

APPLICATION OF ODOO ERP WITH INTEGRATED SUPPLY CHAIN MANAGEMENT AND CUSTOMER RELATIONSHIP MANAGEMENT AT DANAR LEATHER MSME

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Abstract

Industrial changes occur rapidly in the world, nowadays companies are required to be able to optimize the role of technology so that operations run effectively and efficiently to remain competitive. Business processes that were originally carried out manually have been replaced using advanced technology systems. Companies need technology that can facilitate data management to be well integrated. One of the applications of technology systems in the business world is Enterprise Resource Planning (ERP) software. Danar Leather MSME is an MSME that produces various products made from animal skin including shoes, bags, sandals, jackets, and wallets. Danar Leather MSME's business process remains inefficient as management uses manual book-keeping, making it difficult to track operations effectively. The implementation of ERP software in the business processes of Danar Leather includes the process of managing stock items, order requests, production processes, sales transactions, and managing customer data. Odoo is an opensource business apps website that was chosen because this software is free to use, although with a certain time limit. The application of Odoo website-based ERP software uses supply chain management, customer relationship management, and purchase management to assist the development of Danar Leather MSME's operational. The designed system design is applied based on the analysis of the partner situation of the required system and compared with the previous business activities. The aim of this research is to evaluate the business processes at Danar Leather so that the problems previously faced can be resolved in a more effective and efficient way.

Keywords: Customer relationship management, ERP, Odoo, Purchase management, Supply chain management.

INTRODUCTION

Technological advancements in the digital era are essential for optimizing business processes. Technology exists to solve various business activity problems, ranging from production processes to distribution and goods delivery (Nugroho *et al*, 2023^a). Many businesses, including large corporations, utilize Enterprise Resource Planning (ERP) systems to streamline operations such as manufacturing, logistics, distribution, inventory, and accounting. ERP (Enterprise Resource Planning) is a software companies use to integrate and coordinate information in every business area (Nugroho *et al*, 2023^b).

Danar Leather MSME, established in 2019 in Pasar Johar Selatan Baru, Semarang, specializes in animal-skin products and serves customers nationwide. However, manual processes have led to challenges such as human error, data loss, and poor sales performance evaluations, highlighting the need for an ERP solution. To address these issues, Odoo, a web-based ERP system, was implemented, integrating supply chain management and customer relationship management (CRM) to streamline operations. This system manages product data, consolidates key

information, and reduces potential problems, supporting operational growth and enhancing efficiency at Danar Leather MSME.

LITERATURE REVIEW

Enterprise Resource Planning (ERP): Enterprise Resource Planning (ERP) is an integrated system used by MSMEs to combine all departments into a single database (Permatasari *et al.*, 2019). It supports data processing, sales, inventory, shipping, invoicing, and resource management.

Open Source On-Demand (Odoo): Odoo, an open-source ERP platform, is used by over 5 million users worldwide, integrating manufacturing, inventory, sales, and more to streamline processes and enhance data exchange. Many organizations have implemented the concept of Odoo best practices by developing, improving, and overcoming the problems that occur (Nugroho *et al.*, 2023^c).

Supply Chain Management: Supply Chain Management involves the planning and coordination of activities related to sourcing and procurement, production processes, and overall logistics management (Permatasari *et al.*, 2019). Emphasizing the oversight and improvement of key activities like inventory, purchasing, sales, and manufacturing to boost efficiency and resource use.

Inventory: Inventory refers to the process of recording data in the form of information about goods stored in the warehouse. The inventory module in Odoo functions to manage logistics activities, such as providing stocks of materials to finished goods for the smooth production process and meeting the needs of customer demand (Franky & Anwar, 2024).

Purchase: The purchase module automates material procurement with features like Request for Quotation (RFQ) and vendor management, ensuring timely and cost-effective production support.

Manufacturing: The function of menu manufacturing is to provide effectiveness and efficiency in the production process so that the resulting product performs optimally (Nugroho *et al.*, 2023^d).

Sales: It functions to handle the sales process, starting from the product list to checking orders that can be invoiced and those that have been delivered (Anwar *et al.*, 2023).

Customer Relationship Management (CRM): CRM is a company strategy to foster good relationships with customers so that they do not turn to other competitors. CRM aims to increase revenue from customer satisfaction (Suhari *et al.*, 2023).

RESEARCH METHOD

According to Putri and Suhendi (2021), the research was conducted in several steps as shown in Figure 1.

1. Problem Identification

The author identifies problems to find out the problems that occur in the business processes of Danar Leather MSME.

2. Initial Study

The author obtained data that supports the research through 2 types of studies, namely:

Literature Study

The author conducted a literature study to obtain theories related to Enterprise Resource Planning (ERP) and Odoo from papers, journals, and previous research results.

Field Study

The author conducts field studies through observations and interviews at Danar Leather MSME so that the author gets information about these MSME.

Analysis

The author collects data and information related to the management of the incoming goods system, available goods, and outgoing (sold) goods. The data collection techniques chosen are observations and interviews.

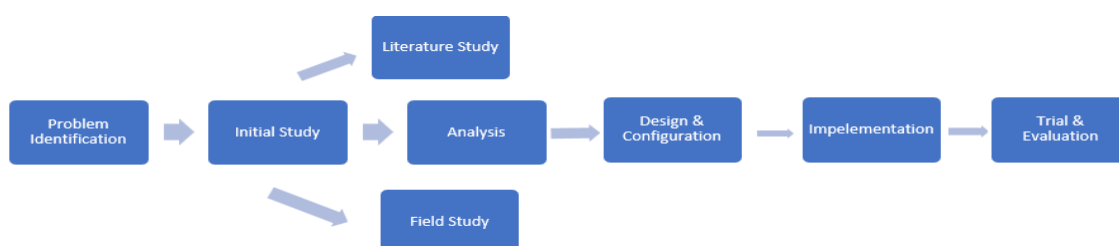


Figure 1. Research method flowchart

Design and Configuration

Design

The author designs the system needed by Danar Leather MSME using Odoo software.

Configuration

The author limits the research problem to looking for modules needed in the management of incoming goods, available goods, and outgoing (sold) goods.

Implementation

The author found the modules needed, including inventory, purchase, manufacturing, sales, and customer relationship management (CRM). Then the three modules are implemented in the business process system of Danar Leather MSME.

Trial and Evaluation

The author tests the developed system to ensure it functions correctly. Testing is conducted by the Danar Leather MSME owner, followed by an evaluation to optimize the Odoo system's performance.

RESULTS AND DISCUSSION

1. Flowchart is a visualization that describes the business process activities of a company which includes planning, material procurement, production, and product delivery to customers. The business flowchart at Danar Leather MSME is shown in Figure 2.

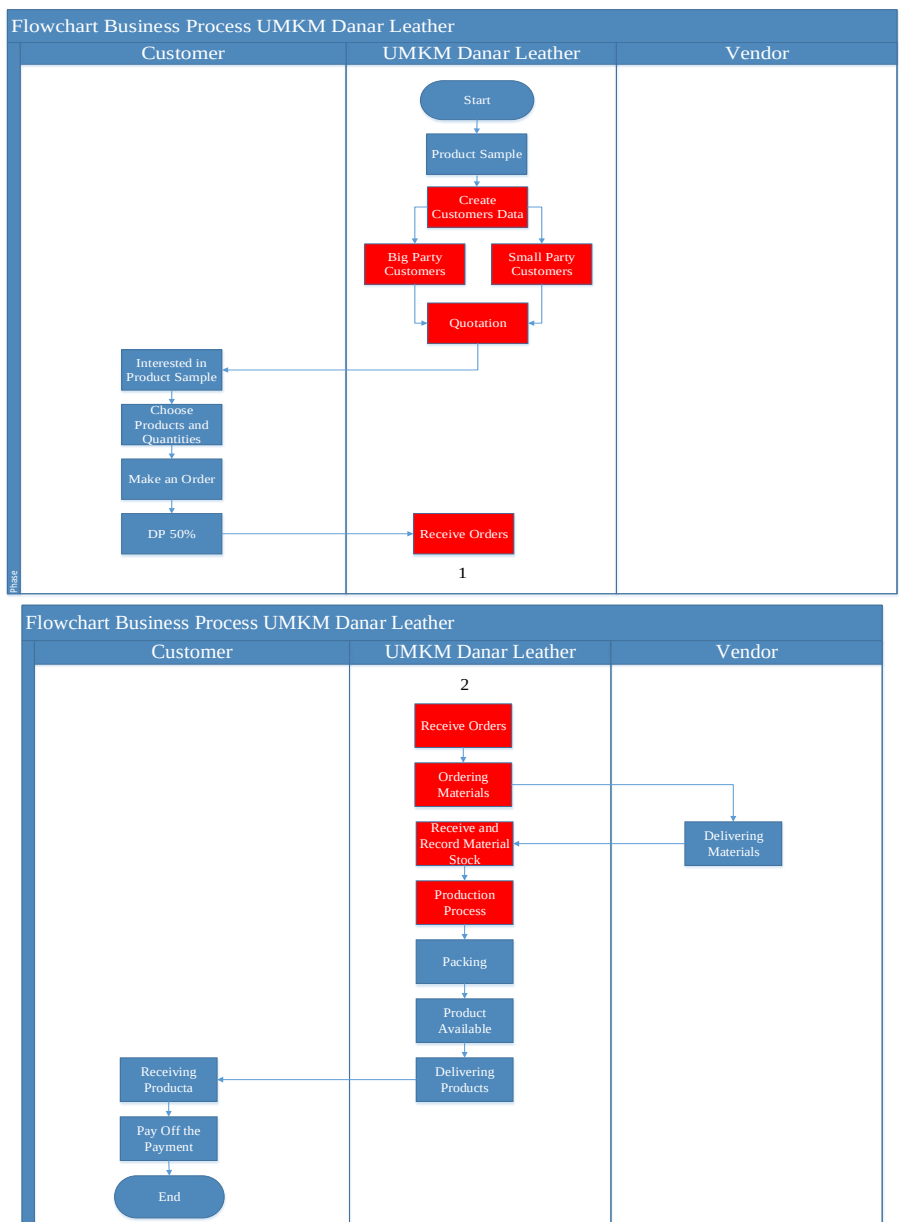


Figure 2. Business process flowchart at Danar Leather MSME

The business process at Danar Leather MSME starts with the owner designing product samples, organizing customer data, and offering samples to prospective buyers. When a customer places an order and pays a 50% deposit, the owner procures materials and manufactures the products according to the order quantity, including procurement, production, and packaging. Finished products are delivered to the customer, with the remaining payment completed. Danar Leather utilizes the Odoo system, which features modules for production, order management, inventory, and sales, simplifying internal records from production to delivery. The following are the stages in making the Odoo system for Danar Leather MSME:

1. Login View

In the login view, the owner must enter their registered email and password to access the Odoo system and configure settings. The login view can be seen in Figure 3.

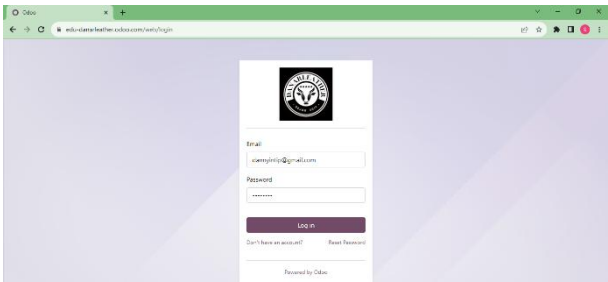


Figure 3. Login view

2. Inventory Module

According to Butara *et al.* (2021), inventory is a module used to manage the availability of stock items to avoid excess or shortage of stock items. The stages in inventory in the Odoo system are as follows:

2.1 Product and Material Input

Products and materials can be entered via Inventory > Products > New, then categorized by their criteria. The display of product and material input results is shown in Figure 4.

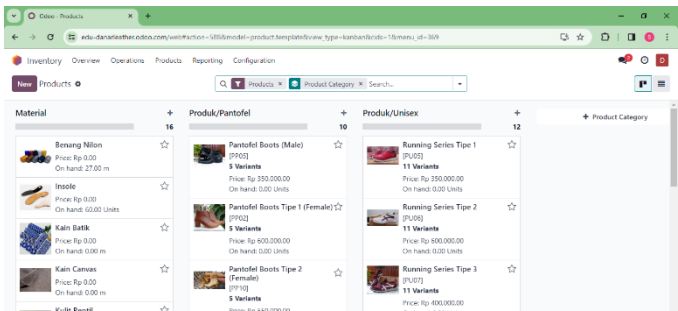


Figure 4. Category product view

2.2 Bill of Materials (BoM) Input

BoM input can be done through the manufacturing > products > BoM > new > input BoM > save menu. The display of BoM input results is shown in Figure 5.

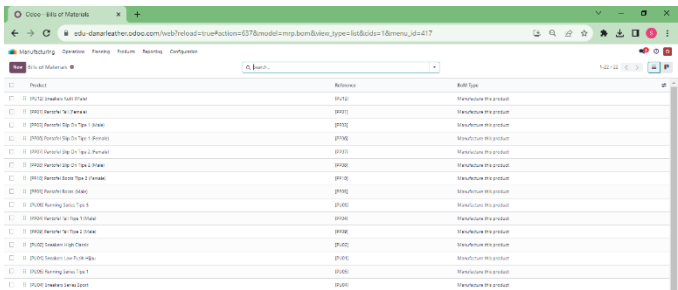


Figure 5. BoM view

3. Purchase Module

According to Butara *et al.* (2021), purchase is a module that contains a list of item details that have been confirmed by the supplier when the buyer makes a purchase request for goods. In the purchase module there are several stages, including:

3.1 Supplier Input

Supplier input can be done through the purchase > orders > vendors > new > input data vendors > save. The display of supplier input results is shown in Figure 6.

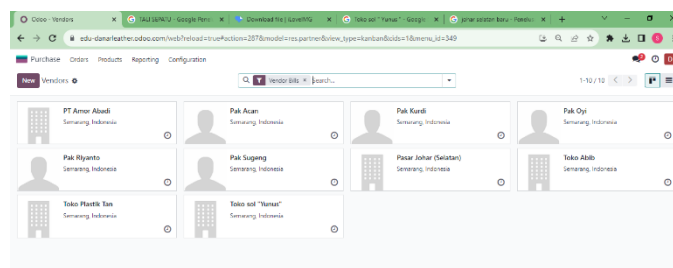


Figure 6. Supplier data view

3.2 Purchase Order Creation

Purchase order creation can be done through menu purchase > orders > RFQ > new > input data > confirm order > validate > create bill > register payment > paid. The result of a paid purchase order is shown in Figure 7.

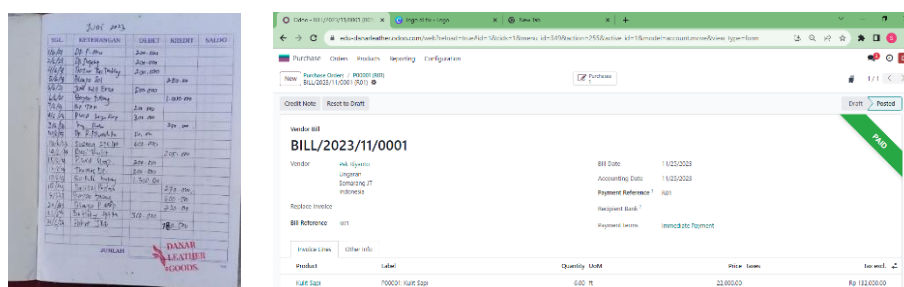


Figure 7. (a) Purchase recording, (b) Purchase order

4. Manufacturing Module

The manufacturing process can be done through the manufacturing menu > new > input data > confirm > stock on hand. The display of the manufacturing process results is shown in Figure 8.

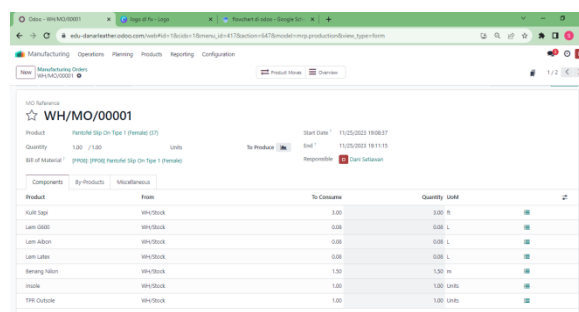


Figure 8. Manufacturing view

5. Sales Module

According to Nugroho *et al.* (2023)^a sales is a module that functions to assist in sales transactions, from creating quotations to viewing items or orders ready to be invoiced and those that

have been delivered. Sales stages can be done through the sales menu > orders > quotations > new > input data > confirm > sales order. The sales order display is shown in Figure 9.



Figure 9. Sales order view

6. Customer Relationship Management Module

According to Permatasari *et al.* (2019), CRM is a module used to manage customer data to find out which customers have great potential in purchasing a product. The CRM stage can be done through the CRM > Pipeline > Input data > Save menu. The display of customer data input results is shown in Figure 10.

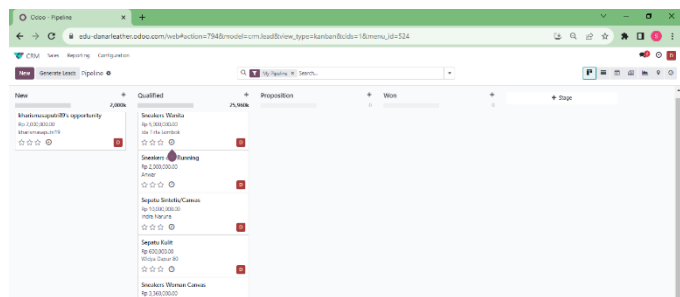


Figure 10. Customer relationship management view

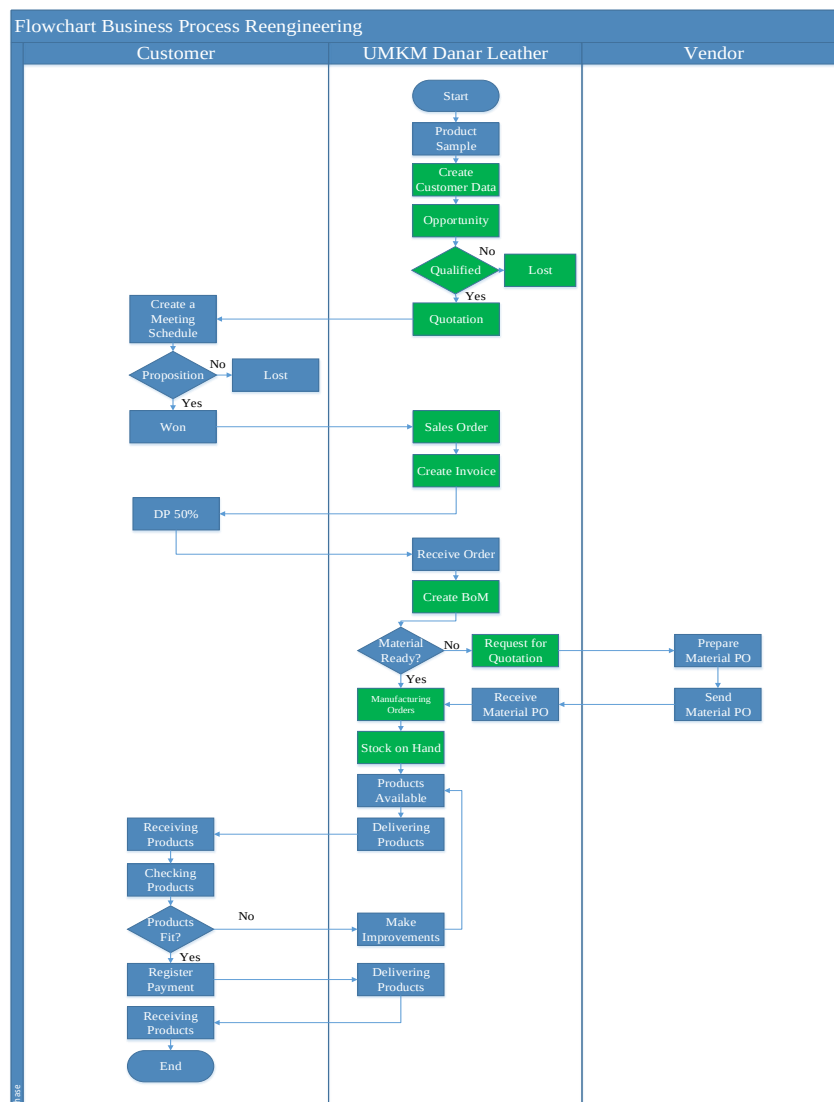


Figure11. Flowchart business process reengineering

To illustrate the business processes that have been made through the Odoo system at Danar Leather MSME, the following flowchart is shown in Figure 11. The systematized business process at Danar Leather MSME, using Odoo, begins with designing product samples. The owner creates customer data with high purchase potential through the CRM module and offers product samples to qualified customers. After making the offer, the owner schedules a meeting to negotiate and confirm the customer's interest. If the customer agrees, a 50% initial invoice is issued via the sales module, and the order is processed. The owner then procures materials using the purchase and inventory modules to manage stock. Once materials are received, production begins, and the process is recorded in the manufacturing module. Upon completion, the product is sent to the customer. If the customer approves the product, the remaining payment invoice is issued. If not, necessary repairs are made to meet the customer's satisfaction.

7. Gap Analysis

GAP analysis compares business processes before and after system implementation to evaluate progress toward organizational goals. According to Nugroho *et al.* (2023)^c the method used in gap analysis is the NPF method, namely (1) N (No fit) means that the system cannot help needs; (2) P (Partial) means that the system can help needs, but only partially; (3) F (Full) means that the system can help all needs.

Table 1. GAP analysis after implementation of Odoo ERP System

Source: Processed Primary Data, 2023

No.	Business Process	Needs	Fulfillment			Description	
			N	P	F	AS IS (Existing Business Process)	Business Process Reengineering (BPR)
1.	Inventory	Goods management system ensures stock levels are balanced.			✓	Stock items are recorded manually in a book, causing unstructured documentation.	Using an ERP system makes stock recording simpler, quicker, and organizes data in a structured way.
2.	Purchase	The system records material purchases to suppliers quickly to meet the minimum material stock.			✓	Materials are purchased through WhatsApp or in-store visits, with purchase records maintained manually in a book.	Purchasing materials from suppliers is faster, more efficient, and transaction data will be stored automatically using the ERP system.
3.	Manufacturing	The system efficiently records production processes for customer orders, starting with material needs and quantities required.			✓	Recording materials for the production process manually through writing in a book.	Recording the production process is faster, data is stored more structured by using the ERP system.
4.	Sales	Sales transaction data storage system effectively.			✓	Recording sales transaction data is still manual through writing in books.	An ERP system simplifies, speeds up, and automates recording sales transaction data.
5.	CRM	Structured system stores customer data to identify high-potential product buyers.		✓		Customer data is recorded manually in separate books, making it time-consuming to identify frequent repeat customers.	Record customer data more neatly, structured, and easier if you want to see which customers often repeat orders.

In the gap analysis, there is one application of the Odoo module that has partial results because the owner of Danar Leather MSME has recorded customer data similar to the CRM module, but only manually through writing in a book. The owner of Danar Leather MSME is also more comfortable with manual recording through writing in a book.

CONCLUSION

Conclusion

The business processes at Danar Leather MSME involving material procurement, product storage, manufacturing, sales, and customer data recording. However, these processes are inefficient due to reliance on manual bookkeeping, making it difficult to track inventory and customer information. This study aimed to digitize these operations for improved efficiency and effectiveness.

The implemented ERP system utilizes Odoo, integrating modules for supply chain management, including inventory, procurement, manufacturing, sales, and customer relationship management (CRM). These elements were tailored to meet the specific needs of Danar Leather MSME, as identified through direct interviews with the owner. The testing showed considerable upgrades in efficiency and effectiveness through the inventory, purchasing, manufacturing, and sales modules, while the CRM module offered partial support for customer-related activities.

Recommendations

1. For the Company: Danar Leather MSME should maintain consistent utilization of the Inventory, Purchase, Manufacturing, Sales, and CRM modules while adapting and expanding the system to accommodate future business growth.
2. For Future Research: Future studies should explore the application of additional Odoo modules and investigate potential collaborations with key stakeholders to maximize benefits.
3. Limitation: The main limitation of this research is that the Odoo platform is only available for a limited period without payment. Upgrading to new versions or opting for paid plans is necessary for continued use.

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