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ERP-Based Redesign of Inbound Supply Chain Processes in a Indonesian Multiunit SME

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Abstract: This study aims to examine how business process reengineering accompanied by the implementation of an ERP system (Odoo) can improve the efficiency and accuracy of internal processes in a multi-unit SME in Indonesia. The background to this study is the challenges of cross-unit business coordination, manual process inefficiencies, and lack of data visibility that impact internal supply chain performance. This research employs a qualitative approach through in-depth interviews and field observations, verified through business process modeling and simulation using Bizagi Modeler. The research findings indicate that the business processes prior to the redesign, with ERP implementation, were characterized by fragmented coordination of raw materials, slow approval processes due to manual procedures, and inaccurate data recording. Projected results indicate that process time can be reduced by up to 75%, inventory discrepancies can be reduced by 15% to 3-5%, and cross-unit miscommunication can be significantly reduced. Simulation results using Bizagi show that the total number of lots that can be produced over 60 days increases from 980 to 991 lots. The average time for internal production can be reduced from 3 days and 5 hours to 2 days and 17 hours as recording accuracy improves through the ERP system. These findings emphasize the importance of in-depth process analysis, top management commitment, and structured change management strategies for the successful implementation of ERP systems.

Introduction

Indonesia's economic growth is currently driven by various strategic sectors, one of which is the Micro, Small and Medium Enterprises (SMEs) sector. Based on data from the Ministry of Cooperatives and SMEs, the contribution of SMEs to Indonesia's Gross Domestic Product (GDP) in 2023 reached 61% or equivalent to IDR 9,580 trillion, and absorbed around 117 million workers, which is around 97% of the total national workforce. However, of the 66 million SMEs in Indonesia, only around thirty million have been connected to the national digital ecosystem (Kadin Indonesia, 2024). This reflects a sizable digital divide, especially for SMEs that have complex internal structures and operations. The changing business landscape demands increased responsiveness, operational accuracy, and coordination efficiency between business units. To achieve this, technology adoption is a key factor in supporting the sustainable growth of SMEs. One of the SMEs facing this challenge is PT Alpha, a light packaged food company that is experiencing rapid growth and has a multiunit business structure.

PT Alpha has several internal business units, namely PT Warung as the center for purchasing and storing raw materials, PT Factory in charge of production and quality control, and three sales units: PT Online, PT Offline, and PT Business, which serve various distribution channels. In the previous operational model, each subsidiary made its own raw material purchases, stored stock separately, and coordinated production needs manually to the factory. This led to fragmented communication processes, inconsistent data, and low operational efficiency. As stated by the company's Chief Operating Officer, "In the past, each business unit could buy the same raw materials from the same vendor but at different prices. It was exceedingly difficult to track the overall inventory." CEO of PT. Beta (ERP implementation company) made a similar statement, "Inventory discrepancies can reach 15%, and communication between departments only relies on WhatsApp and Excel. This causes delays and errors in decision-making."

To overcome this problem, the company decided to reengineer its business processes and implement an ERP system. Business processes are the operational foundation of any organization, determining how work gets done to achieve the company's strategic goals. The concept of business processes has been widely discussed in management and information systems literature, with various experts providing complementary perspectives. According to Weske, a business process is a set of coordinated activities, which collectively realize business objectives in a specific organizational and technical context (Weske, 2024). This definition emphasizes the coordination and goal-oriented aspects of a set of activities. Like this view, Dumas et al define a business process as a collection of events, activities, and decision points involving a few actors and objects, which collectively lead to a result of value to at least one customer (Dumas et al., 2018). This definition adds important elements such as actors (process actors) and objects (resources used or produced) and emphasizes the creation of value for customers.

The importance of well-defined and effectively managed business processes cannot be overlooked. Van der Aalst states that business processes are the heart of any organization, and the ability to manage and improve these processes on an ongoing basis is a key factor of competitive success (Van der Aalst, 2016). Efficient business processes can reduce costs, improve service or product quality, speed up response time to the market, and increase customer satisfaction (Aguilar-Savén, 2004). Furthermore, Kirchmer explains that disciplined business process management (BPM) enables organizations to achieve operational

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transparency, higher agility in responding to change, and compliance with applicable regulations (Kirchmer, 2017).

Changes in business structure require business process reengineering. Business Process Reengineering (BPR) is a managerial approach that aims to make radical changes to business processes to achieve significant improvements in terms of cost, quality, service, and speed. The term BPR was first introduced by Hammer who stated that “don't automate, obliterate”(Hammer, 1990). Hammer emphasized that organizations should not merely automate existing processes but fundamentally redesign them to be more effective and support the automation being implemented. BPR is defined as “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance such as cost, quality, service, and speed.” (Caeldries et al., 1994). Therefore, BPR is not merely a tool for documentation or process efficiency but a comprehensive transformation strategy requiring the involvement of all organizational elements. Effective BPR implementation requires full support from leadership, the appropriate use of information technology, and active employee involvement in creating a positive culture of change. As emphasized by Fetais et al. “Successful implementation of BPR requires talents who can make strategic decisions or a process owner with full authority to make such decisions” (Fetais et al., 2022).

To support BPR in companies, integrated technology tools and information systems are required. Enterprise Resource Planning (ERP) is one of tools as a system that integrates and manages business processes across various functions in an organization through a centralized platform (Moon & Moon, 2007). ERP is designed to be able to manage data stably and efficiently covering financial, operational, production, human resources, and distribution activities (Jacobs & Bendoly, 2003). This integrated system has the main objective of reducing data redundancy, which affects the improvement of information accuracy and alignment of business processes between departments.

Research on the implementation of ERP in supporting business processes in small and medium-sized enterprises (SMEs) is not new. Previous studies have highlighted the benefits of ERP integration in terms of process efficiency, decision-making, and cross-functional data integration. For instance, ERP systems can significantly enhance operational coordination and decision-making capabilities in SMEs, especially when tailored to the firm's production environment and business needs (Jain et al., 2008). Similarly, Alsharari et al found that Cloud ERP adoption in SMEs leads to improved integration of business processes and data visibility, though most implementations remain focused on system deployment rather than process transformation (Alsharari et al., 2020). However, most of these studies have focused on the general impact of ERP without delving deeply into the specific business process restructuring that occurs in the context of multi-unit SMEs. This study distinguishes itself by highlighting how the redesign of internal supply chain workflows particularly in the processes of procurement, storage, and distribution of raw materials to the factory is first implemented as a process design solution. ERP is utilized as a tool to ensure that the redesigned processes operate efficiently and in a standardized manner.

This study aims to evaluate how business processes in ERP Implementation, particularly in the inbound supply chain workflow, can be improved through a business process redesign approach. Problems in the old process were not only caused by the absence of an integrated system, but also by inefficient business process design. For example, interviews with several key figures revealed that coordination between business units is still done manually via WhatsApp and spreadsheets. In addition, the transfer of raw materials is often delayed due to lost goods and the lack of a system to track the movement of goods on a centralized platform. Therefore, the solution was first implemented through the redesign of business process flows as an initial change process, then supported by the integration of the Odoo ERP system. This study uses a descriptive approach with a comparative analysis method of processes before and after using qualitative data from interviews with several key parties, then modeled using Bizagi software to understand the context and impact of these changes. The problem formulations in this study are how can business process redesign and ERP integration address inefficiencies in the inbound supply chain particularly in procurement, inventory, and production processes within a growing multi-unit SME (PT Alpha)? This research is organized in several parts: Introduction, Literature Review, Data Collection, Research Methodology, Research Design, Findings and Analysis, Discussion, and Conclusion.

Research Method

This study uses a qualitative case study approach that focuses on evaluating business processes before and after the restructuring of internal business processes supported by the implementation of the Odoo ERP system at PT Alpha. The focus of this study is on changes in the flow of raw material procurement, inventory storage, and production processes, including communication and coordination patterns between units involved in the company's internal supply chain. The research began with direct observation of the business processes in the relevant units at PT Alpha, including PT Warung (as the raw material procurement center), PT Factory (production unit), and sales units (PT Online, PT Offline, and PT Business). Observations were conducted to map the current process flow, record interactions between units, identify potential error points, and estimate the duration of each activity. The objective of this stage was to map the existing process and identify activities that add value, do not add value, and are necessary but inefficient.

Data collection in this study used primary data obtained from PT Alpha. The data collection method is carried out through two main approaches, namely observation of the business processes running in all internal business units of PT Alpha and semi-structured interviews with key parties involved in the ERP implementation process in the company. Observations are carried out to thoroughly understand the end-to-end business process flow related to raw material procurement, inventory storage, and to the flow of finished goods production. Observations were carried out at the units involved in the inbound supply chain. This observation will generate notes on activities, communication flow between units, potential points of error, and estimated process completion time at each stage. The results of the observations were used to build an initial understanding of the business processes that were running before the restructuring and ERP implementation was carried out.

Following the observation, semi-structured interviews were conducted with four key informants directly involved in the design and implementation of the Odoo ERP system: the Operations Director of PT Alpha, the Production Manager of PT Alpha, the CEO of PT Beta (ERP consultant), and the ERP Project Manager of PT Beta. The interviews aimed to gain a deep understanding of the issues that arose before the restructuring, as well as expectations regarding the changes resulting from the use of the ERP system. The interviews included guiding questions such as: description of business processes before ERP implementation, pain points in the existing process, data and decision-making conditions before the integrated system, expected impact after full ERP operation, and perceptions of system effectiveness and efficiency.

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The information obtained through these observations and interviews was then verified and modeled using the Bizagi Modeler simulation approach to provide a systematic visualization of the process. The modeling was done using Bizagi software, to describe and compare the business processes before and after the restructuring process supported by the implementation of Odoo ERP system. Through this modeling, the differences in processing time, roles between units, and workflow efficiency were analyzed quantitatively and qualitatively. The combination of field observations, interviews, and process modeling is expected to provide a comprehensive picture of the impact of business process restructuring and the use of ERP systems in improving coordination, operational efficiency, and information accuracy in the internal supply chain at PT Alpha.

To ensure the validity and reliability of the simulation results in Bizagi Modeler, a series of parameters and assumptions based on operational data and interview results were carefully defined in table 1. These settings were applied consistently to both model scenarios to ensure a fair and objective comparison.

This methodology is expected to provide a structured evaluation of how internal process restructuring and ERP integration can enhance coordination, data transparency, and operational efficiency in growing multi-unit SMEs.

Table 1 Settings and Assumptions in Bizagi Modeler

Setting Topic	Model Parameters and Assumptions
Operational Calendar	The simulation model operates according to PT. Alpha's actual work schedule: Monday to Saturday, with working hours from 08:00–12:00 and 13:00–17:00.
Production Capacity	The maximum daily production capacity is set at 20,000 product units.
Process Unit (Token/Instance)	For simulation efficiency, one process unit (token) is defined as 1 product lot, where 1 lot = 1,000 product units. Thus, the daily capacity is equivalent to 20 lots.
Demand Distribution	The arrival of lots into the system is simulated according to the demand proportion from each subsidiary: PT. Offline (60%), PT. Business (30%) PT. Online (10%).
Task Duration	The duration for each activity is derived from interviews with the Production Manager (based on weekly time allocations) and is normalized to a per-lot duration. Normalization is performed by dividing the total weekly time by the maximum weekly production capacity (120 lots).
Resource Allocation	All internal resources are modeled as a single resource pool due to the flexibility of staff assignments across units. This assumption is applied identically to both the before and after scenarios to ensure a fair comparison.
Efficiency calculation	Efficiency calculations in the simulation use time-based indicators. A limitation of this study is that it does not include cost factors in the simulation.

This methodology is expected to provide a structured evaluation of how internal process restructuring and ERP integration can enhance coordination, data transparency, and operational efficiency in growing multi-unit SMEs. The overall research design and methodological flow are illustrated in Figure 1.

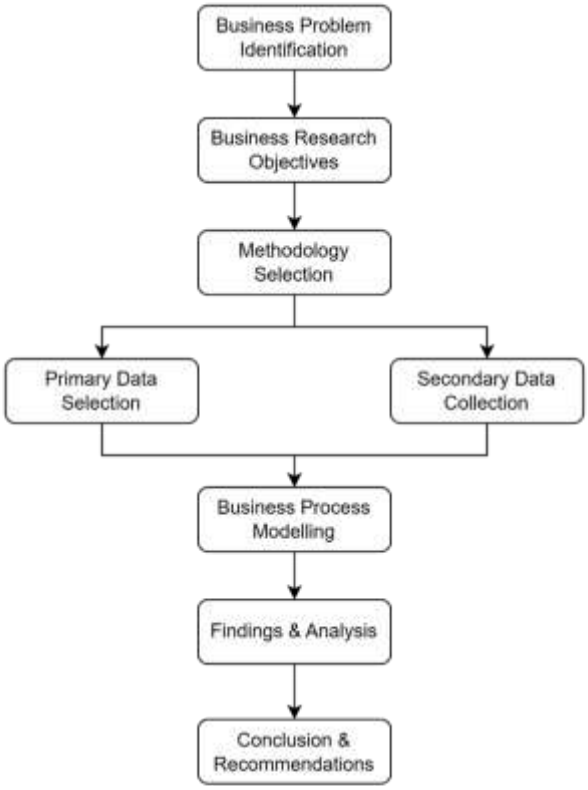

Figure 1 Research Methodology Flowchart

Results and Discussion

This section presents the main findings of the research on how the business processes in the inbound supply chain flow specifically related to raw material procurement, storage, and internal distribution to production were organized before and after the Odoo ERP-based restructuring of PT Alpha. The purpose of this section is to answer the research question: How can the business process redesign in the inbound supply chain-specifically in procurement, inventory, and production improve through the improvement of the company's business processes and integration with ERP systems in a growing multi-unit SME company (PT Alpha)?

In this research, semi-structured interviews have been conducted with four key informants who have a strategic role in the implementation of the Odoo ERP system in PT Alpha's business processes, namely:

- Chief Operating Officer (COO) of PT Alpha, who is responsible for the overall operations of the company and the ERP implementation initiative,
- Production Manager, who manages the overall manufacturing process,
- Inventory Manager, who manages the overall stocks & inventory.
- CEO of ERP Consultant (PT. Beta), provider of Odoo ERP system and implementation services,

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These four speakers provided a comprehensive overview from operational, technical, and managerial perspectives of the business process issues and expectations of the ERP system being designed and tested.

a. Key Findings of Business Processes Before ERP Implementation

This section presents the main findings regarding the inefficiency of business processes that occurred prior to the implementation of the Odoo ERP system at PT Alpha. Data from interviews and observations were analyzed using a descriptive approach. This process began with a thorough review of interview transcripts and field notes to identify recurring patterns related to issues in raw material procurement, inventory management, and production coordination. The most prominent issues were found at:

PT Warung, which lacked standardized procurement procedures and had no centralized system for stock monitoring.

- PT Factory, which faced difficulties in tracking the availability of raw materials due to scattered inventory data from various sources.
- Sales subsidiaries, which independently purchase raw materials from vendors, resulting in uncontrolled price discrepancies and duplicate purchases.

The analysis results showed that there were four main themes reflecting internal business process barriers, namely raw material demand fragmentation, irregular distribution and production processes, lack of an integrated tracking system, and low data accuracy and quality.

i. Fragmentation of Raw Material Requests

This issue was first identified through discussions with the COO and Production Manager of PT Alpha, who explained that there was no system for centralizing raw material requests between units. Each subsidiary conducts its own raw material purchases, and most communication is done via WhatsApp or Google Sheets. This was confirmed again in an interview with the Production Manager of PT Alpha and the CEO of an ERP consultant and reinforced by observation results, where researchers found scattered and non-standardized purchase documents.

As stated by the Inventory Manager of PT. Alpha:

> "Sometimes we only find out we need material X suddenly because there is no centralized system. Communication via WhatsApp is often missed or misinterpreted, so everything ends up being rushed."
> (Interview, Inventory Manager of PT. Alpha)

The COO of PT Alpha added:

> "Currently, not all raw materials go through PT Warung. Materials that don't need to be repackaged are usually purchased directly by each sales unit. With separate purchases, our bargaining power with suppliers becomes weak. If the volumes were combined, we could get better prices."
> (Interview, Chief Operating Officer of PT Alpha)

Production Manager of PT. Alpha added:

"The biggest bottleneck is the movement of goods that are not recorded or controlled in real time, as well as differences in raw material prices from vendors because they consider purchases to originate from three different company identities."
(Interview, Production Manager of PT. Alpha)

A similar situation was confirmed by the CEO of an ERP consulting firm (PT. Beta)

"In the past, the same items were purchased by two different subsidiary units from the same vendor, but at different prices."
(Interview, Chief Executive Officer of PT Beta)

This situation indicates the absence of a centralized procurement data aggregation and request validation system. In addition to the potential for duplicate purchases, this issue also impacts distribution efficiency and cost control.

ii. Distribution and Production Issues

This issue was raised during interviews with the COO and Production Manager, who stated that the process of delivering raw materials to PT Factory is still done on an ad hoc basis, depending on daily needs, without any short- or long-term production planning. Field observations also showed that there were no consistent production schedule documents from week to week.

As stated by the Chief Operating Officer of PT. Alpha:

"Last year before June, production did not have a full month's production schedule. Sometimes there was a lot of stock one day, and the next day it was empty. Even within a scheduled week, production could change."
(Interview, Chief Operating Officer of PT. Alpha)

Chief Operating Officer of PT. Alpha added:

"Since the data isn't real-time, if there's a production shortage, it's not immediately apparent, and we also don't know what the shortage is unless we ask."
(Interview, Chief Operating Officer of PT. Alpha)

The lack of coordination between the warehouse and production units causes delays in material delivery and bottlenecks in the production process.

iii. No Integrated Tracking

This issue came to light when researchers compared production tracking and inventory status between business units. Based on interviews with the operations team and observation results, it was found that tracking of goods, both raw materials and finished products, is still done manually and there is no clear accountability. All activities are only recorded in Excel or WhatsApp without a notification system or real-time updates.

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Chief Operating Officer of PT. Alpha added:

> “Recording is still done daily. There is no schedule for specific times. SCM personnel don’t know when the production takes place in the morning, afternoon, or evening. Even if production is insufficient, it’s not immediately detected because everything is still recorded manually.”
> (Interview, Chief Operating Officer of PT. Alpha)

Chief Executive Officer of PT. Beta added:

> “After implementation, it turned out that the Kledo software was indeed unable to handle it. Transactions were not in order, goods transfers were unclear, and there were no configuration for production.”
> (Interview, Chief Executive Officer of PT. Beta)

iv. *Low Data Accuracy and Quality*

Interviews with all parties revealed that operational data is stored in various manual formats without standardization. This leads to input errors, unclear transaction histories, and difficulties in production planning and evaluation. Operational data is stored in various separate formats, mainly in the form of manual spreadsheets, resulting in a high potential for input errors, duplication, or data loss. There is no well-documented historical system, hence the decision-making process, both short-term and strategic. Planning conducted by directors and managers is often hampered and inaccurate due to the absence of real-time data from the entire business process.

Chief Operating Officer of PT. Alpha added:

> “Inventory is not real-time either. For example, tomorrow we want to produce sizes A, B, and C from 11 SKUs, but we are not sure how much inventory we actually have.”
> (Interview, Chief Operating Officer of PT. Alpha)

Chief Executive Officer of PT. Beta added:

> “There are many data discrepancies, and transactions are unclear. Financial records are also messy, so there is no traceability.”
> (Interview, Chief Executive Officer of PT. Beta)

A similar situation was confirmed by the Production Manager of PT. Alpha

> “Sometimes, some bales or lots go missing or their location is unknown. The current system doesn’t track the position or movement of each bale, so it takes 2 to 6 days to find them.”
> (Interview, Production Manager of PT. Alpha)

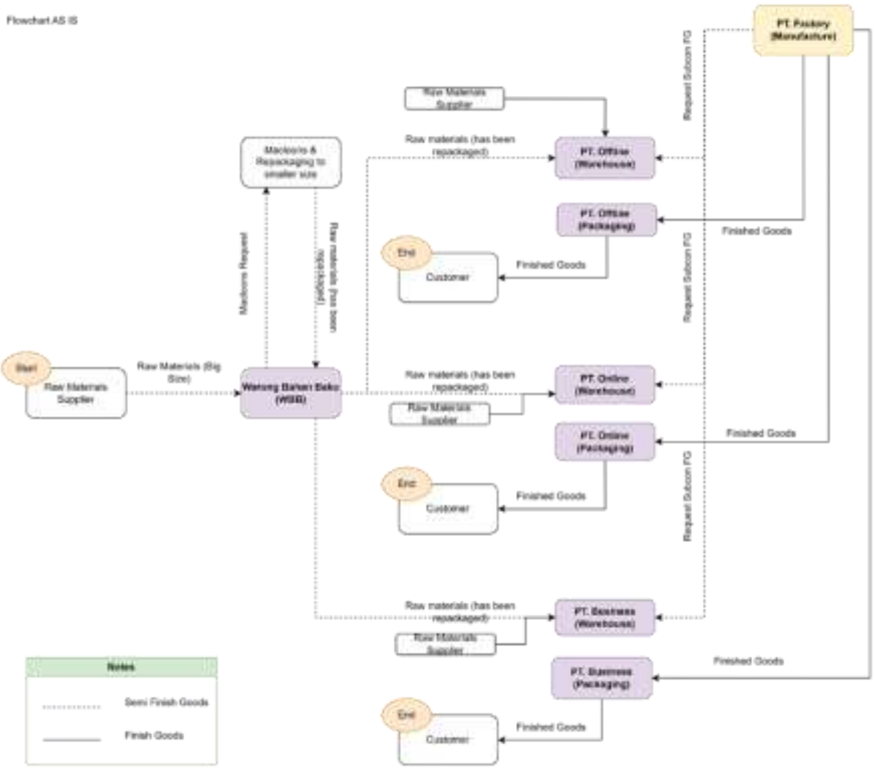

Figure 2 As Is Business Process Flowchart

Figure 2 diagram shows the business flow before the business process changes. Prior to the implementation of the new business process, the flow of raw material management to finished products at PT. Alpha showed a fragmented work pattern with a predominance of manual coordination between divisions and business entities. The company does not produce all raw materials internally. Raw materials used in the production process are obtained from third parties (vendors).

There are two main categories of raw materials based on their handling process: (1) raw materials requiring further processing, such as noodles and spices; and (2) ready-to-use raw materials. The repackaging process for noodle raw materials is conducted internally by PT. Warung. Meanwhile, for spice raw materials, the repackaging process is carried out through a contract manufacturer. Spice raw materials are purchased in bulk by PT. Warung, then sent to the vendor for repackaging, and the final product is returned to PT. Warung. All raw materials, whether processed or not require further processing, are stored in the warehouses of each subsidiary. Each subsidiary is responsible for submitting production schedules to PT. Factory, which functions as the product processing entity (manufacturing). After the production schedule is confirmed, the subsidiary must prepare and send the raw materials to PT. Factory at least one day before production begins. PT. Factory does not store raw materials or finished products; its function is limited to carrying out the production process.

There are three layers of quality control (QC) in this process:

1. QC Stage 1 (QC1) is conducted when raw materials are received by the subsidiary from the vendor. Inspections are carried out to ensure compliance with company quality standards. Raw materials that fail QC1 are immediately returned to the vendor.

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2. QC Stage 2 (QC2) is carried out by the team at PT. Factory before the production process. The inspection includes two approaches: (a) individual checks for individual raw materials, and (b) sampling tests for taste and visual quality. If damaged raw materials are found (e.g., broken during storage or transportation), the raw materials are returned to the subsidiary's warehouse to investigate the cause of the damage. If the damage originates from the vendor (e.g., stale taste or incorrect size), the raw materials will be returned and replaced, with an estimated replacement time of 2–3 days. Conversely, if the damage is caused by internal processes, the raw materials are re-evaluated for suitability: materials that still meet standards are resold at a lower price, while unsuitable materials are destroyed. In both cases, the subsidiary is responsible for repurchasing the required raw materials.
3. QC Stage 3 (QC3) is conducted on finished products after the production process is complete. Visual inspections are conducted on the outer packaging to ensure the product is marketable. Products that fail QC3 undergo a disassembly process, where the product components are dismantled and the raw materials from the disassembly are returned to the QC2 process for re-evaluation.

Finished products that pass QC3 are shipped back to each subsidiary for distribution and marketing. This business process reflects a high degree of reliance on manual coordination and potential inefficiencies, particularly in terms of time, data accuracy, and the risk of miscommunication between business units. This decentralized work model also makes it difficult to maintain consistent and comprehensive quality control and leads to delays in decision-making when deviations occur in operational processes.

More than just a daily operational issue, this inefficiency directly hinders the company's ability to respond quickly to the market. The inability to have accurate and real-time data visibility leads to production planning that is not in line with market demand.

Production Manager of PT. Alpha acknowledge:

> "Before this change, we couldn't predict demand... Sometimes when we planned production for Product A, there turned out to be significant demand for Product B. As a result, we couldn't meet that demand and lost sales opportunities."
> (Interview, Production Manager of PT. Alpha)

This demonstrates that operational issues have evolved into strategic barriers that hinder the company's business growth. To validate and reinforce the qualitative findings, business process modeling prior to restructuring (as-is) was conducted using the Bizagi Modeler software. This modeling used process time assumptions based on direct observations and confirmation from interviews with production and operational managers. Each activity was given an average time estimate based on actual duration in the field.

The model describes the workflow from raw material request submission to finished goods production at PT Alpha. Based on simulation results, bottlenecks were identified in the internal process workflow, particularly in the procurement, distribution, and raw material inspection units. Quantitative analysis revealed time metrics and quality risks that directly impact business process effectiveness.

b. Analysis of Long Process Duration

The Bizagi simulation results support the qualitative insights obtained during fieldwork, confirming that the long lead times and inefficiencies reported by operational staff are indeed concentrated in procurement, distribution coordination, and quality inspection processes. Simulations show that the lead time from the submission of raw materials to their receipt and readiness for use at the factory is quite long, with most of the time wasted in idle processes. Table 2 summarizes the average duration of each major stage based on simulations and observations:

Table 2 Summarizes the Average Duration of Each Major Stage Based on Simulations and Observations (As-Is Business Model)

Process Steps	Average Duration (Based on Interview)	Description
Purchase raw material per subsidiary	Variable, unsynchronized	No consolidation, inconsistent vendor communication
Manual stock planning & analysis	+- 4 hours/week	Manual calculation with spreadsheet
Manual stock input & labelling	+- 12 hours/week	No barcode system, manual input one by one
Delivery of raw materials to PT Factory (H-1)	+- 1 day	Much be scheduled separately from each warehouse
Return of defective goods from PT. Factory to subsidiaries	+- 1 hour / day	Coordination between units is not systematic
Returned goods to vendor (delay in replacement)	+- 2 days	Manual vendor approval and coordination process
Manual Production Planning	+- 3 hours / week	Team coordination does not use a centralized system,

In addition to the potential loss of effective time in the production process due to fragmented manual processes, there are also financial implications. Separate business processes and the use of non-integrated systems will have a financial impact due to delays, recording errors, loss of bargaining power for materials, and inaccurate stock calculations.

c. As-Is Business Process Performance & Major Bottlenecks

In Bizagi modeling, to reach the steady state stage, the simulation duration must exceed the duration of one business cycle period. Therefore, the simulation will be conducted over a 60-day period (8 business cycle periods) with 10 replications to obtain optimal results. The simulation results will include the number of tokens/products lots successfully produced and the average production time for each lot. These results will serve as a comparison of efficiency between the process before and after the implementation of the new business process.

In the main process simulation before the implementation of Odoo ERP over 60 days, the system showed that 980 instances were successfully completed out of 1,029 process instances initiated. The Bizagi report at Figure 3 shows that the average process

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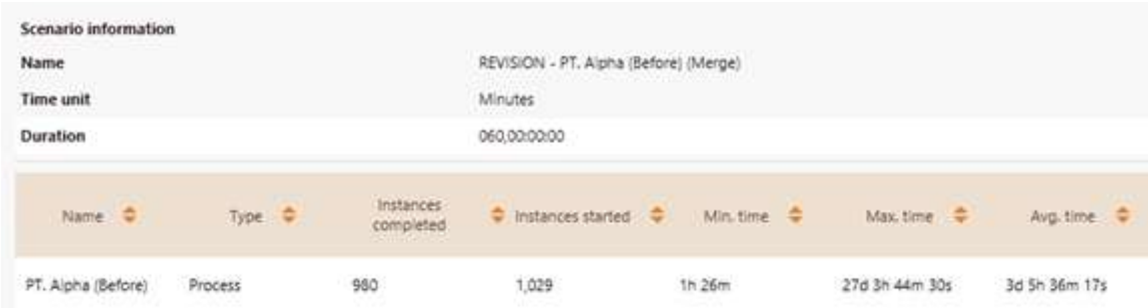
completion time (average time) was recorded at 3 days, 5 hours, 36 minutes, and 17 seconds. These results reflect inefficiencies in the manual process workflow, with relatively long process durations and the potential for work backlogs due to limited visibility and coordination between departments.



Scenario information

Name	REVISION - PT. Alpha (Before) (Merge)
Time unit	Minutes
Duration	060,00:00:00

Name	Type	Instances completed	Instances started	Min. time	Max. time	Avg. time
PT. Alpha (Before)	Process	980	1,029	1h 26m	27d 3h 44m 30s	3d 5h 36m 17s

Figure 3 Bizagi Modeler Simulation Report for As-Is Business Process

The Bizagi Modeler simulation of the “As-Is” process shows that the most dominant bottlenecks outside of financial aspects (for simulations in Bizagi Modeler) occur in:

1. The process of transferring raw materials from the subsidiary warehouse to the PT. Factory warehouse

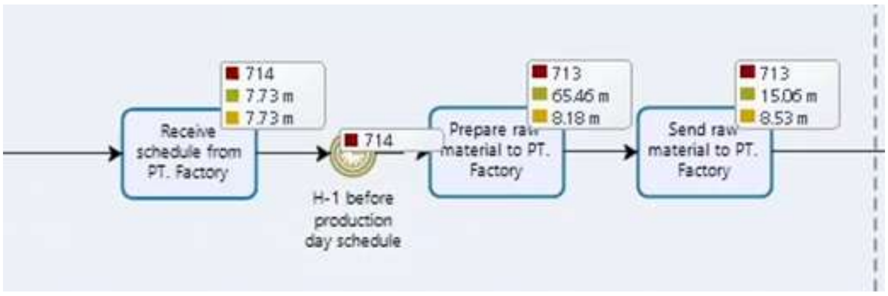


Figure 4 Process of Transferring Raw Material Bottleneck at Bizagi Modeler (As-Is Business Process)

As shown in Figure 4, raw materials need to be prepared at least one day before production to anticipate administrative processes and delivery from the subsidiary's warehouse. Separate warehouse systems require additional manual administrative processes between subsidiaries and PT. Factory. This process often causes bottlenecks because it is highly prone to errors due to the manual system.

2. Manual goods input and labeling processes, which consume labor and carry a high risk of human error.

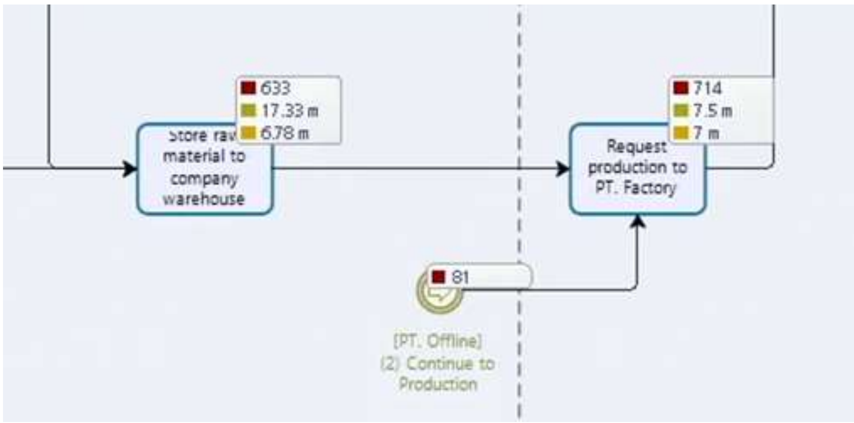


Figure 5 Manual Goods Input and Labeling Processes Bottleneck at Bizagi Modeler (As-Is Business Process)

The process of recording raw material stock in the warehouse as depicted in Figure 5 still uses a manual system combined with Google Spreadsheets, manual forms, and manual label printing without barcodes. This manual business process greatly hinders the recording and tracking of inventory flow both internally and between subsidiaries.

Workflow fragmentation between units not only results in duplication of activities but also hinders the company's scalability efficiency. The absence of a centralized system makes the entire process highly dependent on informal communication (WhatsApp, Google Sheets), which is prone to miscommunication and delays. From a managerial perspective, this process also complicates short-term decision-making because there is no real-time visibility of inventory data, and production planning must wait for confirmation from various units.

A similar situation was confirmed by the CEO of an ERP consulting firm (PT. Beta)

> "In the past, the same items were purchased by two different subsidiary units from the same vendor, but at different prices."
> (Interview, Chief Executive Officer of PT Beta)

d. ERP Implementation Business Process Redesign

PT Alpha's vision for the next few years is to make PT Alpha one of the instant food manufacturers whose products can be enjoyed on a global scale. The CEO of PT. Alpha stated that, "For this year, we will focus on learning and improving our overall business processes. These improvements are being made to support PT. Alpha's expansion in line with our future vision and mission." The primary priorities for improvement will be enhancing the company's overall business processes and implementing an ERP system. Efficiency and effectiveness in business processes will facilitate PT. Alpha's expansion in the future. This chapter will outline the decision to change business processes with the implementation of ERP to address fundamental issues. These modifications will follow the principles of business process reengineering, where business processes that add value will be continuously improved, processes that do not add value will be eliminated, and processes that do not add value but are important will be minimized.

The main problem faced by PT. Alpha is fragmentation, which creates inconsistencies in information between subsidiaries. Disintegrated processes lead to miscommunication, duplication of business processes, and a lack of transparent, real-

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time data visibility. The need for an integrated platform to unify all business operations has become urgent.

As stated by the Chief Operating Officer of PT. Alpha:

> “Why ERP? Because I feel we must learn system integration. The work of one division will impact other divisions. If division A's work log isn't finished, it cannot be processed by other divisions either."
> (Interview, Chief Operating Officer of PT Beta)

In addition, the previous system relied solely on a combination of manual processes, namely WhatsApp (communication medium), Google Sheets (data processing medium), and Kledo (accounting software). The combination of these three systems proved incapable of supporting the complexity of operations at the current scale. Kledo, which is only accounting software and not ERP-based, was deemed incapable of managing the entire business process. Ultimately, the conventional system became the main source of inefficiency itself.

As stated by the Chief Executive Officer of PT. Beta:

> “The initial problems were numerous discrepancies, unclear transactions, and messy financial records. The previous system (Kledo) was incapable of solving these problems because it's essentially an accounting information system, not an ERP. And indeed, this process could no longer be handled with Excel; it was no longer capable.”
> (Interview, Chief Executive Officer of PT Beta)

In response to existing problems, new business processes were designed based on the principles of centralization, automation, and data integration. This redesign is a form of Business Process Re-engineering (BPR), in which workflows are fundamentally overhauled rather than incrementally improved. The following are the main transformations in each process.

i. *Reconstruction of raw material request flow*

Under the existing conditions as shown in Figure 6, the production process is driven by partial demand from each subsidiary. They independently manage the purchase and storage of raw materials and submit production requirements. This model creates fragmentation, duplication of work, and reactive planning.

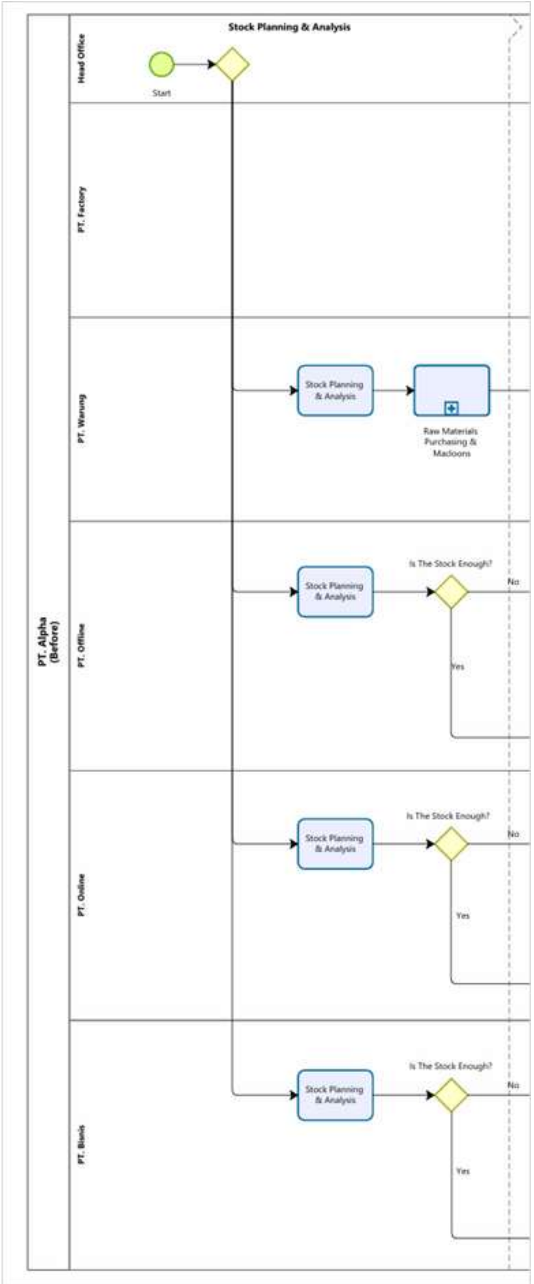

Figure 6 As-Is Raw Material Request Flow

In the new business process, the production process and raw material procurement are fully centralized under the central entity (PT. Factory and PT. Warung/WBB). Now, Subsidiaries are no longer involved in procurement operations or production requests. Their role is transformed into distribution units that focus on product sales and marketing. Production planning is done holistically by the center based on aggregated sales data and predictions from the ERP system. The goal of the new business process design is to simplify operational flow and improve production efficiency and inventory management. Meanwhile, the subsidiaries can focus fully on distribution and achieving company targets. The redesigned raw material request flow is depicted in Figure 7.

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As stated by the Chief Operating Officer of PT. Alpha:

> "In the future, all raw material procurement will be centralized through WBB. The sales subsidiaries will no longer hold raw material inventory. Each should become more expert in their competencies... some will have expertise in raw materials, others in finished goods or logistics"
> (Interview, Chief Operating Officer of PT Alpha)

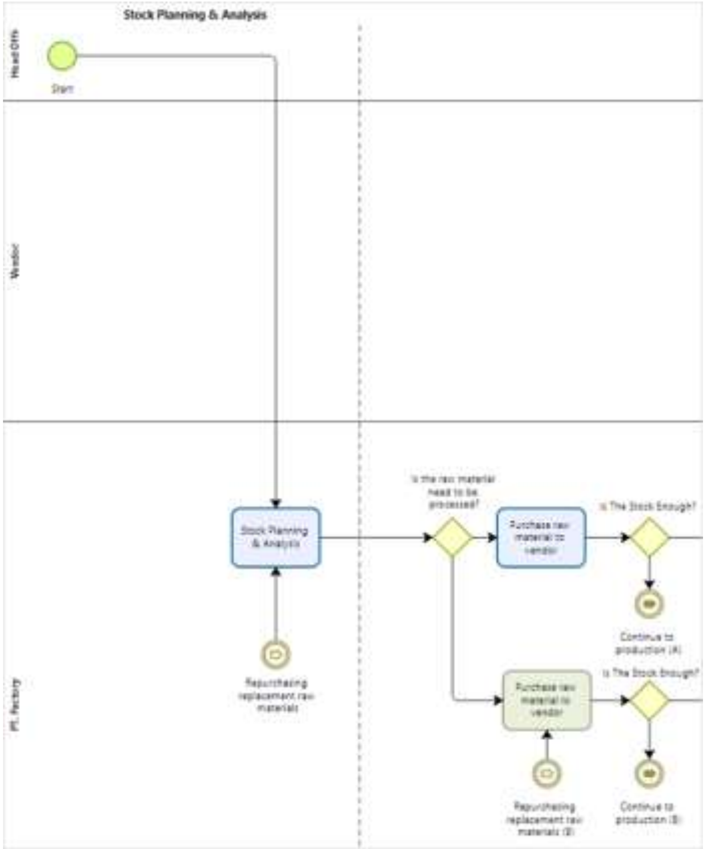

Figure 7 To-be Raw Material Request Flow

ii. *Automation of production process & schedule*

In the previous condition, production planning as shown in Figure 8 was reactive based on intuition and demand from subsidiaries. Production planning was often not aligned with market demand. There was no sufficient buffer stock to anticipate market demand at short notice.

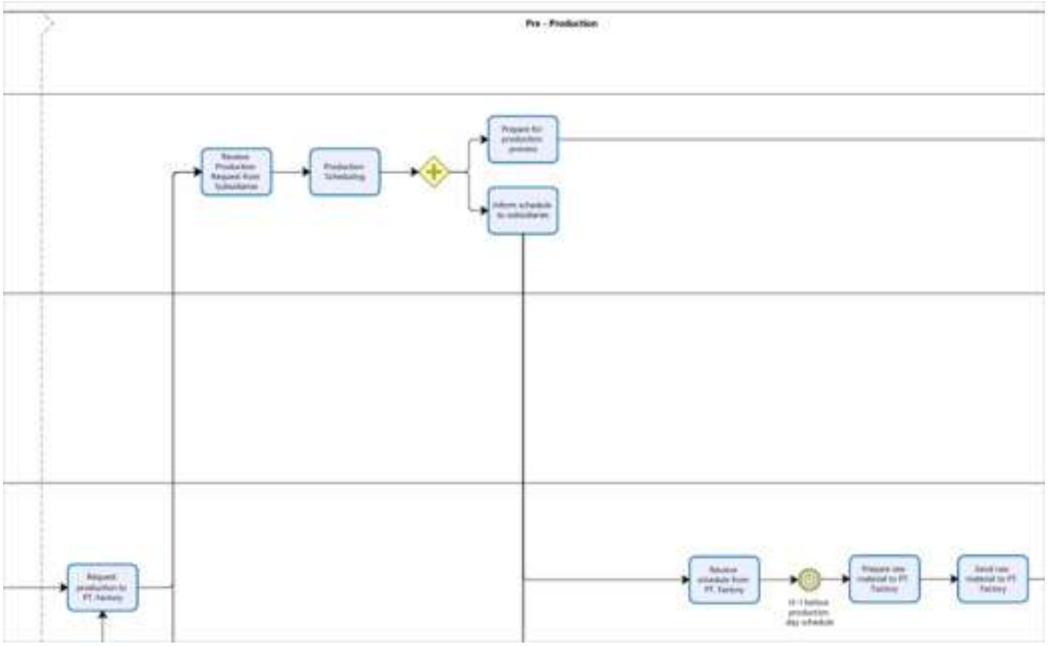

Figure 8 As-Is Raw Production Schedule

In the current business transformation as shown in Figure 9, production planning will be proactive, and data driven. The ERP system will use historical demand data to generate production quantity recommendations. Production scheduling will be more accurate and planned with a master production schedule integrated with the production system. The main objective of this change is to transform the production planning flow from reactive to proactive, reduce the risk of over/underproduction, and increase the company's agility to meet market demand.

As stated by the Production Manager of PT. Alpha:

> "Going forward, the planning process will be integrated, and scheduling will be based on the history of finished product "purchases" by subsidiaries. Currently, buffer stock has reached 30% and will continue to increase to 50% of demand. Therefore, there will no longer be a pre-order process or production schedule requests."
> (Interview, Production Manager of PT Alpha)

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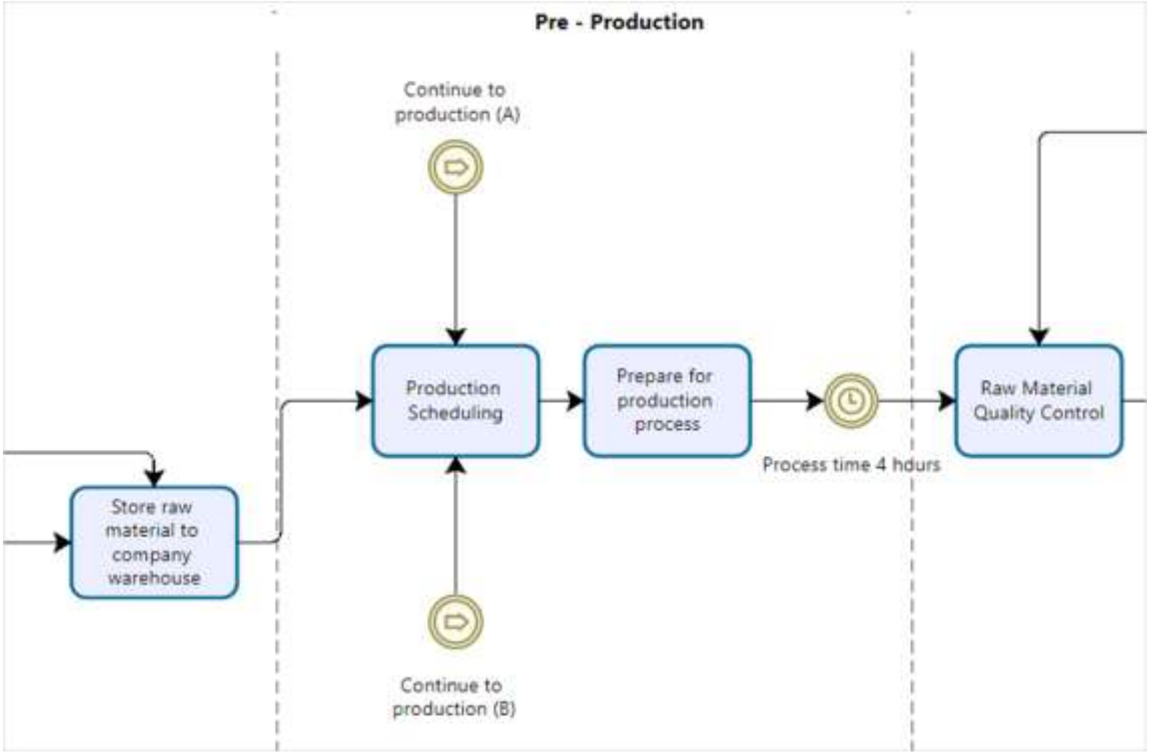

Figure 9 To-be Raw Production Schedule

iii. *Distribution & tracking integration*

The existing conditions do not have a formal system for tracking the movement of goods between units and lots. This has led to cases of raw materials being lost during the production process. The delivery status is difficult to monitor due to system limitations. In the new business process, the ERP system will track and record every movement of the process stages, starting from the position of the raw materials to the delivery of the finished product. The primary objective of this change is to improve the accuracy of location data and inventory status, reduce miscommunication, and accelerate response times in the event of anomalies. This system will anticipate the increasing production needs in the future. Transparency of information will assist management in enhancing productivity levels by addressing issues detected by the system at various points.

As stated by the Chief Operating Officer of PT. Alpha:

> "Regarding process speed, we will see... how long it takes to move from one point to another. This data will become more visible [with an ERP]."
> (Interview, Chief Operating Officer of PT Alpha)

iv. *Integrated & Real Time Data for Data-Driven Decision Making.*

Previously, all data was scattered across various unintegrated spreadsheets. Management found it difficult to get a complete picture of the field conditions quickly and accurately. This led to delays in daily decisions, which in turn caused delays in the production process. After the new business process is implemented, all operational data will be integrated into a centralized database. The ERP will serve as the central system managing all information. For example, changes made by the manufacturing team will automatically impact inventory tracking, accounting records, employee performance tracking, and overall performance tracking. Human errors and other risks can be avoided using the ERP system, thereby increasing effectiveness. Integrated data can be processed and viewed using the ERP dashboard feature. Real-time data processing will support faster and more accurate data-driven decision making.

As stated by the Chief Operating Officer of PT. Alpha:

> "With an ERP, this dashboard is real-time. It can be viewed anytime, and when it's real-time, well, decisions can be made [quickly]."
> (Interview, Chief Operating Officer of PT Alpha)

v. *Integrated & Real Time Data for Data-Driven Decision Making.*

The existing communication flow between units is considered unstructured, informal, and poorly documented. This often becomes the main source of miscommunication between production units and subsidiaries. Following the implementation of ERP, all communication is facilitated and directed through workflows within the ERP system. All requests, approvals, and transactions are recorded digitally. The primary objective of this change is to establish clear communication channels, reduce the incidence of miscommunication due to misinterpretation, and enhance accountability.

As stated by the Chief Operating Officer of PT. Alpha:

> "[this ERP implementation] is important to realize our values... accountable, reliable... with data that is indeed valid and real-time."
> (Interview, Chief Operating Officer of PT Alpha)

As part of its operational transformation strategy and ERP implementation, PT. Alpha has undergone significant organizational and business process restructuring, particularly in the areas of raw material procurement, production, and finished product distribution. This transformation was marked by the merger of two previous entities, PT. Warung and PT. Factory, into a single integrated unit called PT. Factory, which serves as the main control center for raw material procurement and production.

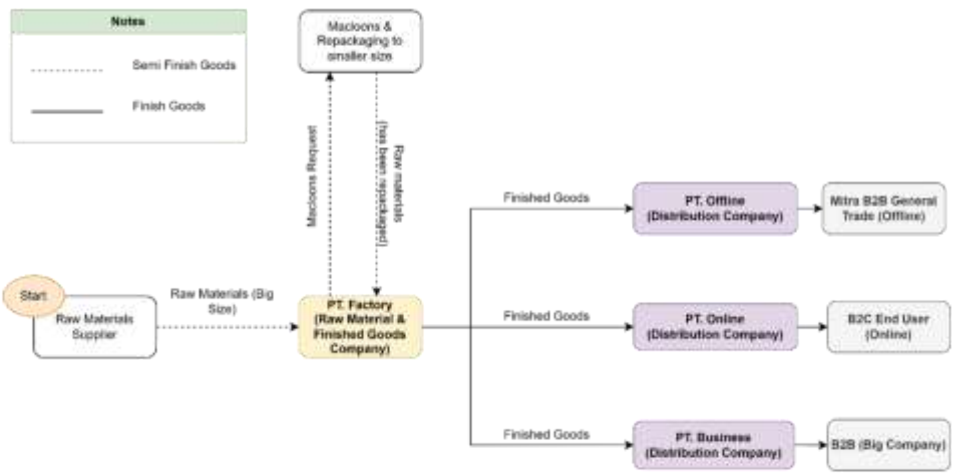

Figure 10 To-Be Business Process Flowchart

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According to Figure 10, PT. Factory is now fully responsible for the procurement, storage, processing, and distribution of finished products to its subsidiaries. Meanwhile, the other three subsidiaries—PT. Offline, PT. Online, and PT. Business—have shifted their roles to become distribution entities focused solely on sales and marketing activities. They no longer store raw materials or carry out production activities but instead receive finished products from PT. Factory on a regular basis and distribute them to the market according to their respective segments. Requests for goods are only sent to PT. Factory in exceptional circumstances (exception-based requests), such as sudden requests or seasonal spikes.

The business process begins with centralized raw material procurement, where PT. Factory purchases raw materials from external vendors. Raw materials that do not require further processing are directly stored in the central warehouse. Conversely, raw materials requiring repackaging are processed further, either internally at PT. Factory's facilities or through third parties (contract manufacturers). The selection of repackaging methods is carried out systematically based on the predefined classification of raw material types.

After procurement and storage, production scheduling is conducted by PT. Factory based on ERP system predictions, which consider historical demand and previous sales trends. The production process is fully carried out by PT. Factory, utilizing buffer stock as a reserve to avoid raw material shortages and ensure smooth production. This demand prediction system is still in the transition and data training phase, given the need for adjustments to variations in demand patterns and actual production volumes. The quality control process maintains three layers of verification, but now the entire process is centralized at PT. Factory.

After passing all quality control stages, the finished products are distributed from PT. Factory to its subsidiaries. This transaction is formally processed through the issuance of internal sales documents, where the subsidiaries "purchase" the finished products from PT. Factory at the production cost (cost-based transfer pricing). This model provides transparency between business units and facilitates the tracking of each entity's financial performance within the integrated ERP system.

Overall, this to-be model reflects the company's efforts to enhance operational efficiency through centralization of core processes, system-based demand automation, and strengthened quality control. This restructuring also facilitates more informed and responsive decision-making in response to market dynamics through data consolidation and cross-unit process integration.

e. Expected Efficiency Improvements and Change Management Challenges

After designing a new centralized and integrated business process, the next analysis focuses on projecting the impact of ERP implementation. This analysis is two-sided: on the one hand, it evaluates the potential for measurable performance improvements (efficiency and accuracy), and on the other hand, it identifies challenges from non-technical aspects, namely human factors, as well as mitigation strategies prepared by the company.

The new business processes implemented will improve operational efficiency and productivity due to integrated systems and simplified business flows. The process of merging the production roles of each subsidiary into a centralized PT. Factory will simplify the administrative process and the distribution flow of raw materials to finished goods. The use of ERP will cut business and administrative processes that were previously carried out manually into a systemized and centralized manner. The tracking process in each business process becomes very transparent, thus increasing the level of accountability significantly. This projection is supported by Bizagi Modeler simulation results and reinforced by operational management views.

As stated by the Chief Operating Officer of PT. Alpha:

> "With an ERP, a process that used to take 4 hours could be done in just 1 hour. So, we are also increasing productivity there"
> (Interview, Chief Operating Officer of PT Alpha)

The reduction of processing time in one business process will affect the workload reduction of human resources. The type of work that was previously focused on administrative activities can be minimized by the automation done by the ERP system. Resources previously focused on administrative work can be redirected to more strategic work such as analysis, strategic planning, and expansion. With the same power of resources, it can produce greater output due to increasingly efficient processes.

The approval and documentation process that was previously unstructured, using paper media that is prone to damage and loss, and cannot be processed in real time because it requires the administrative input process to google sheets again. The process that previously took up to hours can be done in minutes using the system. The consultant projected that the approval process could be shortened by 75%. Systemized approval and documentation processes will contribute to the acceleration of data processing for strategic decision-making.

In addition, one of the biggest pain points in the business process at PT Alpha is the high difference and inaccuracy of inventory data. The inventory tracking process that is done manually does not accommodate to do the tracking process in real time and large production capacity. By merging the production process into 1 company and implementing an integrated ERP system, the production flow becomes efficient, recorded, and can be tracked in real time. This new business process not only reduces potential losses due to lost stock, but also financially reduces the amount of working capital tied up in excessive safety stock.

As stated by the Chief Executive Officer of PT. Beta:

> "Discrepancies during inventory taking could reach 15%... But business processes are not enough. There must be an ERP as... the vehicle to resolve that... Maybe [the discrepancy] can be reduced to 5% or even 3%."
> (Interview, Chief Executive Officer of PT Beta)

However, in the process of transitioning to a new business flow configuration, there are certainly some challenges that need to be addressed. While the benefits of the new system were recognized, there were valid concerns about the transition process. These concerns are especially relevant given the workforce context at PT Alpha.

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As stated by the Production Manager of PT. Alpha:

> "The main concern was the technology transition & adaptation process. This ERP system, though more effective, is a new system that requires a re-learning process... This adaptation process will be more complicated, especially for workers with middle to lower education levels."
> (Interview, Production Manager of PT Alpha)

These concerns reflect potential non-technical risks such as resistance to change, fear of automation, and temporary increases in workload during the transition period. As stated by Somers & Nelson (2001), ERP implementation is not merely a technical project, but an organizational transformation that requires extensive communication and user training. The readiness of system planning must be balanced with the readiness of human resources who use the system. The management of PT Alpha and PT Beta are fully aware of this challenge and have designed a comprehensive management strategy. The main focus is on end-user empowerment, not just software installation.

As stated by the Chief Executive Officer of PT. Beta.

> "The main factor in the failure of new system / ERP implementation in many companies is the unpreparedness of users who use the system. Therefore, the main emphasized process in the implementation of ERP at PT Alpha is the training of human resources who use this system. Moreover, the education level of each worker at PT Alpha is very varied and diverse. It takes extra effort to be able to educate the use of ERP both in terms of concepts and technical matters. Alhamdullilah, PT. Alpha is very cooperative and has strong support from the company leadership in the implementation of Odoo ERP. Every worker is directed to learn through the modules and training provided."
> (Interview, Chief Executive Officer of PT Beta)

Chief Executive Officer of PT. Beta added:

> "Our success is when we have handed it over and they can run it themselves. Many other consultants think the more the client asks, the better. We don't. Training will be conducted intensively for five months before go-live and will continue through the warranty period. Modules and tutorials have been prepared to equip PT. Alpha's human resources."
> (Interview, Chief Executive Officer of PT Beta)

With strategies and support from all parties, it is expected that the migration process from old to new business processes can run smoothly and have a significant impact on the company's overall operations.

Business process modeling after restructuring (to-be) was conducted using Bizagi Modeler software again. This modeling uses process time assumptions based on direct observation and confirmation from interviews with production and operations managers. Each activity is given an average time estimate based on the actual duration in the field. The model illustrates the workflow from the submission of raw material requests to the production of finished goods at PT Alpha. Based on the simulation results, several business processes that have decreased in duration due to restructuring have led to an increase in time efficiency for the overall operational process.

f. Analysis of Long Process Duration

In the new business process flow, there are several operational flows points whose duration can be cut due to ERP implementation. The process of cutting the duration can be done because there are several administrative and operational activities that are facilitated by this ERP system. Table 3 summarizes the changes in average duration for each major stage as a basis for simulation and observation.

Table 3 Summarizes the Average Duration of Each Major Stage Based on Simulations and Observations (To-Be Business Model)

Process Steps	To-be Average Duration	Description
Purchase raw material per subsidiary	Synchronized	Consolidation, consistent vendor communication
Manual stock planning & analysis	+ - 2 hours / week	Automatic calculation & forecasting with ERP System
Manual stock input & labelling	+- 6 hours / week	With barcode system, with integrated & automatic system.
Delivery of raw materials to PT Factory (H-1)	+- 4 hours	Central warehouse, no delivery time & reduce administration time
Return of defective goods from PT. Factory to subsidiaries	0 hour / day	Defective goods stay at PT. Factory for the return process.
Returned goods to vendor (delay in replacement)	+- 2 days	Semi-automatic vendor approval, but the main obstacle to this reduction in operational duration is the vendor.
Manual Production Planning	+- 1,5 hours / week	Team coordination uses a centralized system,

The quality control process procedure remains the same as the initial scheme. But the whole process will be combined in the PT. factory. In Business Process Reengineering, this QC process is a process whose effectiveness level is not large but is required & important. Therefore, the solution that can be applied is not to modify the business process in a major way, but to increase the use of technology so that the quality control process is not carried out manually. The use of machines in the sorting & quality control process does require large investment costs but can significantly increase the capacity & accuracy of the quality control process.

g. To-be Business Process Performance

In the simulation of the main process after the Odoo ERP implementation, there was an improvement in process performance with 991 instances successfully completed out of 1,029 process instances started during the same simulation period of 60 days. The average process completion time as shown in Figure 11 decreased significantly to 2 days, 17 hours, 14 minutes, and 13 seconds. This decrease in duration indicates an increase in process efficiency and improved coordination between business units because of the integrated system through ERP.

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Scenario information	
Name	REVISION - ERP - PT. Alpha (After) (Merge) (4 jam)
Time unit	Minutes
Duration	060,00:00:00

Name	Type	Instances completed	Instances started	Min. time	Max. time	Avg. time
PT. Alpha (Before)	Process	991	1,029	6h 53m 30s	18d 2h 34m 39s	2d 17h 14m 13s

Figure 11 Bizagi Modeler Simulation Report for To-be Business Process

h. Comparison between As-is and To-be implementation plan.

The results of the qualitative analysis from the interviews with key stakeholders of PT Alpha & PT Beta need to be linked with the quantitative results from the simulation process. The conclusion that has been knitted between qualitative and quantitative results will be compared between before and after business process changes with ERP intervention. This approach will be a strong argument that describes the field conditions.

i. Comparative Analysis of Interview Results

To assess the effectiveness of business process changes after ERP implementation, a comparative analysis was conducted based on three predefined key benchmarks: process time efficiency, inventory data accuracy, and inter-unit coordination effectiveness. This comparative analysis presents a clear picture of the impact of the transformation at table 4.

Table 4 Comparative Analysis of Interview Results Summarizes

Performance Metric	Before ERP (As-Is Condition)	After ERP (Projected To-Be)	Change / Improvement
Process Time Efficiency	Planning, approval, and manual coordination processes took approximately 4 hours per request cycle.	Approval processes are automated with digital workflows estimated to take less than 1 hour.	Decrease 75% in processing time for non-physical activities.
Inventory Data Accuracy	Stock discrepancy rate during stock opname reached 10–15%, caused by manual recording and unsynchronized data.	With real-time transaction recording, stock discrepancies are projected to drop to 3–5%.	Increase Accuracy (70–80% reduction in discrepancies).
Inter-unit Coordination	Highly dependent on informal communication (via WhatsApp), undocumented and prone to miscommunication.	The system provides a centralized platform with transparent status tracking and notifications.	Increase Visibility & Coordination, ↓ Risk of Miscommunication.

To strengthen the validity of the findings, a data triangulation approach was taken by combining thematic interview results and Bizagi modeling and simulation results. The following narrative analysis examines holistically how quantitatively measurable process changes can be explained and enriched by qualitative experiences from stakeholders.

ii. *Comparative Analysis of Business Process Simulation Results*

As the main quantitative evidence, the business process simulation results of the as-is and to-be models are presented and comparatively analyzed. Simulations were run with validated parameters (60 days duration, 10 replications) to ensure statistical reliability. The analysis focuses on key metrics that directly reflect operational efficiency and capacity.

Table 5 below is a comparison of several key processes that experienced changes in operational process duration due to the implementation of new business processes and ERP systems.

Table 5 Comparison of Several Key Processes that Experienced Changes in Operational Process Duration

Process Steps	As-Is Average Duration (Based on Interview)	To-be Average Duration (Prediction, based on interview)	Efficiency level
Purchase raw material per subsidiary	Variable, unsynchronized	Synchronized	-
Manual stock planning & analysis	+- 4 hours / week	+ - 2 hours / week	50%
Manual stock input & labelling	+- 12 hours / week	+- 6 hours / week	50%
Delivery of raw materials to PT Factory (H-1)	+- 1 day	+- 4 hours	83%
Return of defective goods from PT. Factory to subsidiaries	+- 1 hour / day	0 hour / day	100%
Manual Production Planning	+- 3 hours / week	+- 1,5 hours / week	50%

Overall, business processes that previously required manual administration activities experienced a more than 50% decrease in duration due to the use of ERP. In addition, the process of moving raw materials between PT Factory and its subsidiaries that previously existed was trimmed due to the unification of operational activities. These results show that business process changes and ERP implementation significantly increase the efficiency level of operational activities.

As the main quantitative evidence, the business process simulation results of the as-is and to-be models are presented and comparatively analyzed. The simulations were run with validated parameters (60 days duration, 10 replications) to ensure similarity of scenario situations. The analysis focuses on key metrics that directly reflect operational efficiency and capacity.

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Table 6 Comparative Analysis of Business Process Simulation Results Summarize

Process Steps	As-Is Average Duration (Based on Simulation)	To-be Average Duration (Based on Simulation)	Efficiency level
Instances started	1029 token / lot	1029 token / lot	0%
Instances completed	980 token / lot	991 token / lot	+1.12%
Process Average Time	3 days, 5 hours, 36 minutes, 17 seconds	2 days, 17 hours, 14 minutes, 13 seconds	-15.94%

The results of the Bizagi model-based business process simulation as shown in table 6 showed an increase in operational efficiency in the to-be scenario compared to the as-is condition. The number of process instances started remained constant at 1,029 lots/token for both scenarios, indicating that the initial capacity of the process did not change. However, the number of instances successfully completed increased from 980 lots/token in the as-is scenario to 991 lots/token in the to-be scenario, representing a +1.12% increase in throughput.

Improvements were seen in the average process of completion time. The average duration of the process decreased from 3 days, 5 hours, 36 minutes, 17 seconds in the as-is condition to *2 days, 17 hours, 14 minutes, 13 seconds in the to-be condition, or a decrease of -15.94%. This duration reduction indicates that system integration and process digitization through ERP can eliminate non-value-added activities, reduce waiting time between activities, and improve synchronization between units in the workflow.

Overall, these simulation results provide quantitative evidence that ERP implementation not only improves data accuracy and communication transparency as found in the interviews but also accelerates business processes significantly. Thus, these findings support the argument that digital transformation through ERP can markedly improve business process efficiency and capacity in the context of a growing organization.

iii. *Qualitative and Quantitative Findings Analysis*

The results of the harmonized qualitative and quantitative analysis conclude that the new business process with ERP implementation has a positive impact both in terms of efficiency & increased accountability. With the implementation of new business processes, companies can eliminate administrative processes that should be done automatically by the system, increase the level of accuracy and error mitigation, transparency of business processes that increase the level of accountability, to the speed of data management that generates insights for strategic decision making of the company. Thus, the synthesis of qualitative and quantitative findings shows that ERP implementation plays a significant role in improving efficiency, accuracy, and coordination of internal inventory transfer processes at PT Alpha.

Conclusion

This research examines how business process redesign supported by ERP system implementation can improve internal supply chain efficiency in a growing multi-unit SME in Indonesia. Through a qualitative case study approach combining semi-structured interviews, direct observation, and business process modeling using Bizagi Modeler simulation, the research identified several deficiencies in the as-is process specifically related to raw material coordination fragmentation, manual approval system, informal communication, and inaccurate inventory data.

The ERP-based process redesign (to-be) introduced five key transformations: centralization of raw material procurement, automation of demand prediction-based production scheduling, integration of internal distribution tracking, real-time data visibility through dashboards, and workflow uniformity between business units. These changes are projected to significantly improve process performance. Quantitatively, internal inventory transfer time is estimated to decrease by 75%, inventory discrepancies are reduced from 15% to 3-5%, and bottlenecks in the approval process are minimized through integrated digital flows.

Beyond improving operational efficiency, this research also emphasizes the importance of top management commitment and a structured change management approach, especially in the context of SMEs that have limited technological readiness. Intensive training and ongoing mentoring are identified as key factors to drive system adoption and transformation sustainability. Theoretically, this study contributes to the ERP literature in SMEs, particularly in the under-researched context of internal supply chain integration in multi-unit firms. The findings reinforce the strategic role of data visibility, process centralization, and real-time coordination as performance drivers in digital transformation initiatives.

The findings reinforce the strategic role of data visibility, process centralization, and real-time coordination as performance drivers in digital transformation initiatives. However, this study has some limitations. This study was conducted on a single case with a limited post-implementation observation window. Therefore, further studies that are longitudinal or comparative between similar companies are interesting topics to test the validity of the findings and the long-term impact of ERP implementation. Future research can also explore the integration of additional technologies such as IoT integration on the ERP system as planned in the digital development phase of the studied companies.

Therefore, ERP implementation aligned with proper business process redesign can be the initial foundation for multi-unit SMEs to build a more scalable, accountable, and data-driven operating system.

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