



## Business process modeling at steak restaurant using business process model and notation

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### ABSTRACT

The complexity of business processes occurring today makes the company try to find ways to describe its business processes. Business processes are not only an operational standard but also become one of the determining factors for the smooth use of time and costs in a business unit to be more efficient. With good business processes, it makes the flow of information faster so that it can help in making the best decisions in the organization. The business process modeling that will be explained further in this study is the order and procurement business process at steak restaurant using the Business Process Model Notation (BPMN) approach. This research was conducted using a qualitative descriptive method with the aim of observing the business unit to help analyze and make improvements to its business processes. Several series of processes were carried out, namely business identification and modeling with bizagi modeler and process reengineering to produce recommended new business process models that could be beneficial for business units, namely the recommended automation in the form of the use of mobile applications, remote, and database systems to support the effectiveness of the order to cash and procure to pay processes.

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## 1. INTRODUCTION

A business process is a series of interrelated activities in order to achieve certain business goals that are completed either in order or in parallel, by people or systems, both inside and outside the organization [1]. Strategies in facing global competition, need to be done by an organization [2]. The complexity of business processes occurring today makes the company try to find ways to describe its business processes. This business process modeling is used to evaluate and improve business processes in the future. Business process analysis generally involves mapping processes and subprocesses in them up to the level of activity or activity. The analysis can be done through business process modeling that describes the way people or parties or divisions interact with each other in the system and is explained in a certain way or standard.

Business processes are not only an operational standard but also become one of the determining factors for the smooth use of time and costs in a business unit to be more efficient. With good business processes, the flow of information is faster so that it can help in making the best decisions in the organization [3]. Business processes are an important concept in facilitating effective collaboration [4]. Process modeling

is necessary to present information to be clearer and structured and better understanding and communication of organizational processes [5], [6]. Information technology is widely used in almost all fields, including education, business, social, and so on [7]. A business also needs information system support in the midst of the rapid development of information technology today, this can be done by modeling business processes in advance which are also necessary to identify which areas of activity can be improved [8]. Process modeling can be graphically explained through process notation called BPMN [9]. BPMN is a standard tool that can be used for the representation and analysis of business processes [10], [11]. This tool is a means of communication between departments, stakeholder roles, systems, customers, suppliers, implementers of different business processes and becomes a bridge from the communication gap between designers and software developers [12]–[14]. BPMN is supported by more than 20 tools that have been standardized by the Object Management Group (OMG) and have been widely known and adopted in the software development process [13]–[17].

BPMN has been applied by many researchers in various fields to analyze and model business processes in a business unit. For example, in the health industry, BPMN was used to model health environment to improve e-health services and systems requirements [18]. In the academic field, previous research has also modeled the academic virtual organization using BPMN [19]. Meanwhile, in another field, automotive production, processes are often complex and difficult to describe and, therefore, are more susceptible to errors. Companies have tried to describe their processes through diagrams, which allow them to transmit the information associated with the processes more easily, as well as to discover inconsistencies and/or possible bad practices. By using BPMN notation, it is possible to represent a process, validating it and guaranteeing its consistency, with the same meaning as the textual/documentary description of the existing organizational process [20]. There are also other studies that model business processes in small and medium enterprises (SMEs) retail industry in Indonesia, BPMN is used to design debt payment standard operating procedures [21]. In the era of rapid development of the food business world as it is today. As evidenced by the increasing number of food companies that have sprung up, various food companies are growing rapidly in big cities, be it main dishes, desserts, snacks, and even souvenir snacks [22]. Business process modeling that will be explained further in this study is the order and procurement business process at steak restaurants using the BPMN approach. Steak Restaurant is one of the business units engaged in food and beverages (culinary) which provides a variety of dishes in the form of steak. This business unit aims to serve and provide satisfaction to customers by serving steak menus that are contemporary but with a unique taste because they use family recipes. The service department in front (cashiers and waiters) plays an important role in order to achieve high customer targets. In its execution, to receive orders or orders from customers, it is supported by resources that are still manual on average. Therefore, in ordering or ordering food menus, sometimes experience obstacles and some problems. It is important to show in the company about its business performance to keep competing support business [23]. A business must continue to run regardless of the conditions that occur [24] for example because several tourism support sectors such as restaurants, hotels and retail entrepreneurs are also affected by the COVID-19 pandemic [25]. Therefore, this research was conducted with the aim of observing these business units to help analyze and make improvements to their business processes.

## 2. METHOD

This research is qualitative descriptive research. The research was carried out through several stages, namely literature studies, then data collection in the form of observations, interviews, then identification of business processes, and business process modeling for procure to pay business process and order to cash business process. Followed by drawing conclusions. The research methodology can be seen in the following Figure 1.

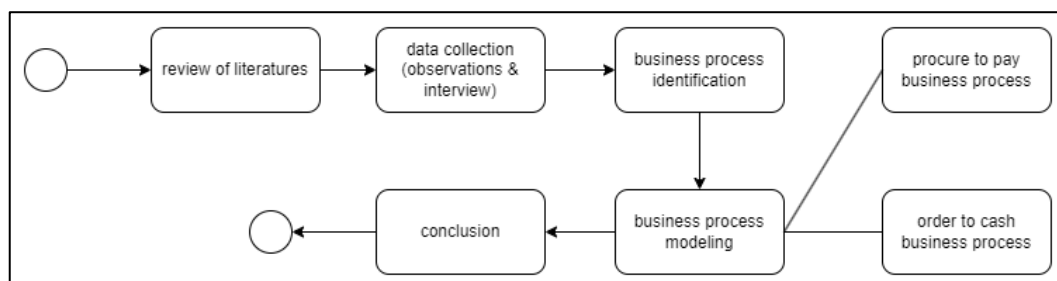


Figure 1. Research methodology

In Figure 1, the flowchart of the research methodology carried out has been displayed. Starting from the first, namely the review of literature. Review of literature are conducted by studying the theories and practices of business process modeling using BPMN correlated with the research topic. Then the data collection was carried out in two ways, namely observing the restaurant, and conducting interviews with the steak restaurant's employee. After that, identification of the as-is business process that runs in the restaurant business unit is carried out. Identification of business processes is carried out in several ways, namely the first grouping is carried out according to the type of business process including the Core Process, Support Process, and Management Process. It is then identified with the value chain. After the identification process is carried out, the next stage is to carry out business process modeling. Modeling of business processes is carried out according to the results of the collected data and the results of identification analysis. The business process modeling carried out is the procure to pay business process and the order to cash business process. If this is not met the research will return to the stage of the business process identification process. Business process modeling uses BPMN to visualize business processes with Bizagi Modeler software. Then the results of the study are used as material for drawing conclusions.

### 3. RESULTS AND DISCUSSIONS

Based on the research that has been carried out, it is in the form of data collection through observation and interviews. So, the identification of business processes will be obtained which will be described in the results section and this discussion. In its implementation, the steak restaurant business unit consists of several divisions/sections that have their respective duties and responsibilities. The first is Owner/Manager which responsible for all business activities carried out and at the same time concurrently as Human Resource Development (HRD). So, if there is a person applying for a job, it will go directly to the owner and be interviewed. Second, Cashier Division (Finance) which takes care of order recording and payment, bookkeeping, administration, and assisting the kitchen division in arranging food orders. The cashier division will also report the record of income per day to the owner. Third, Kitchen Division which responsible for food products, cooking, arranging orders, as well as delivering food to the customer's table. The kitchen division is divided into two parts, namely (a) Kitchen at home of a business owner: cooking staple foodstuffs into semi-finished ingredients; and (b) Kitchen in the restaurant: process orders from semi-finished ingredients, so that if there is an order from the customer then the semi-finished ingredients just need to be processed a little and heated, so it doesn't take long to arrive at the customer's table. Fourth, Logistics Division which responsible for logistical needs or food ingredients to be processed. The logistics division is divided into two parts, namely (a) Shop for necessities: meat, vegetables, etc; and (b) Shop for quickly depleted necessities/additional ingredients: straws, tissues, etc. Fifth, Cleanliness and Order Division which responsible for the cleanliness of the existing facilities and infrastructure in the business premises and regulates order (parking and security). The last is Marketing Division, as a social media admin and take care of marketing and promotion on social media.

After knowing the various divisions in this restaurant, here is the business process in the steak restaurant business unit. First, Production process: (a) Production preparation; (b) Preparation of raw materials; (c) Production process; (d) Maintaining product quality. Second, Marketing: (a) Marketing research; (b) Marketing communication. Third, HRD: (a) Conducting an analysis of the human resources needed; (b) Conduct employee recruitment; (c) Make selections; (d) Briefing employees. Fourth, Finance: (a) Managing cash; (b) Verification of fees; (c) Financial bookkeeping.

Then for the grouping of three business processes, the first is the core process. Operational/core processes, which are processes that cover the core business and create key streams of value. For example, in this restaurant there is a purchase process by the logistics division, manufacturing by the kitchen division, advertising and marketing by the marketing division, and sales made directly in the restaurant. Furthermore, for the second process, namely the supporting process, there is accounting by the finance department, recruitment by HRD and owners, and a help center by the hygiene and order division. Then the third process is the management process, which is a process that controls the operations of a system, for example strategic management where in this restaurant business strategic management and risk management are held by business owners. Furthermore, the value chain in the steak restaurant business unit is in Figure 2 as follows.

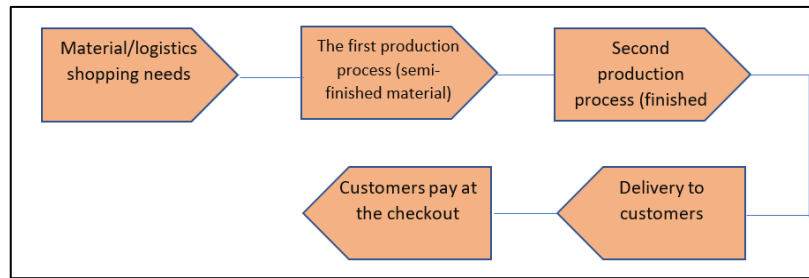


Figure 2. Value chain of production processes

A business process chain or commonly called a value chain is a set of business activities in the steak restaurant business unit where each stage or step will add value or utilization to the goods or services produced. The value chain in the business forms a framework aimed at identifying and inventorying areas of business functioning. After the identification of the business process is completed, the next stage is the modeling of business processes.

In the first modeling in Figure 3, it is related to the procurement process called the procure-to-pay process, which is a process of ordering and shopping for necessities that will later be used for production and people who order, or shop will pay to the supplier. The process owner is the head of the logistics division. Then the customer of process is the cashier unit, kitchen division, and logistics division. Furthermore, regarding the expectations of customers in this process, namely grocery items or raw materials for production as needed and there is no delay with the outcome, namely being able to bring in production raw materials according to the provisions. The trigger of this process is the stock report of goods received by the logistics division. In this model, the first activity is to contact the supplier to send the stock of goods, then the second activity is to ask for funds from the cashier. Third activity is paying to suppliers, fourth activity is handing over raw materials to the kitchen division, fifth activity is handing over notes to cashiers/finances, and last activity is filing notes. Then for the required resources, including human resources in the form of logistics divisions, cashiers, production divisions, and suppliers. Then the source of the document is in the form of a record of ordering raw materials and a final note of purchase or invoice. And the source of the work environment, materials, infrastructure, namely communication tools (telephone).

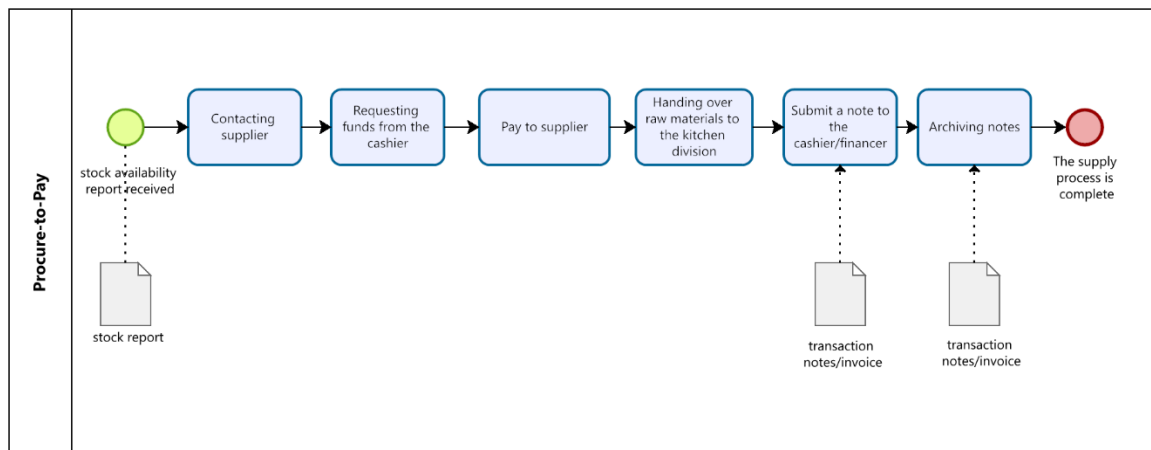


Figure 3. Modeling "as-is" procure-to-pay business processes

As for the next business process modeling in Figure 4, namely the order process called the order-to-cash process with vision, namely the order cycle from the customer order to the receipt of order payments which aims to bridge customers so that they can order food and businesses can make money. This process has a process owner, namely the cashier or head of the finance division with a customer of process, namely the cashier unit/marketing department and the kitchen division. Then for the expectations of customers, namely ready orders, timely delivery, and easy payments with outcomes can satisfy customers with appropriate and quality orders. The trigger in this process is an order record or order list received by the cashier or marketing

department. For the first activity of this process, namely checking the availability of the food/order menu, then the second activity is if the menu is not available or runs out, then refuse the order or suggest ordering another menu. Third activity is if the menu is available, then confirm the order. Then the fourth activity issuing a payment note/invoice, the fifth activity is processing payment transactions. Then the sixth activity is to deliver orders to the customer's desk, and the last activity is to archive orders. More about the required resources include human resources consisting of customers, cashiers, and kitchen divisions. Then the source of the document consists of an order record and a final note of payment or invoice. And sources of work environment, materials, infrastructure in the form of cash registers and office stationery.

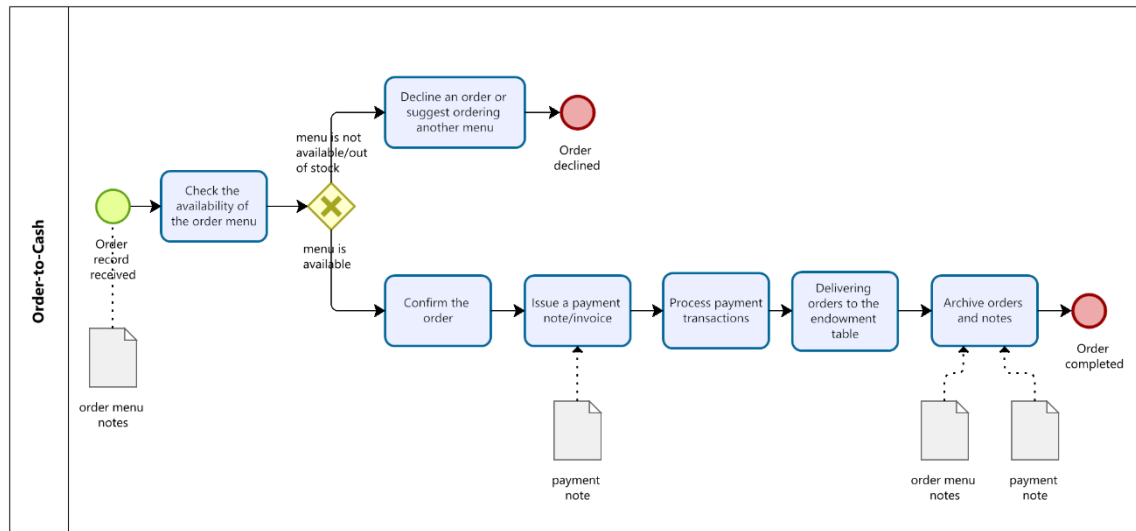


Figure 4. Modeling of "as-is" order-to-cash business processes

After modeling the business, in this study, a reengineering process was also recommended in both processes, both the order-to-cash process in Figure 5 and the procure-to-pay process in Figure 6. In the order-to-cash reengineering process, it is recommended to add an automation technology in the form of ordering food menus with a mobile application that will later be used by the cashier, so that if there is a customer who will order, it is immediately inputted by the cashier using the mobile application. Furthermore, in payment transactions, you can use digital payments with barcodes or remain cash. After that, the customer will be given a remote by the cashier where on the remote there is a table number and an alarm. If the order is ready later, the alarm will give a sound-like sign, then the customer can take the food by self-service. With the reengineering process, it is hoped that it can produce outcomes, namely shortening and streamlining the process of ordering food by customers, minimizing the occurrence of food order errors because if it is automatically inputted in the system, it is immediately detected that the menu is still available or has run out, so customers can immediately find out, then can minimize complaints of waiter errors in delivering food, for example spilled food, etc. because the food is taken by the customer himself (self-service) so the customer feels more satisfied can take and check the meal himself whether it is appropriate or not, besides that it is also more accurate in payment because the nominal is already in the barcode to be scanned, and by ordering through the application, the restaurant can automatically knowing the number of menus ordered, the number of menus that are most ordered (favorite) so that it is easy to develop menus or marketing promos.

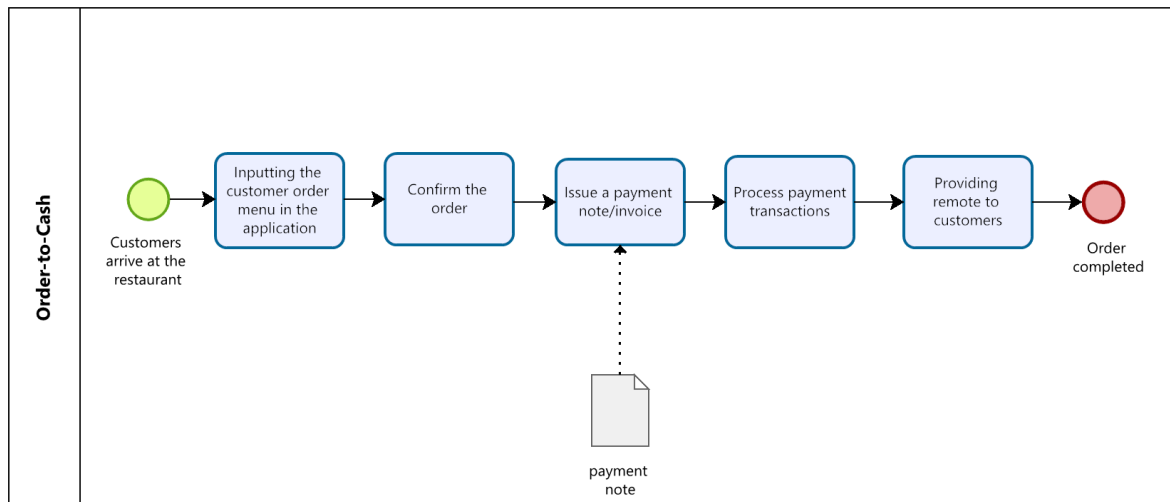


Figure 5. Modeling "to-be" order-to-cash business processes

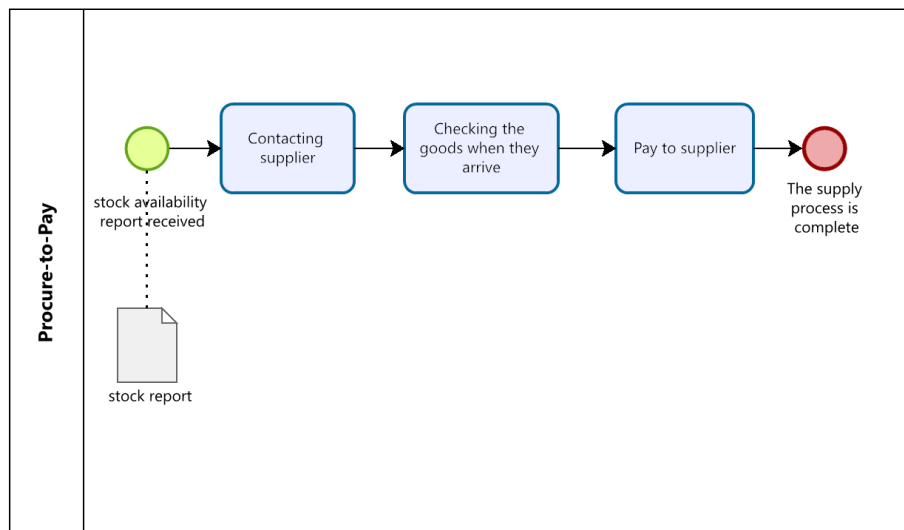


Figure 6. Modeling of "to-be" procure-to-pay business processes

As for the reengineering process in the procure-to-pay process, it is recommended to automate by adding a system of ordering goods to suppliers in which there is a database. When the warehouse runs out of raw material stock, then in the system you can immediately input what raw materials have run out/are not available, then his party places an order to the supplier according to the raw materials that have been listed in the system. After that, the supplier sends the goods. And after the raw materials arrive, it will automatically be written in the system that the ordering or procurement of goods has arrived at the warehouse. Furthermore, the process of checking raw materials is carried out by scanning existing barcodes. Then the nominal transaction enters the system, and automatically the cashier can see the nominal so that the cashier can directly pay/make payment transactions to suppliers with digital payments through the system. Raw material order documents can also be automatically copied and archived in the system. With the reengineering process, it is hoped that it can produce outcomes, namely shortening and streamlining the process of procurement of goods or ordering raw materials to suppliers, simpler and more accurate in payment because it directly refers to the database and the cashier directly pays to suppliers without warehouse intermediaries, checking goods is also more accurate using barcodes that are integrated with the database system.

#### 4. CONCLUSION

Based on the results and analysis that has been done on the research, it can be concluded that all business processes in this business unit are still being done manually. Then, several series of processes were carried out, namely business identification and modeling and process reengineering. All these series result in proposed new business process models that can be beneficial for business units/organizations, namely in the order-to-cash process (ordering food menus by customers) and the procure to pay process (ordering raw materials to suppliers/procurement of goods) such as automation and optimization of resources. The recommended automation is in the form of the use of mobile applications, remote, and database systems to support the effectiveness of the order to cash and procure to pay processes.

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