Journal of Information Systems and Informatics
Vol. 6, No. 4, December 2024 e-ISSN: 2656-4882 p-ISSN: 2656-5935
DOI: 10.51519/journalisi.v6i4.886 Published By DRPM-UBD

# Optimizing Supply Chain Management in the Confectionery Industry with Odoo 16

**I Gede Yogi Krisna Mahendra[1], Anak Agung Hary Susila[2], Dwi Putra Githa[3]**

[1,2,3]Information Technology Study Program, Faculty of Engineering, Udayana University
Email: [1]gedeyogi.gy@gmail.com email, [2]harysusila@unud.ac.id, [3]ddwiputragitha@unud.ac.id

**Abstract**

Innovation is crucial in today's business world, and one way to achieve it is by implementing a Supply Chain Management (SCM) system. Wikana Konfeksi, a clothing manufacturer based in Denpasar, still relies on manual methods for essential tasks such as tracking purchases, managing inventory, and recording sales. These manual processes often lead to errors, such as inaccurate records, misplaced documents, and delays in communication between departments. To address these challenges, Wikana Konfeksi decided to implement an SCM system using Odoo 16 ERP. This system streamlines business processes, helping the company achieve greater efficiency. The Accelerated SAP framework was used to guide the SCM implementation. The primary steps that comprise this technique are project preparation, business blueprint, realization, final preparation, and go-live support. The system was tested using the User Acceptance Testing (UAT) method, focusing on five key aspects of the Odoo 16 system design. Six staff members from Wikana Konfeksi participated in the UAT process, providing feedback on whether the system met their needs. The test results were overwhelmingly positive, with a score of 286, indicating that the system implementation was successful and more time efficient in carrying out each of its business processes.

**Keywords**: Supply Chain Management, Odoo, Accelerated SAP

## 1. INTRODUCTION

The development of confectionery businesses, especially in Bali, is growing every year due to the increasing consumption of clothing and current clothing trends. According to information from the Bali Province Central Statistics Agency (BPS), there were 2,245 confectionery business units in Bali in 2023. This number increased by 1.5% from the previous year which was recorded at 2,211 business units. Of this number, 2,105 business units are micro, small and medium enterprises (MSMEs), while 140 business units are large businesses. In terms of distribution, confectionery businesses in Bali are spread across all regencies/cities in Bali. The regency/city with the highest number of confectionery businesses is Denpasar City with 690 business units, followed by Badung Regency with 420 business units, and Gianyar Regency with 325 business units. In terms of turnover,

confectionery businesses in Bali in 2023 were recorded at IDR 2.4 trillion. This turnover increased by 2.5% from the previous year which was recorded at IDR 2.3 trillion.

Increased sales are the result of using technology that helps the company's systems work more efficiently. One of the most important components in the business world is technology, because every technological advance can always help business people overcome any problems that usually arise in the business world. Companies strive to increase the number of customers and compete with competitors by providing fast and cheap services. One way to achieve this success is by implementing a system in the business. Wikana Konfeksi, a clothing industry in Denpasar since 2014, produces t-shirts, shirts, polo shirts, and jackets. Despite being able to compete in the Bali market, the business still uses manual methods for recording purchases, stocks, and sales. This leads to frequent errors, lost records, document damage, and information delays. Unstructured and undocumented business processes compounded the problem. To overcome this, Wikana Konfeksi needs technology and business process overhaul that can improve the efficiency of the SCM system.

Supply Chain Management (SCM) is a business management software that integrates applications to improve company efficiency. SCM manages activities from the procurement of raw resources to the consumer delivery of completed goods. It covers administration, operations, and logistics, and controls the supply chain from suppliers to manufacturers, traders, and customers. SCM ensures that the company's system is computerized and simplifies various business processes [1].

Research by [2] discussed the implementation of an ERP system for halal supply chain management at Vanissa Brownies. They used the Accelerated SAP (ASAP) method to integrate procurement, production, sales, and distribution processes. Odoo can handle the entire procurement process from material purchase requests to warehouse receipts, products can be tailored and combined to fulfill the requirements of the supply chain management for halal food. Based on the research, the Accelerated SAP method was used to implement the SCM system at Wikana Konfeksi. This method includes project preparation, business plan, implementation, final preparation. In the final preparation stage, system testing is carried out using the User Acceptance Testing (UAT) method [3]. Although complex, systematic SCM enables efficient and effective company operations. Odoo 16 is one of the SCM tools that can integrate all SCM activities in one database.

Odoo (OpenERP) is a modern, open-source ERP software that offers several business modules, such as those for sales, manufacturing, project management,

p-ISSN: **2656-5935** http://journal-isi.org/index.php/isi e-ISSN: **2656-4882**

warehouse management, finance and accounting, labor, and customer relationship management. Its reporting mechanism can also be modified to meet the demands of the user [4]. The implementation of SCM using Odoo 16 is expected to increase the effectiveness and efficiency of Wikana Konfeksi in recording purchases, sales, and availability of goods for long-term growth. This allows the company to utilize technology to optimize its business processes.

## 2. METHODS

Figure 1 illustrates the workflow of the Accelerated SAP method, which was used to conduct this study. Problem formulation begins with the process of collecting initial data through literature studies and observation methods. Data analysis is carried out to determine system requirements. The next step is business process design and system implementation with the Odoo 16 tool. System testing, which is carried out using the User Acceptance Test method, is carried out on a Likert scale. If it is appropriate, the research stage is completed.

### 2.1. Accelerated SAP

The method suggested by SAP for implementing ERP software in companies is the Accelerated SAP Method (ASAP). By utilizing the core of its methodology and tools, SAP can produce fast and reliable results that help customers get the most suitable business solutions. Furthermore, ASAP offers benefits in project management, quality control, and best practices for efficient business process management.. The advanced delivery management model from SAP serves as the foundation for the ASAP approach, which provides project teams with tools, lists, guides, surveys, and templates. Businesses can employ newly developed tools and features that are integrated into SAP systems thanks to the ASAP methodology standard [5].

#### 2.1.1 Project Preparation

The first phase of system implementation is the project preparation phase, which includes field studies to understand the problems at Wikana Konfeksi, identification of problems and current company conditions, determination of problem boundaries and implementation objectives, and literature studies from various sources such as journals, books, articles, and scientific papers as research references [3].

#### 2.1.2 Bussiness Blueprint

The business blueprint stage involves collecting data and creating important documents for research, including current business processes, company data, and

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business process analysis [3]. Data was collected through interviews with the owner of Wikana Konfeksi to obtain detailed information, as well as direct observation of the business process. Ongoing business process documents were created using flowcharts to understand the current workflow. Business process analysis was conducted using the Key Performance Indicator (KPI) method to determine proposed improvements. The proposed business process document created using Odoo 16 software will be applied to the company.

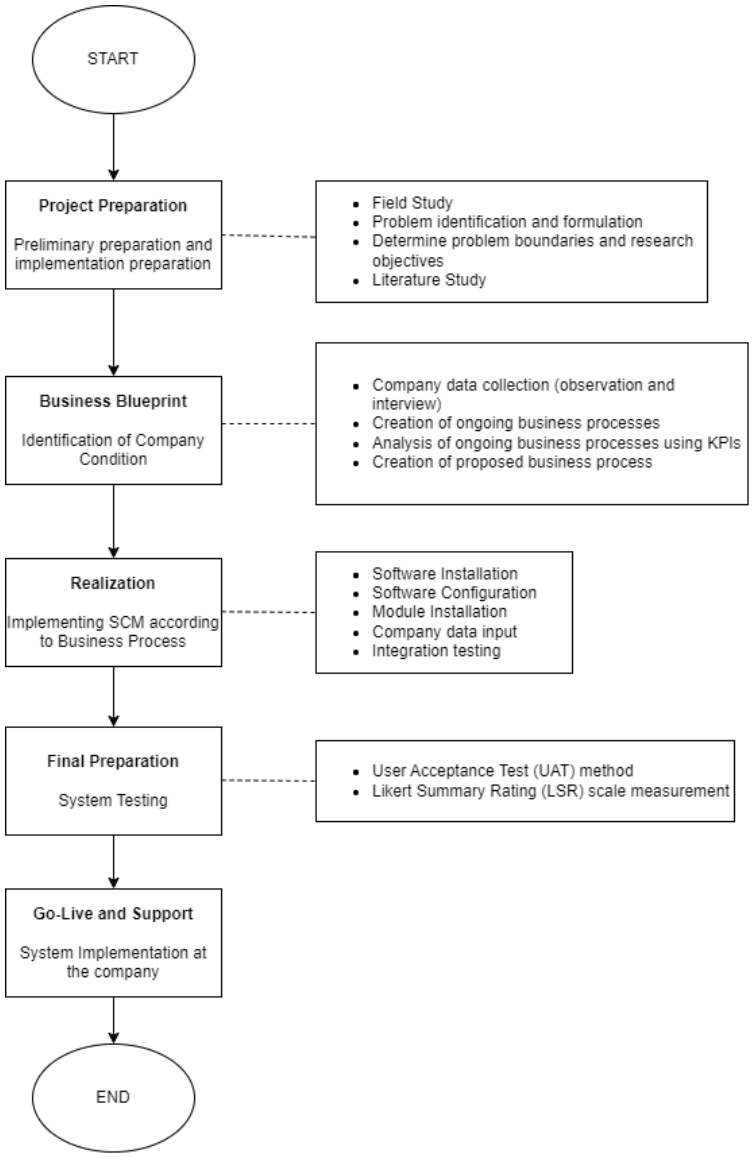


**Figure 1.** Research Phase

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### 2.1.3 Realization

The realization stage is the preparation stage for the ERP system's implementation, which includes installing Odoo 16 software, configuration of Odoo 16 software, and integration of the modules needed, if this stage has been carried out, then the next step is to input company data so that Odoo 16 software can run according to company needs [3].

### 2.1.4 Final Preparation

Testing the Odoo 16 software is the last step in the preparation process as a whole to find out that the project has succeeded in accordance with the company's needs [3]. This stage is carried out the process of testing the ERP system with the User Acceptance Testing (UAT) method. The purpose of this testing is to see whether or not the output of the system is appropriate.

### 2.1.5 Go-Live and Support

As the Go-Live and Support stage progresses, the system is utilized within the organization [3]. The system needs to be monitored to see and anticipate errors that occur during the process of using the system, so that it can provide support immediately and see how efficient the application of this ERP software is for Wikana Konfeksi.

## 2.2. User Acceptance Test

UAT method is used to determine user or respondent responses to the system that has been built. UAT is a verification process that the system solution created is in accordance with user needs, or the level of implementation success. In research, questions are given to respondents or users [6]. The system feasibility assessment method (UAT) is very useful. A system demo is given to a group of people as part of the testing process. The UAT measurement aims to measure the level of success of the SCM implementation by the company using a Likert Summated Rating (LSR) scale from 1 to 5 on the questionnaire results, namely TS (Disagree), KS (Less Agree), CS (Moderately Agree), S (Agree), and SS (Strongly Agree) [1]. Equation can be seen in Equation 1.

$$Y = \frac{Px100}{QxR} \quad (1)$$

## 2.3. Likert Scale

A Likert scale is used to measure the attitudes, beliefs, and perceptions of an individual or group about social phenomena. Indicator variables are those that

require measurement. Subsequently, the indication becomes the foundation for the creation of instrument pieces, some of which could be expressed as statements. An additional option is to give the response a score for quantitative analysis. For instance, a score of 5 is assigned to strongly agree/always/very positive, a score of 4 to agree/frequently/positive, and a score of 3 to doubt/sometimes/neutral. Conversely, a score of 2 is assigned to disagree/almost never/negative, and a score of 1 to strongly disagree/never. Every item on the instrument features a Likert scale, ranging from extremely positive to extremely negative. A common method for gauging participant attitudes in research is the Likert scale, in which subjects indicate how much they agree or disagree with each statement [7].

## 3. RESULTS AND DISCUSSION

### 3.1 Ongoing Business Process

A business's procedure is a series of actions that a company takes to accomplish specific objectives [8]. To run its business, Wikana Konfeksi still uses a manual system, which is less accurate and takes a long time. The existing business processes at Wikana Konfeksi are still manual, so the business process diagram that is running at Wikana Konfeksi can be used as a reference when making proposals. The ongoing business processes at Wikana Konfeksi are described as follows.

#### 3.1.1 Purchasing Business Process

The procurement of goods required by a company is known as purchasing [9]. Figure 2 shows the purchasing process of a business, which includes the accounting and warehouse departments. When there is a production request, the warehouse staff will check the availability of stock. If the stock is not available, the warehouse will contact the supplier. If the stock is available, the purchasing process does not continue. If the goods are available at supplier A, the process continues with supplier A. If not, the warehouse contacts other suppliers. After finding a supplier that provides the goods, the supplier will confirm the goods. If the goods are confirmed, the supplier will send the goods. After the goods are received and in accordance with the order, the accounting department makes payment. After the money is received, the supplier sends an invoice.

#### 3.1.2 Production Business Process

Production is the process of using a number of resources owned by an organization to produce goods and services [10]. Wikana Konfeksi carries out production by the operational parties that have been determined. Figure 3 shows the purchasing process of Wikana Konfeksi. The process starts from marketing &

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sales who notify orders from customers. The production team starts from the design, makes the tracing, and requests the stock to the warehouse. If stock is available, production continues if not, a purchase is made to the supplier. Once the stock is available, the fabric is cut and sewn. The finished garments are then screened and pressed. Next, the quality of the stitching and screen printing is checked. Clothes that pass the check and match the order quantity are sent to the customer.

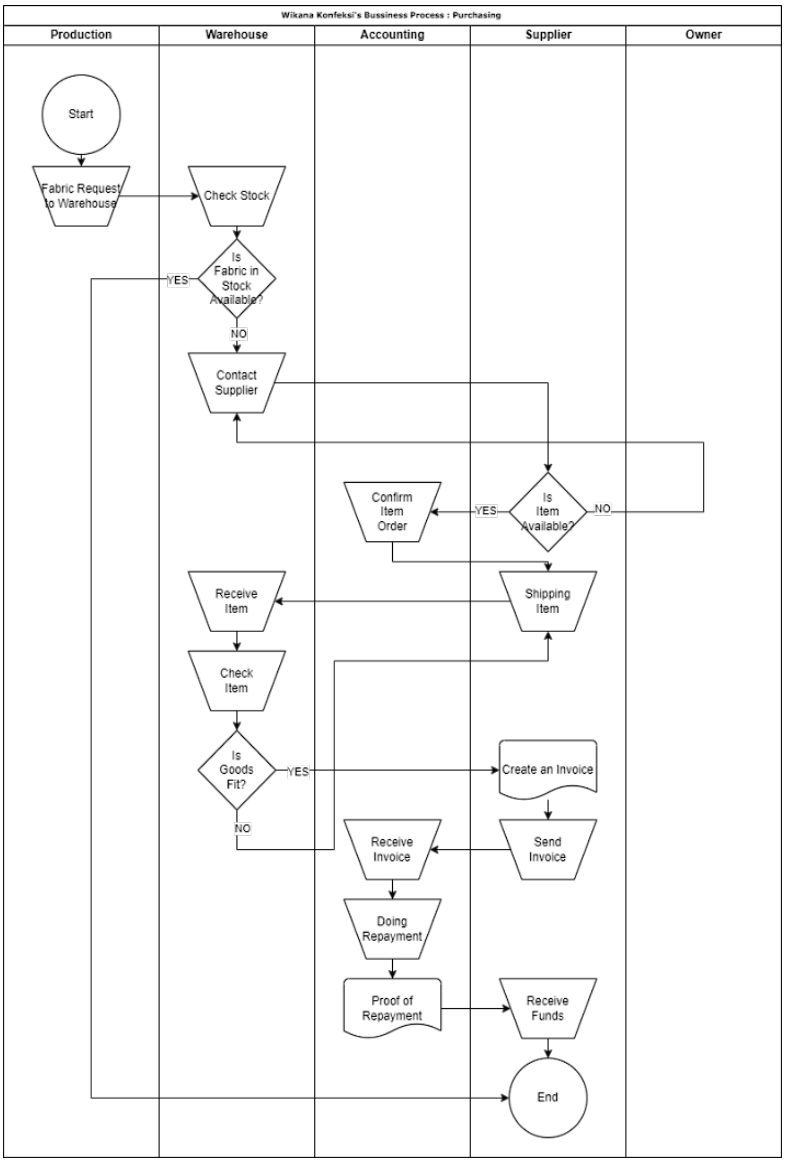


**Figure 2.** Ongoing Purchasing Business Process

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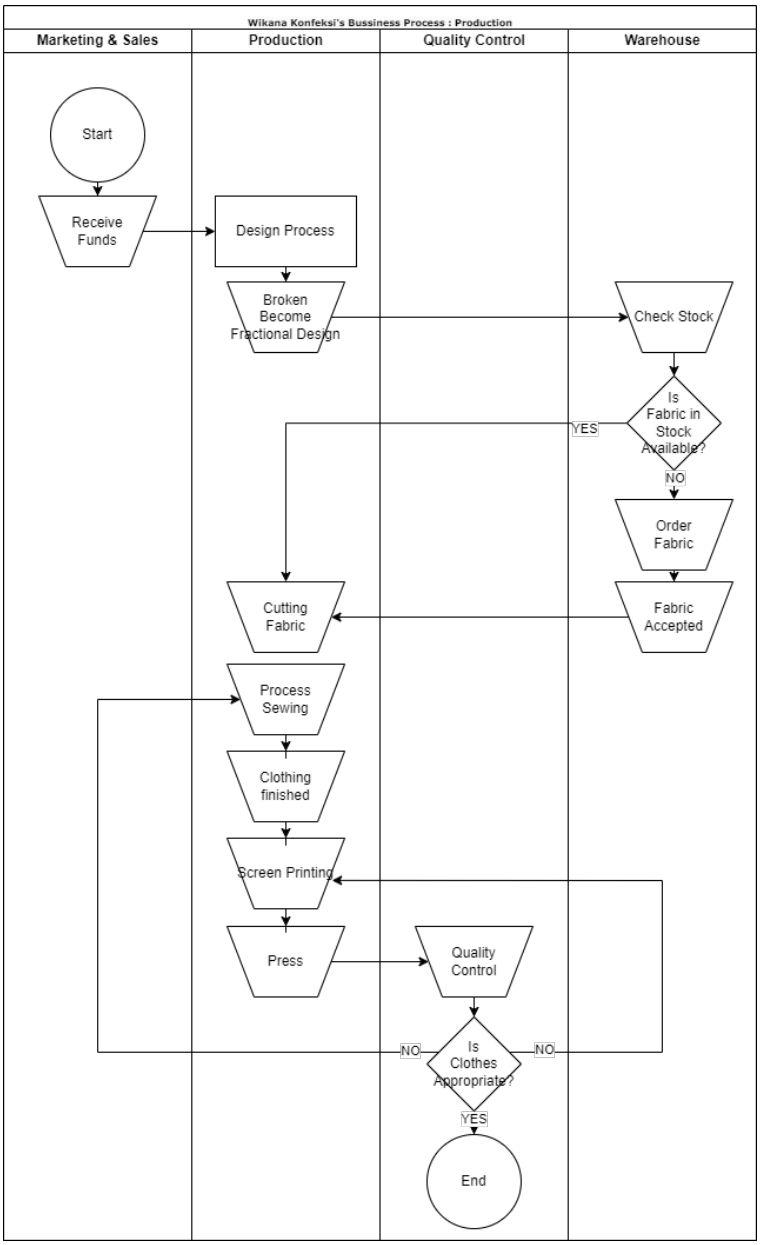


**Figure 3.** Ongoing Production Business Process

### 3.2 Proposed Business Process

This study suggests some adjustments to the purchasing and production business processes that use the Odoo 16 ERP tool. These modules include purchase,

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accounting, inventory, manufacture modules that are adapted to the proposed business processes of Wikana Konfeksi.

### 3.2.1 Proposed Purchasing Business Process

Figure 4 shows the purchasing process of the business, which includes the accounting and warehouse departments. Operations requests a check of raw materials for production. If the raw materials are not available, the warehouse makes a purchase if they are available, no procurement is required. The warehouse makes a quotation for the vendor. Once the vendor confirms availability, the process continues with a purchase order. Vendor prepares and delivers raw materials. The warehouse receives and checks the raw materials, returning those that are missing or inappropriate. If it matches the purchase order, accounting makes payment.

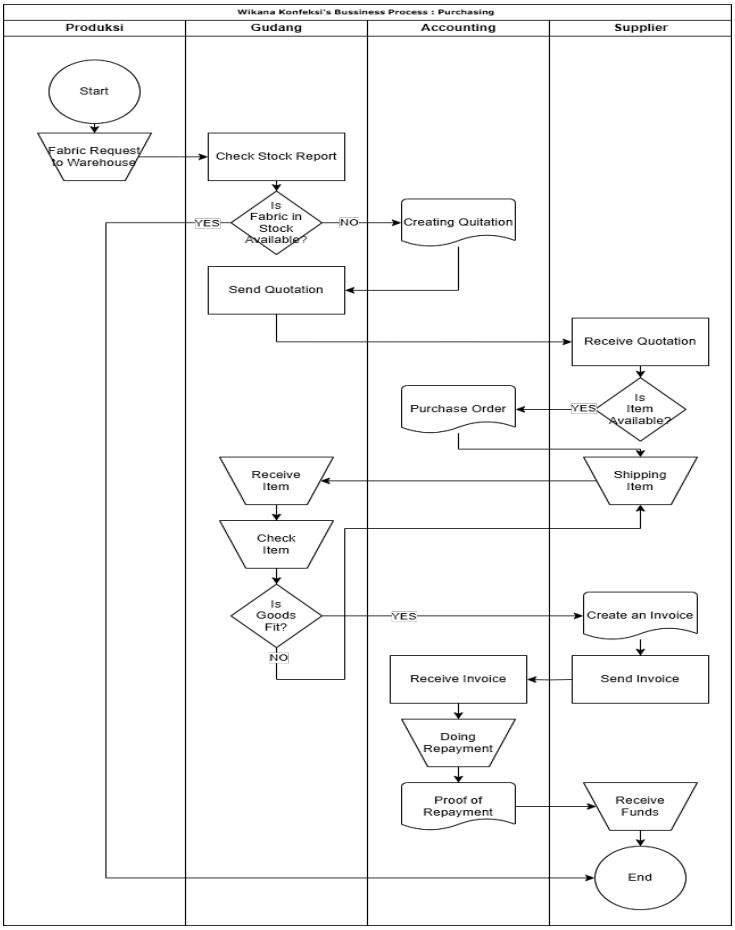


**Figure 4.** Proposed Purchase Business Process

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### 3.2.2 Proposed Production Business Process

The business process starts with marketing & sales giving sales orders for production. Operations asks the warehouse to check the raw materials, if there are none, the warehouse will buy. Once the materials are received, production begins. Operations will create manufacturing orders, organize products and production time. The operational head adjusts the daily quantity. After production is completed, quantity validation and quality control are performed. Products that pass are shipped with delivery orders. Details are in Figure 5.

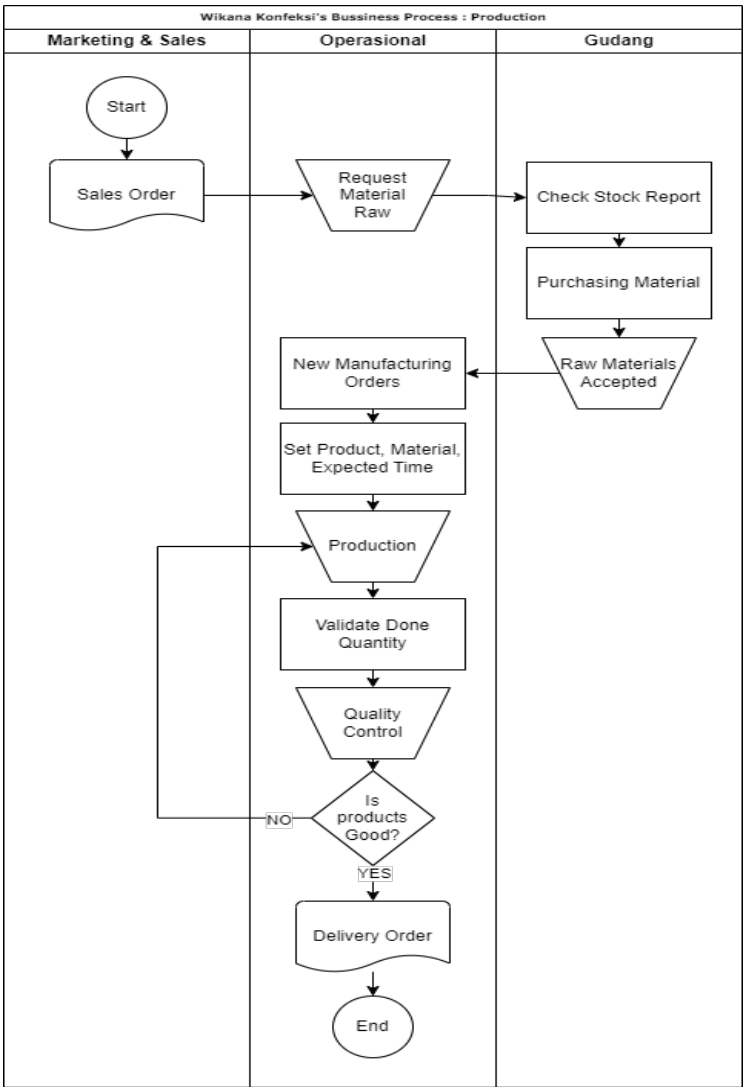


**Figure 5.** Proposed Production Business Process

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### 3.3 Odoo Implementation

The implementation of the SCM system in Odoo 16 ERP tools at Wikana Konfeksi involves several modules, namely the purchase, inventory, manufacture, accounting modules. The implementation flow that will be described will start from the process of procuring raw materials, receiving raw materials, making vendor bills, making products ordered by customers, shipping products to customers. The following is an explanation of the implementation using Odoo 16 ERP tools.

#### 3.3.1 Raw Material Procurement

Implementation of the raw material procurement process related to the purchase, inventory, and accounting modules. The raw material procurement process begins with the operations manager requesting raw materials for production, the process of purchasing raw materials will be carried out by the head of the warehouse in the purchase module. The purchase module has the ability to convert quotations into purchase orders (PO), which will be approved by accounting as an examiner of all transactions that have been carried out by the company. Purchase management is one of the most important parts to launch the SCM system in a company whose main focus is to produce finished products such as clothing. The process can be seen in Figure 6.

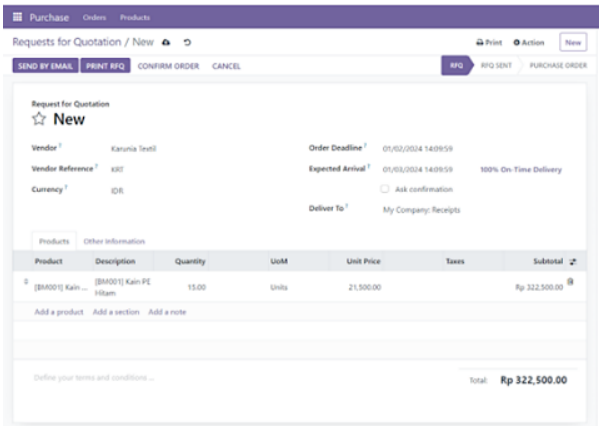


**Figure 6.** Raw Material Procurement

#### 3.3.2 Raw Material Receiving

Employees in the warehouse handle the receiving of raw supplies. Once the raw materials are received, checks are also made as part of the receiving process, if there is damage or discrepancies in the raw materials ordered, a return process will be carried out to the vendor. The process can be seen in Figure 7.

Journal of Information Systems and Informatics
Vol. 6, No. 4, December 2024
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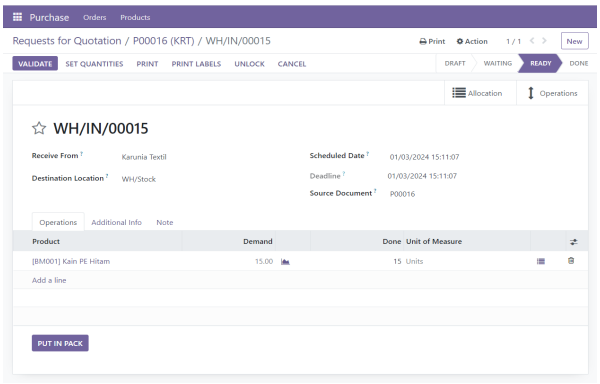


**Figure 7.** Raw Material Receiving

### 3.3.3 Making Vendor Bill

The process of making vendor bills or payments for raw materials that have been ordered is carried out in the purchase and accounting modules. This process is carried out after the goods are received at the warehouse by the head of the warehouse. Payment after receipt of goods is an obligation that the company must make to the vendor. The process can be seen in Figure 8.

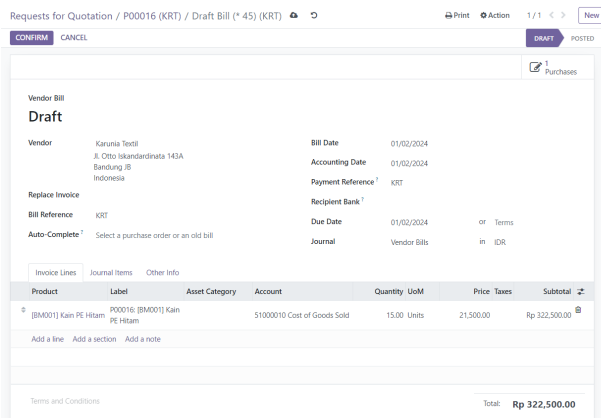


**Figure 8.** Making Vendor Bill

### 3.3.4 Manufacturing Process

The manufacturing process or the process of producing products in accordance with customer orders, is carried out in the manufacturing module by the Head of Operations. The modules used in this process are the inventory and manufacturing modules. The first step to start the manufacturing process is to go to the

manufacturing module and look for documents whose source is the customer's sales order number. The head of operations will fill in the quantity as a process to check the manufacturing process periodically. In the components column, the head of operations is asked to fill in the consumed column to find out the reduction.

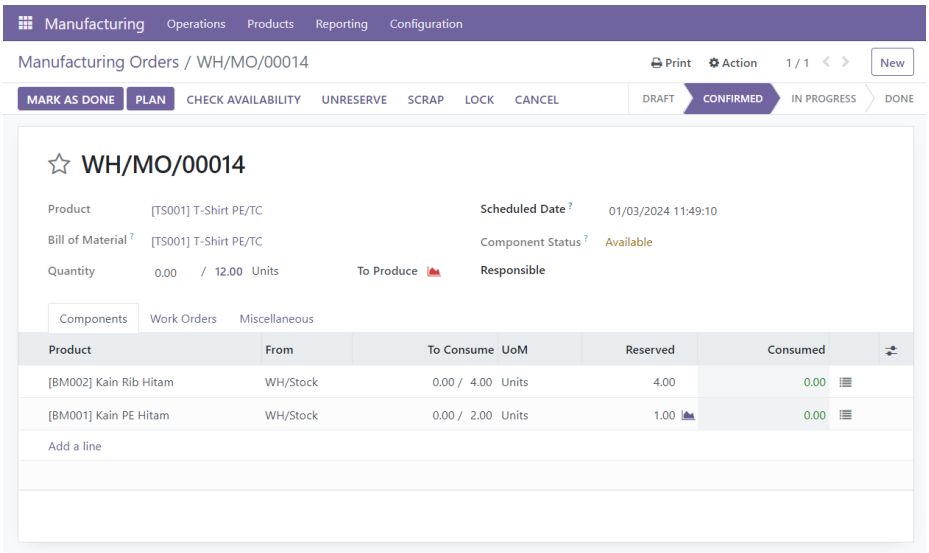


**Figure 9.** Manufacturing Process

### 3.3.5 Product Delivery

The product delivery process can be carried out in the inventory module by warehouse staff through the Head of Warehouse. The shipping process is carried out after the manufacturing process is complete and it is certain that the product can be shipped. The initial step for the shipping process begins in the inventory module in the delivery order section. In the delivery order list, there are several columns, namely references which are document numbers, from which is the place of the product, namely at the Wikana Konfeksi warehouse, then there is to whom it will be sent, the delivery date, and the source of the sales order according to the order. The delivery status will change to "done" if the order has been sent to the customer. When it is confirmed that the product has been sent to the user, the warehouse head is asked to fill in the number of items sent in the reserved column and then validate by pressing the validate button. The process can be seen in Figure 10.

Journal of Information Systems and Informatics
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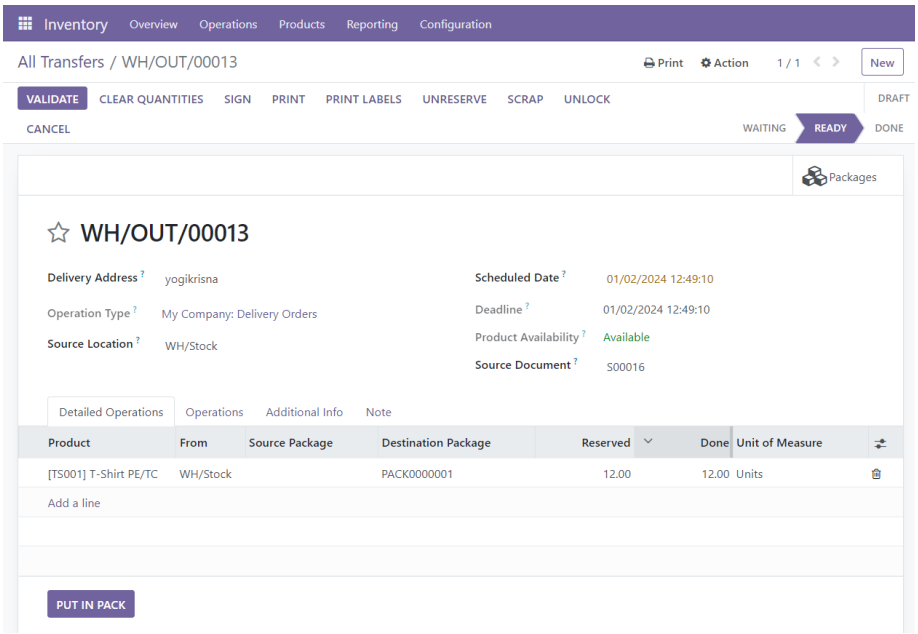


**Figure 10.** Product Delivery

### 3.4 User Acceptance Test

The testing process with UAT ensures that the system solution created is in accordance with user needs [6]. To find out how much acceptance of the system implementation, six respondents were tested using the UAT method. Respondents included the owner of Wikana Konfeksi, marketing and sales manager, marketing and sales staff, accounting, warehouse head, and operational head of Wikana Konfeksi. The testing document for Wikana Konfeksi staff contains 4 aspects and consists of 13 questions. The results of the research on the interpretation of LSR with a total assessment score obtained from 22 respondents, namely 216 < 286 < 288 which is located in the third quarter; thus it is positive and the implementation of the tested system is quite successful.

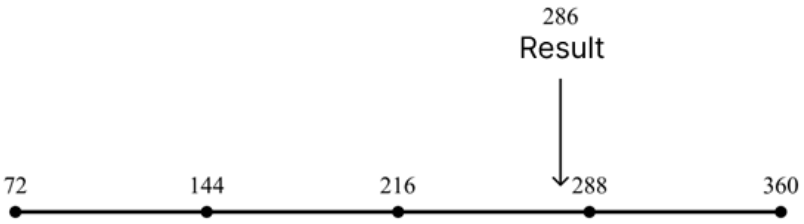


**Figure 11.** UAT Testing Results

p-ISSN: **2656-5935** http://journal-isi.org/index.php/isi e-ISSN: **2656-4882**

### 3.5 Differences Before and After System Use

The variations in the business procedures of the organization prior to and following the implementation of the SCM system using Odoo 16 has improved well. In purchasing, the company can save time to procure goods directly to various suppliers at once and update the number of goods in the warehouse in real time. In the production business process, the production team can directly check the number of materials needed in the warehouse and can directly manage several orders at once.

### 3.6 Discussion

The implementation of the SCM system using Odoo 16 ERP tools at Wikana Konfeksi highlights significant improvements in operational efficiency and accuracy, addressing the limitations of its previous manual business processes. By adopting modules such as purchase, inventory, manufacture, and accounting, Wikana Konfeksi has streamlined its purchasing, production, and delivery workflows, demonstrating the value of integrating modern ERP tools.

In the purchasing process, the manual approach was previously prone to delays and inaccuracies due to dependency on manual stock checks and supplier communication. The implementation of the purchase module has automated these tasks, allowing real-time updates on stock availability and facilitating direct procurement from multiple suppliers simultaneously. This advancement not only saves time but also ensures that procurement aligns seamlessly with production demands, reducing delays in material availability.

Similarly, the production process has undergone substantial transformation. The manual tracking of material requirements and production schedules has been replaced with the manufacturing module in Odoo 16. This module enables the operational team to create and manage manufacturing orders efficiently, track material consumption, and validate product quality at various stages. By integrating quality control into the production workflow, Wikana Konfeksi has improved product consistency, ensuring that only high-quality goods are delivered to customers. Another significant enhancement lies in the delivery process. The inventory module now supports end-to-end tracking of product shipments, including delivery order creation, validation, and real-time status updates. This automation ensures timely and accurate delivery of products to customers, enhancing customer satisfaction.

The User Acceptance Test (UAT) results further validate the effectiveness of the implemented system. Positive feedback from key stakeholders, including the owner, operational head, and warehouse staff, underscores the alignment of the

system with user needs. The UAT findings, with a total assessment score in the positive range, indicate a successful implementation that has met organizational expectations.

A comparative analysis of business processes before and after the implementation of the SCM system reveals clear benefits. Previously, manual processes were time-consuming and lacked real-time data accuracy, hindering operational decision-making. Post-implementation, the organization benefits from automated workflows, real-time inventory updates, and enhanced coordination between departments. These improvements have not only optimized resource utilization but also allowed the company to handle multiple orders simultaneously, meeting customer demands more effectively.

Studies in similar domains further support these findings. The adoption of ERP tools for supply chain management has been shown to improve resource allocation, reduce operational delays, and enhance organizational agility [11], [12]. Wikana Konfeksi's transition to Odoo 16 reflects these trends, positioning the company to compete effectively in the dynamic textile industry. The adoption of Odoo 16 ERP tools at Wikana Konfeksi has transformed its business processes by improving efficiency, accuracy, and scalability. The successful implementation demonstrates the potential of ERP systems in enhancing supply chain management for small and medium enterprises, setting a strong foundation for future growth and competitiveness.

## 4. CONCLUSION

Based on the formulation of problems and objectives as well as the results obtained in the research on the implementation of SCM in the confectionery business field using Odoo 16 ERP tools at Wikana Konfeksi, it can be concluded that the business processes running in the Wikana Konfeksi company are conventionally insufficient in management without using a system, due to the slow flow of data between divisions which causes the production process to be hampered. Therefore, a more efficient business process is made to facilitate the Wikana Konfeksi company in managing the business. The proposed business process implementation includes the sales business process, purchasing business process, and production business process. The proposed business processes that are converted to Odoo 16 tools include several modules, namely accounting, purchase, inventory, manufacturing, and website modules. The business process proposal process is also based on comparing the company's KPI in December 2023 with the KPI in April 2024 which provides a positive change in processing time in each division of Wikana Konfeksi. Testing using UAT was carried out on 6 Wikana Konfeksi staff who had a score of 286 which was positive and the implementation of the tested system was quite successful.

p-ISSN: **2656-5935** http://journal-isi.org/index.php/isi e-ISSN: **2656-4882**

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