






# How Integrating Service Production, Quality Control, Inventory Management for Small Retail Coffee Industry: A Case Study

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**Abstract.** MSMEs Nature Beauty Coffee, often called Natbe Coffee, is a MSMEs from Bandung that focuses on distributing Coffee beans; established in 2022. This is one of MSMEs startups that aims to optimize the sales or marketing of Coffee beans in Alamendah Village, Rancabali, Bandung, West Java. At this time in the MSMEs, efforts still need to be made to understand the digitization of the Production system so the process can be done well. The understanding of digitalization will impact the problems of Natbe Coffee. The issues that occurred are the less optimal handling of Production data, product availability in the warehouse, the display of Production status data, and inventory status from raw materials to products that still make to order manually. In addition, an analysis of the quality of the selection of Coffee beans is critical because this affects the quality and taste of the Coffee beans, but Natbe Coffee still does it manually. For this reason, this research will conduct a design analysis using an Enterprise Resource Planning (ERP) system with a Production module consisting of Inventory and Manufacturing and a Quality Control Module in open-source software, namely Odoo. This integrated system will use the Accelerated SAP (ASAP) method, which has a structured approach to follow the research blueprint's design. The results of this study are the design of a business blueprint that consists of the results of the integration of the production process using the inventory and warehousing modules and the quality control module for selecting good quality coffee beans.

**Keywords:** MSMEs, Enterprise Resource Planning (ERP), Odoo, ASAP

## 1 Introduction

MSMEs have an essential role in various phenomena that occur in Indonesia. For example, MSMEs remained strong in crisis conditions from 1997 to 1998 and could even absorb 85 million to 107 million workers [1]. MSMEs are a microeconomic sector directly related to the implementation of the community's economy, especially for people with an economic scale down [2]. One of the largest sectors in MSME is the food and beverage sector, the third highest sector after Manufacturing and Retail in the broad MSME coverage [3]. The coffee bean provider sector contributes half of this sector's total exports of tropical commodities [3, 4]. This paper presents a case study

from a business owned by Telkom University students in the food and beverage sector that helps MSMEs in Bandung with coffee beans from Alamendah village, Rancabali, Ciwidey, namely Nature Beauty Coffee (Natbe Coffee). Natbe Coffee is one of the businesses that is engaged in supporting local MSMEs, scilicet coffee bean farmers in Alamendah village, Rancabali, and distributing these coffee beans through ready-to-use products such as coffee powder, air freshener, and others. However, some problems occur in efforts related to understanding the digitization of the production system. The problem is that Natbe Coffee still implements a make to order procedure which has an impact when there is a lack of data handling and quality control where the process of checking coffee beans is still manual and different for each product [5]. For that, Natbe Coffee needs an integrated information system digitization platform that is interconnected with one another and can carry out all business operations in one system [6]. One of the integrated software application package systems by all standard businesses in organizations and increase the competitiveness of organizations is Enterprise Resource Planning (ERP) [6, 7]. The focus of ERP was large scale companies. As technology developed, several vendors began to customize ERP products according to their business needs, especially on a medium and small scale, at prices for medium and small organizations, especially MSMEs [8].

One of the methods used in ERP implementation can be designed based on standard methodologies consisting of project preparation, business blueprints, realization, final preparation, and go live support, namely the Accelerated SAP (ASAP) method [9]. The ASAP method is a method that utilizes the core of the methodology. This method is suitable because it is designed based on experience and requires input from the user to help design implementations with the best solutions in SAP [9, 10]. The stages of the ASAP method will be used up to the blueprint to achieve a common understanding of how Natbe Coffee will implement ERP to support the business. The results are detailed documentation from existing business processes to the design of targeted business processes [9]. There are various types of ERP applications that can be implemented in organizations. Still, there is one application that is suitable for solving problems in MSMEs and provides different relevant modules such as Inventory, Warehousing, Quality Control, and other modules, namely the Website-based Odoo application [10, 11]. Natbe Coffee can obtain various advantages from using ERP by using Odoo, where Odoo can digitally record the production process, the display is user friendly, and Odoo can customize reports according to the needs of Natbe Coffee [12].

This implementation design will focus on business blueprints so that the paper can be reused for future results of this research in the implementation phase, and proposals will focus on the Production module. The author hopes that the research results using the Production Module can help businesspeople, especially Natbe Coffee, face challenges by developing production and service processes according to market needs.

## **2 Ease of Use**

### **2.1 Enterprise Resource Planning (ERP)**

Enterprise Resource Planning, commonly abbreviated as ERP, is a company management concept carried out in real time with integration that uses all the standards of businesses in the organization to increase the competitiveness of the organization [7]. There are several definitions of ERP. According to Lew, the method used to make business processes more efficient is by interacting to share information between business processes and running them electronically so that information sharing can run smoothly [13]. And according to O'Brien, J, ERP is a system that includes all functions that the companies use to encourage companies with several software modules integrated internally and even externally [13].

### **2.2 Odoo**

Odoo is a platform for ERP Open Source, formerly called OpenERP. It focuses on ease and flexibility of use compared to other paid software, so it is a suitable platform for MSME use, one of which is Natbe Coffee [11, 14]. According to Susanto, the software with 350 modules is an application created to improve business processes at companies. It is built on a website using XML, Python, and JavaScript programming languages. The database management system used to store data on Odoo is PostgreSQL [15, 16].

### **2.3 Production Module**

Odoo can integrate with many modules. For example, the Inventory, Warehousing, and Quality Control modules can unify into one, Production, which can function adequately to record production business processes at Natbe Coffee [14]. In this research, the integration of the Production module, starting from the inventory process to procure raw materials, followed by the manufacturing process in the product packaging process, to the quality control process from Natbe Coffee.

### **2.4 Accelerated SAP (ASAP)**

The SAP company created the ASAP method to carry out a structured implementation approach that can help managers achieve faster implementation with faster user acceptance, well defined roadmaps, and efficient documentation at various green stages [12]. The phases contained in the ASAP method are project preparation, business blueprint, realization, final preparation, and go live and support. This study's stage used in ASAP was limited to the blueprint phase.

### 2.5 Gap and Fit Analysis

Gap and Fit Analysis analyzes the fit and incompatibility of business processes owned by the system in SAP [9]. This analysis is one of the tools that can support companies in comparing current performance with the company's potential needs and is based on two conditions. The conditions that can be fulfilling or conditions that are potential.

## 3 Research of Method

### 3.1 Conceptual Model

The conceptual model is a method that describes a concept, composed of excellent and structured abstract and general ideas so that the results of identifying these factors can map existing problems and simplify them into one illustration, namely the conceptual method [12].

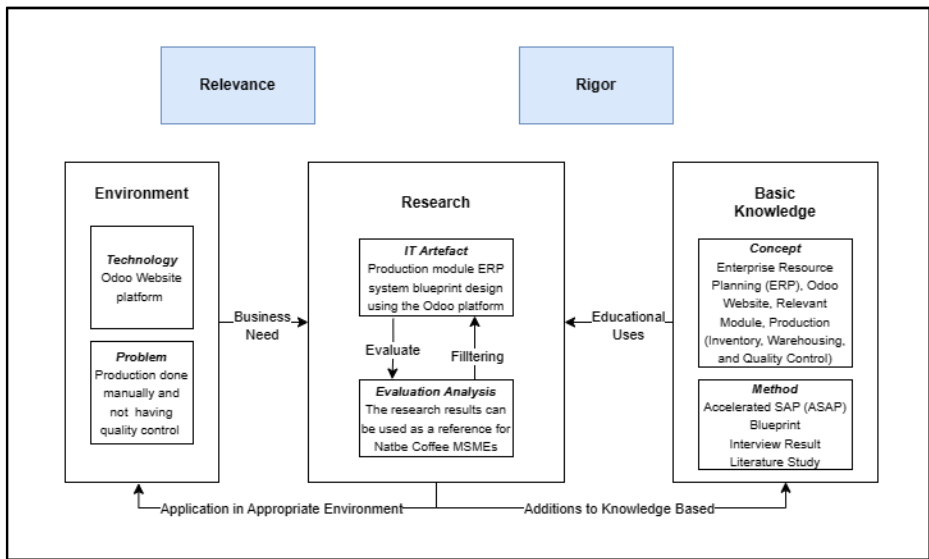


Fig. 1. Hevner Model Diagram

Based on the Hevner diagram Fig. 1. This study solutions are blueprint design for the production section at MSMES Natbe Coffee using the Odoo platform. The Odoo system is scoped to the planning or blueprint stage and is to be used or used as a reference for SME Natbe Coffee.

### **3.2 Research Systematic**

Research systematics are the steps that the researcher will pass to complete the analysis, starting from project preparation to closing. For further explanation of the research, the researcher will specify the report regarding the study to the gap and fit analysis in this paper.

## **4 Analysis and Design**

### **4.1 Project Preparation**

The project preparation stage is the initial stage before developing the existing ERP system development project at Natbe Coffee. The researcher will be conducting several things at this stage, including defining the scope of the problem, work plans, and field studies by making direct observations in the field to meet research needs. This approach can help to analyze problems that focus on the Production and quality control sections so that there are changes and improvements to support activities at Natbe Coffee. Because the stages are limited to a business blueprint, the research process will end in integration design.

### **4.2 Business Blueprint : Production (as-is)**

The production business process is a business process that focuses on the Inventory module, Quality Control module, and Manufacturing module at Natbe Coffee. This business process will discuss the current process (as-is) at Natbe Coffee in more detail. The production business process at Natbe Coffee will be described in the recent grand design business process (as-is) as follows:

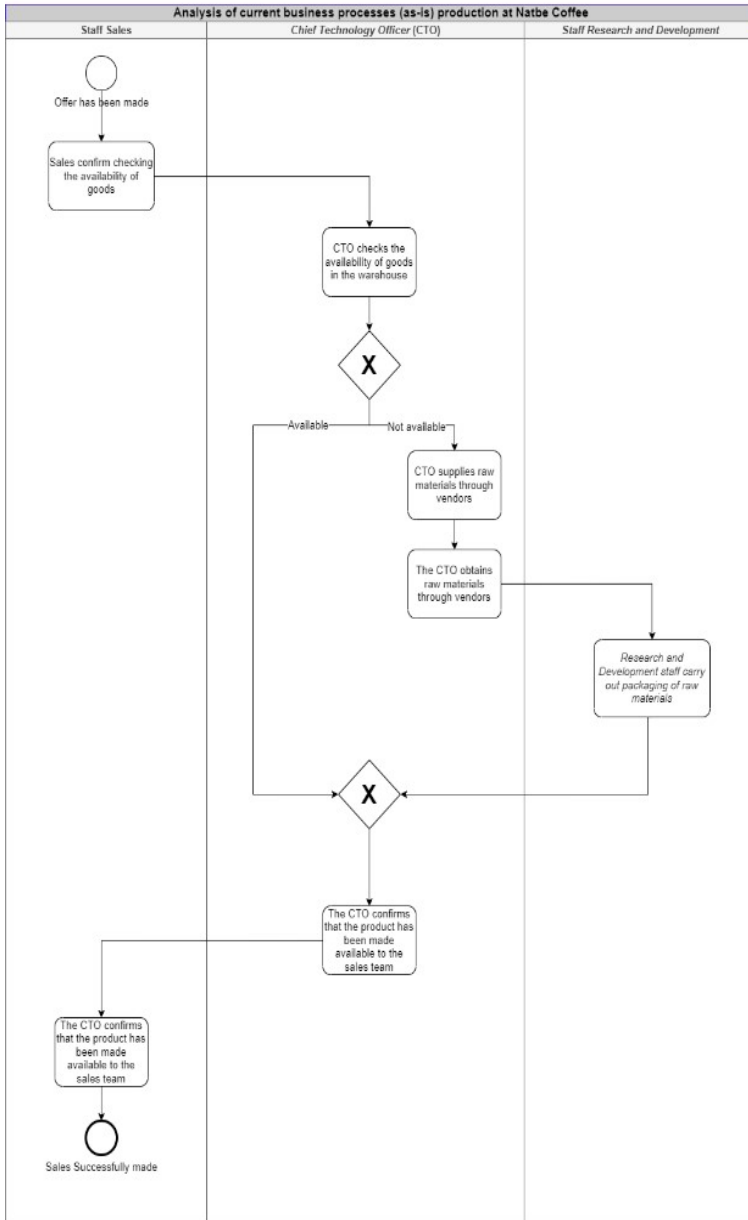


Fig. 2. Business Blueprint Production (as-is)

Description based on Fig. 2. current production business process (as-is) at Natbe Coffee which still needs details of actors engaged in production starting from the sales process, which confirms checks on the availability of goods. Furthermore, the CTO will

check the available goods in the warehouse and see whether the available products exist.

If the goods are unavailable, the CTO will manually provide raw materials through vendors; CTO will get raw materials through vendors in the appropriate amount or more than the order so they can have coffee stock manually. The Research and Development staff packs the raw materials, coffee beans, and ground coffee. Then the CTO will confirm that the product is available and establish the sales team. After that, the CTO will ensure that the product is known to the sales team. If the process has been successfully carried out, the sale will be successfully carried out to the sales team.

### 4.3 Business Blueprint: Production (to-be)

The proposed production business process is a proposed business process to run on the Inventory module, Quality Control module, and Manufacturing module at Natbe Coffee. Business processes related to the production process will be described in the following proposed (to-be) production business processes:

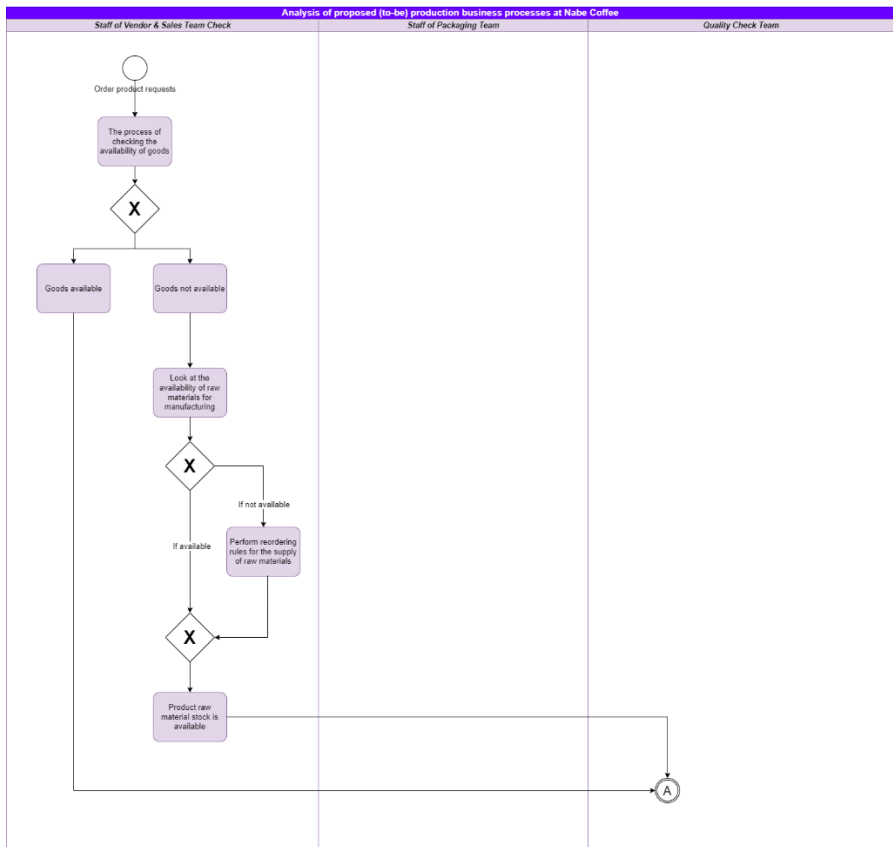


Fig. 3. Business Blueprint Production (to-be)

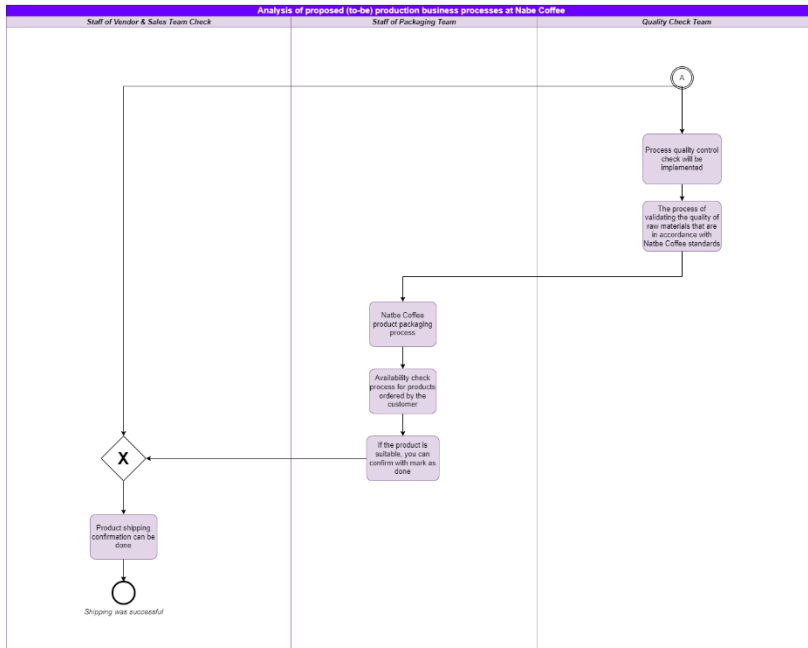


Fig. 4. Business Blueprint Production (to-be) continued

In the proposed production business process (to-be) based on Fig. 3. and Fig. 4. at Natbe Coffee, the process starts with confirmation of incoming product requests in the form of Odoo chat e-mails from the sales team. Next, the process of checking product availability will be conducted. When the check has been carried out, there are two conditions: if the product is available, then the shipping confirmation process can be carried out. However, raw materials will be made available for manufacturing if the product is unavailable. In the manufacturing process, raw materials are needed for packaging, so there are conditions where raw materials are public and unavailable. The quality control process can be carried out if the raw materials are available. Still, if the raw materials are not available, a reordering rule process will be carried out to provide raw materials, and the raw materials will be available. Furthermore, there will be a quality control check process to validate the quality of raw materials, which Quality Control will also carry out following the standards of Natbe Coffee. If the quality control process is appropriate, then the packaging will be carried out at Natbe Coffee.

The packaging process is carried out to include raw materials in the form of coffee beans and powder in the packaging of SMEs Natbe Coffee. After the checking process is carried out, it will be followed by an availability check process which functions to see product availability again for products ordered by the customer.

If the product conforms, a conformity confirmation process will be carried out using the mark as done feature. Furthermore, shipping confirmation can be made to ship products, and the shipping process will be carried out.

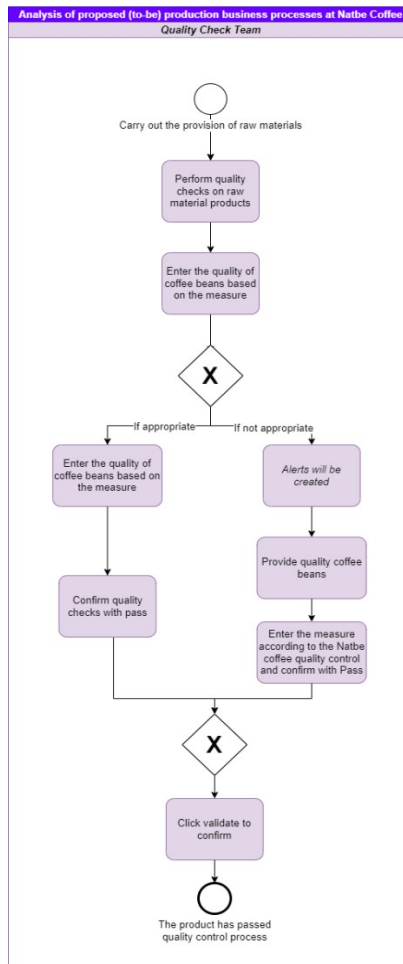


**4.4 Business Blueprint: Quality Control (as-is)**

The current quality control business process at Natbe Coffee is unavailable because Natbe Coffee still needs to have a business process in the quality control section. The process at Natbe Coffee is still focused on the production process and checking goods manually to determine whether Natbe Coffee can trade the product in the market segment.

**4.5 Business Blueprint: Quality Control (to-be)**

The proposed quality control business process for Natbe Coffee is a business process that Natbe Coffee can use to offer quality control for Natbe Coffee products described in the proposed (to-be) quality control business process below.



**Fig. 5.** Business Blueprint Quality Control (to-be)

The process is based on Fig. 4. starts with the provision of raw materials, and a quality check is Carried out on raw material products, and then the user can enter the quality of the coffee beans based on the measure. If the quality of the beans is suitable, then the user can confirm quality checks with a pass, but if the quality of the seeds is not applicable, then Odoo will make alerts. Furthermore, Odoo will carry out the supply of coffee beans according to the rate again. The user can enter a measure according to the Natbe Coffee quality control and confirm with a pass, and the user can click validate to ensure the quality check has been carried out.

#### 4.6 Gap and Fit Analysis

The Gap and Fit analysis process is carried out after the current analysis (as-is) and proposed analysis (to-be) on Natbe Coffee have been carried out in the production and quality control processes. When the two business processes have been analyzed, then Gaps and Fit will be made to evaluate the business processes so that there are solutions to the incompatibilities in the business processes. This analysis can be seen in the following table:

**Table 1.** Gap and Fit Analysis Table

No	Current business processes	Need	Fulfillment			Information	Solution
			N	P	F		
1	Production business process at Natbe Coffee	In the production process, a system is needed that can be integrated into supplying raw materials and packaging goods so that the product manufacturing process can be more structured.		✓		Existing: The production process is still manually and unstructured, where the process of procuring goods and packaging is carried out according to the products currently in the warehouse. There are areas for improvement in this process where production cannot be carried out in a structured manner.  Targeting: The existing production process will be more structured by using the ERP system using Odoo in the Production module, which consists of Inventory and	The Inventory and Warehousing module can implemented using the ER system, namely Odoo, by providing a method for supplying goods and pack goods to maximize the production process.

					Manufacturing modules.	
2	Quality control process at Natbe Coffee	In the quality control process, a system is needed that can analyze the quality of the goods so that the quality of the goods provided to the buyer can be maximized.	✓		Existing: The quality control process has yet to be carried out, so the quality provided by the product to the buyer is not maximized.  Targeting: By using the ERP system using Odoo in the Quality Control module, Odoo will maximize the existing quality analysis process, and buyers will get high-quality products.	The quality control process can be implemented using ERP system, namely Odoo by providing a method for checking the quality of co beans using a measure of coffee beans so that buyer get products with maxim rate.

The Gap and Fit Tables show a comparison that can provide solutions from the results of the as-is and to-be business processes at Natbe Coffee. There is a production business process at Natbe Coffee that needs fixing. Namely, the production process is done manually. It needs to be structured, and there is a solution, namely providing a method for supplying goods and packaging goods with the Inventory and Warehousing modules on Odoo.

In addition, a quality control process at Natbe Coffee has yet to be carried out. Hence, the quality provided by the product to buyers needs to be maximized. Odoo has a solution by providing a process for checking the quality of coffee beans using a measure of coffee beans so that buyers get products with the maximum rate on Odoo.

## 5 Conclusion

### 5.1 Conclusion

The design of production system blueprints and quality control using the Odoo website application ERP system using the ASAP method on Natbe Coffee. The conclusions that Odoo can draw from this study are as follows:

- 1) The design of Odoo ERP in the Production module was carried out by manually integrating the inventory and warehousing modules that Natbe Coffee previously did. With this design, the process can be done with Odoo ERP.
- 2) The design of Odoo ERP on the quality control module is carried out so that the selection of good coffee bean quality has yet to be available before Odoo can do this design.

## 5.2 Suggestion

Based on the research related to the production and quality control using the Odoo website application ERP system using the ASAP method on Natbe Coffee, there are several suggestions from the analysis as follows:

- 1) The researcher suggests continuing the ASAP method to design blueprints using Odoo. After the blueprint design process, methods that the researcher can continue are realization, final preparation, and go live & support.
- 2) If, in the future, you implement the system directly. A particular IT section will be a must.

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