researchers shown in Figure 1.

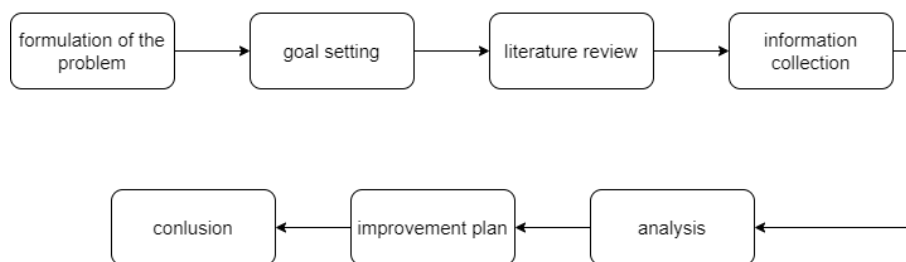


Figure 1. Research flow

2.1. Information Gathering

This stage aims to obtain information on the cases that are the problems in this research. Things that are needed by researchers include how the business processes in the distribution of beverage companies today are. In this study, the researcher used the literature study method to find and collect information from related references. The references used by researchers are in the form of papers related to BPMN, Six cores and distribution of beverage companies.

2.2. Analysis

At this stage the researcher looks for information related to the case that is the object of this study. Things that are needed by researchers include how the business processes in the distribution of beverage companies today are. In this study, the researcher used the literature study method to obtain and collect information sourced from previous research. The references used by researchers are in the form of papers related to BPMN, Six cores and distribution of beverage companies.

2.3. Improvement planning

After knowing the shortcomings in the system, the researchers compiled a new BPMN design which was considered more effective than the BMN process that previously existed in the distribution of beverages [14].

3. RESULTS AND DISCUSSIONS

This research improvises business process modeling adapted to the six core elements of BPMN which includes several important parts that become standard for the company's business processes, along with the business process model on marketing distribution from drinking water companies before improvisation, in Figure 2, below.

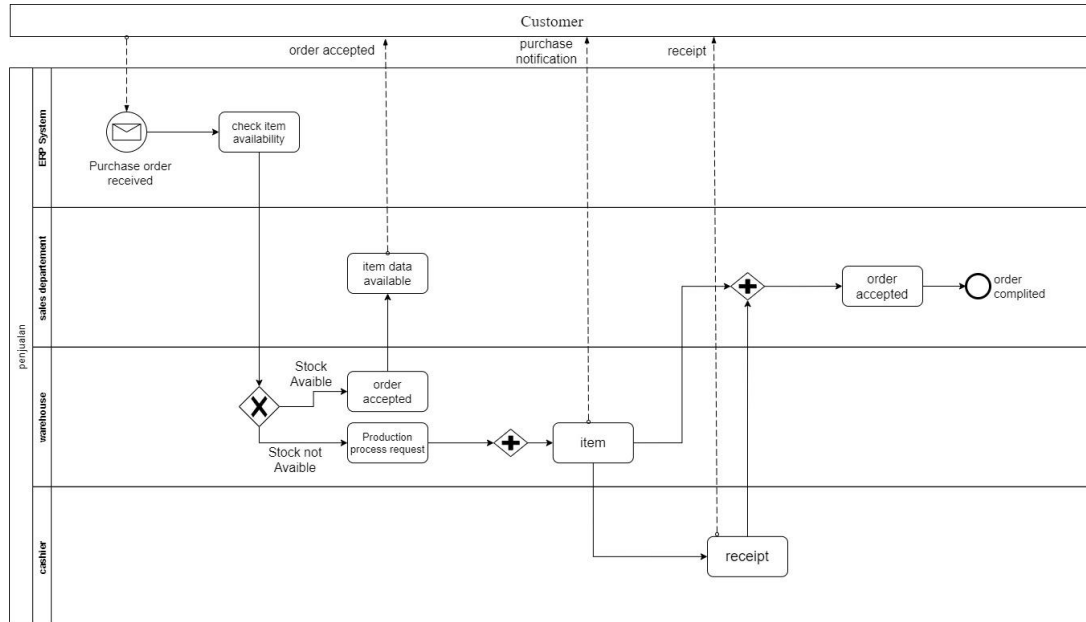


Figure 2. BPMN distribution flow for beverage companies

Description of BPMN Flow:

This BPMN process begins with the order data obtained from customers who are given to the warehouse department. Then after After the warehouse department gets data on ordering goods from customers, the sales department makes data on demand for goods. Then when it is made, the data request for goods is submitted to the Warehouse. After the data reaches the warehouse, the warehouse will check the stock of goods. If available, the data available will be submitted to the sales department and directly submitted to the customer. However, if the goods are not available, the warehouse makes a request to produce goods, then generates a request to produce goods which is then submitted to the cashier. After the cashier gets a request to produce goods, the cashier will create data on the production of goods and make a payment slip for the customer.

System Analysis:

In practice this system has several advantages and disadvantages. For the advantages, namely, customer request data recap is already available in the system. There are sales reports so that it can be easier to correct or archive. In addition, there is a transparency of payment slips after making a transaction. However, the system does not have real-time stock data so that when a consumer place an order, but the stock does not meet, an order must be made first. The product stock in the warehouse cannot be known by consumers. So, it will be difficult for the forecasting part of the order. In addition, it is not explained if the goods are available, then the customer should also be given proof of payment.

BPMN Six Core Analysis

These factors together form a holistic understanding of BPMN. Each of the six core elements is a critical success factor for business process management [15]. Therefore, each element needs to be considered and studied more deeply by a company to achieve organizational success. There are six core elements contained: strategic alignment, governance, methods, information technology, people, and culture.

Table 1. Six core elements of BPMN

Strategic Alignment	Governance	Method	Technology Information	People	Culture	Factor
Process Improvement planning	Process Management Decision-making	Design & Modeling Process	Design & Modeling Process	Process Skills & Skill	Responsiveness of the change process	Ability Area
Strategy and Process Ability linkage	Process Roles & Responsibilities	Deployment & Execution Process	Deployment & Execution Process	Knowledge Management Process	Process Values & Beliefs	
Company Architectural Process	Process Matrix and Linkage Performance	Process Monitoring & Control	Process Monitoring & Control	Educational Process	Attitude Process & Behavior	
Process Measurement	Standard Related Process	Process Improvement & Innovation	Process Improvement & Innovation	Collaboration Process	Leadership, Attention to Process	
Customer & Stakeholder Process	Fulfillment Management Process	Process Program & Project Management	Process Program & Project Management	Leader Management Process	Social Network management process	

Strategic Alignment

- **Customer and Stakeholder Processes:** Drinking water companies focus the company's attention on developing behavior oriented to the satisfaction of the power holders. Marketing orientation on customer satisfaction has several principles, namely:
 1. If there are consumers who are not satisfied with both the service and the product, the company quickly fills the gap.
 2. Asking for feedback from employees about what the shortcomings of customer service are and accompanied by a solution.
 3. The company makes a commitment to provide the best service.
 4. Be careful and wise in choosing people who will deal directly with customers.

Governance

- **Decision Maker Management Process:** In making decisions, drinking companies use their information systems. There are several examples of decision support systems commonly used by beverage companies such as: enterprise collaboration systems, transaction processing systems, strategic information systems, process control systems, management information systems, executive information systems, functional business systems, expert systems, and others.

Method

- **Improvement and Innovation Process:** The distribution channels of beverage companies are expanding widely. Prioritizing product quality so that its distribution spreads almost all over the national territory. Beverage companies bring innovation by innovating tea products with fruit flavors and tea products containing soda and which used to be packaged in bottles, now being developed into box tea packaging.

Information Technology

- **Deployment and Execution Process:** Beverage companies have implemented integrated information technology using applications provided by Oracle and using databases. Accompanied by the application of ERP technology that is useful for integrating all existing applications in the

company into a data storage center so that it is easy to access anywhere at any time by all who have an interest.

People

- **Process Skills and Expertise:** The company also pays attention to the quality of human resources who are members of the company based on their respective expertise. Knowledge and skills as well as attitudes that are in accordance with the human resources profession are also important to consider in facing business competition between companies. Thus, the selection of the right human resources is very important to do, so that there are no vacancies in positions in the company.
- **Educational Process:** In the process of developing employee loyalty and employee comfort, the company provides facilities such as polyclinics, cooperatives, canteens, places of worship, sports venues and so on. In addition to the facilities provided, the company also organizes delegations for formal and informal seminars and training activities. There are two training methods, namely:
 1. *On the job training*
It is an effort to train employees to learn something and do it where they work. Includes: internship program, job rotation, understudy or coaching, and trainer.
 2. *Off the job training*
A training program whose place is separate from the place of work. The teaching carried out includes training in job instructions, conceptual education, vestibule training, study of activities in the field, competitions on organizational management.

Culture

- **Change Process Responsiveness:** This company in the drinking water sector carries out a development process that is integrated with raw material stock supplies such as making their own tea gardens. Prioritizing product availability and quality so that it results in customer loyalty and satisfaction.
- **Process Values and Beliefs:** Because the beverage company has fulfilled the customer's forecasting, then it makes the customers more confident and more settled.

Improve BPMN Distribution Process

The customer sends an order request to the sales department. Then the sales department processes it for making a purchase order (PO). The purchase order is sent to the admin who will then recap on the ERP system and then the admin sends a request for goods to the warehouse. Then the warehouse will check the stock of goods. If the item is not available, the warehouse will contact the admin to request additional stock in the warehouse. Next, the admin will send an email to the production department to process the production of goods. After that, the production department will make an estimate of the production to be worked on. Then the goods will be produced and if the goods are finished, the production department will send stock updates to the warehouse.

If the stock of goods is available, the warehouse will update the stock reduction that occurs. Then the order request at the sales department will be fulfilled which will be continued with the selection of the delivery flow and the creation of billing receipts. The receipt and finished goods will be sent to the customer. After the goods are received by the customer, the customer makes the payment and the sales department processes and prints the payment receipt. Then the payment receipt will be reported to the finance department which will later be recapitulated into financial data.

After recapitulating the financial data, each week the data will be recapitulated by the finance department into a weekly data recap. The weekly data recap is then inputted into the system by the admin. From the admin, collect weekly recap data which is then processed into a monthly financial recap report.

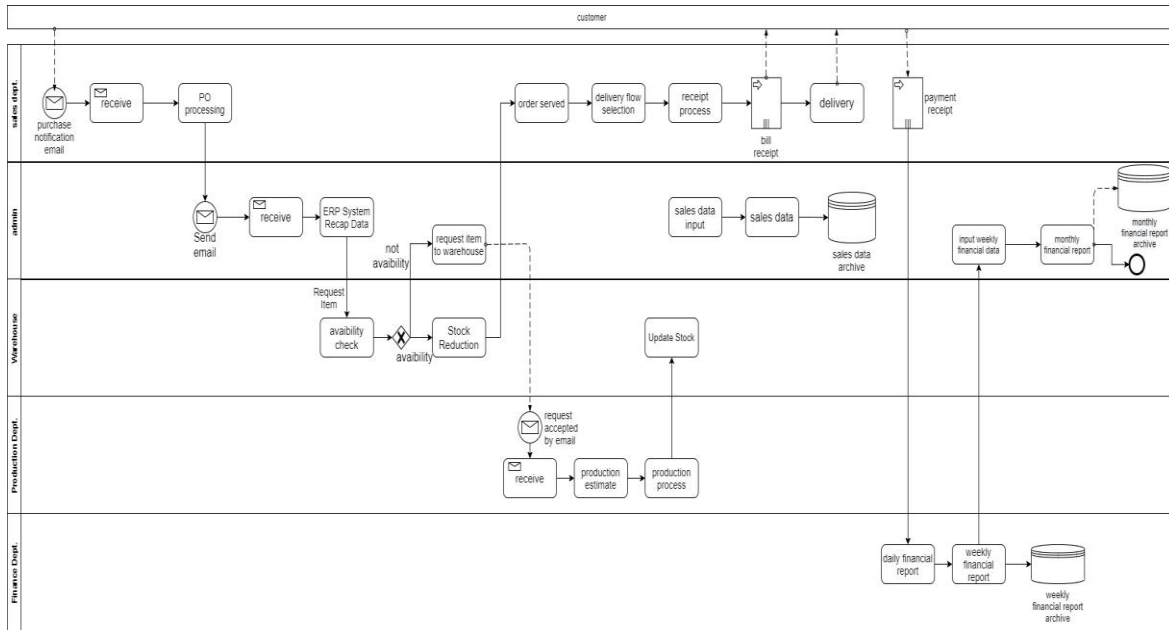


Figure 3. Flow of BPMN sales process

BPMN Forecasting

In this BPMN flow, it starts when the sales department sends a billing receipt made after the order is fulfilled to the admin. Next, the admin will recap the data on the bill receipt into a sales data recap. The results of the recap will be archived by the admin and forwarded to the sales department. After receiving the sales data recap from the admin, the sales department will make an estimate of future sales which then the results of the estimate will be archived in the sales department itself and forwarded to the warehouse section to be processed into safety stock estimation data. After the warehouse section creates safety stock estimation data, the data will be archived in the warehouse section itself, to assist in forecasting future stock of goods. The BPMN forecasting flow, in Figure 4, below.

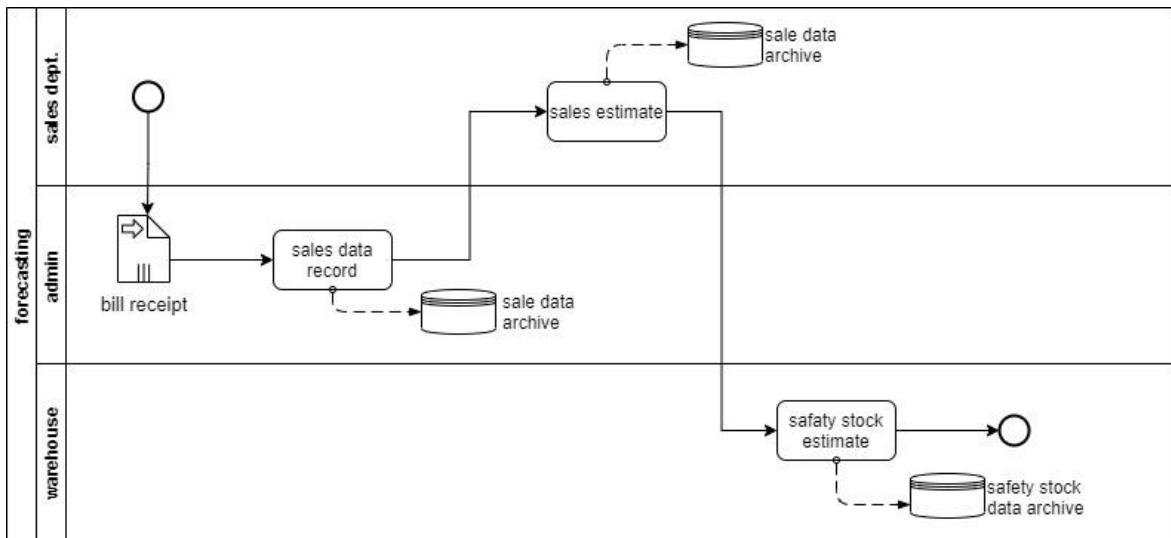


Figure 4. BPMN forecasting flow

4. CONCLUSION

From this research, we can draw the conclusion that in the previous beverage company distribution business process model there are still shortcomings, then the researchers complete the beverage company distribution business process model. The results of the improvement of the distribution business process model, slightly adding real-time stock data flow, product stock in the warehouse can be known by consumers, and if the goods are not available then after the goods are finished being produced, the customer is also given a payment receipt. The improvement of the business process model is obtained from the results of the six-core analysis which then produces a new business process model that is more effective and efficient in its implementation.

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