HALAL SCM: HOW TO MONITOR HALAL PERFORMANCE OF PROCUREMENT PROCESS FOR FOOD INDUSTRY IN INDONESIA BY USING ERP SYSTEM

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Abstract. This paper reviews current research on designing an Enterprise Resource Planning (ERP) system within the context of halal food supply chain management especially in procurement process. This paper used relevant literatures related to food supply chain management and application of halal standard in Indonesia. The aim of this paper is to propose a design of ERP system with Odoo/Open ERP software for monitoring halal performance of procurement process by using Accelerated SAP (ASAP) method. This paper shows several flow chart diagrams of proposed business processes. The designed system has been adjusted with Standard Operating Procedure (SOP) in Halal Assurance System (HAS).

Index Terms—ERP, ASAP Method, Halal Food Supply Chain, Procurement, Halal Assurance System, Halal Performance

1. INTRODUCTION

Indonesia is a country with the largest Muslim population number in the world at about 87.2% of the total population (CIA World Factbook, 2010) [1]. At present, growth in halal product and food sectors is very high. This can be a potential for Indonesia to become the center of global halal industry [2]. Food Industries in Indonesia use halal standard and certification issued by MUI (Majelis Ulama Indonesia - The Indonesian Council of Ulama). They need to implement SJH (Sistem Jaminan Halal - Halal Assurance System) and manually arrange the document based on company's real condition as a fulfillment. This document is assessed by LPPOM MUI (Lembaga Pengkajian Pangan, Obat dan Kosmetika Majelis Ulama Indonesia – The Assessment Institute for Foods, Drugs and Cosmetics MUI).

However, supporting Indonesia to become the center of global halal industry is not easy. Nowadays, consumers of Halal food are more aware and concern about the integrity of Halal certification and Halal Food Supply Chain concept [3]. According to Akhmad A. Susamto [3], one way to support Indonesia to become the center of halal industry is by conducting a certification process quickly and transparently. This research which designing an ERP system with

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Odoo/Open ERP software application is expected to help in quicken the certification process. Moreover, the system can also be considered as a tool to ensure Halal integrity in food supply chain. The system is expected to be able to generate a report which can assist the Internal Halal Auditor in monitoring and evaluating the procurement process.

With an ERP system, one business process can be integrated to another. Not only for procurement process, but also another supply chain processes like production, sales and distribution. By integrating these processes with Halal concept applied it can be considered as a guarantee of Halal integrity throughout the whole food supply chain processes. Nevertheless, this paper is delimited to focus on procurement process only.

This paper is organized as follows. First, we present the summarize of literatures learned in order to gain knowledge related to this research. Second, we briefly described ASAP roadmap as research methodology. Next, we describe our findings and present some business process design. Last, some conclusion can be drawn and stated.

2. LITERATURE STUDY

2.1. ERP

ERP (Enterprise Resource Planning) is an information system which is used to integrate all business processes in a company such as logistics, accounting, distribution, finance and human resources. The system can collect, save, manage, and analyze transactional data on a company from a variety of different source to help eliminate data redundancy and duplication. It can help companies in making data-driven decisions [4].

ERP system use centralized database where the stored and transmitted data is always consistent in real time on all business functions and can be generated any time [5]. By using ERP, all systems in a company can be integrated with a single database and make it easier for several departments to communicate and share data [6]. Thus, it can be

concluded that ERP is an information system that can integrate all business processes where data and information can be managed and generated whenever user needs it.

2.2. Odoo

Odoo, or more commonly known as OpenERP, is an ERP software that freely distributed (open source), so companies can implement the system without having to pay licensing fees [7]. OpenERP is published under the GNU General Public License (GPL) and using Python programming language.

2.3. Halal Food Supply Chain Management

Halal food supply chain involved the process of managing Halal food products from different points of suppliers to different points of buyers/consumers, which involved various different

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parties, who are located at different places, who may at the same time, involved with managing non- Halal food products, with the purpose of satisfying the needs and requirements of both (Halal and non-Halal) customers [3].

The main goal is to ensure that Halal status of the food product remains intact throughout the whole process of supply chain.

2.4. Procurement Process

Procurement is a process which has a fundamental role in organization's management by being responsible for purchasing specific resources required by internal operations from the external parties of enterprise [8].

It covers all activities carried out by involving many processes such as strategic planning, determining needs, approval systems on demand, vendor selection, contract management, purchasing goods or services, the process of receiving goods or services and others. The purchase management OpenERP module integrates companies with vendors, finance and warehouse [9].

2.5. Halal Assurance System (HAS)

Halal Assurance System (HAS) is a management system which arranged, implemented and maintained by the company in order to maintain the continuity of halal production process in accordance with the provisions of LPPOM MUI [10].

Standard Operating Procedures (SOP) for Procurement Process

Standard Operating Procedure (SOP) is a set of instruction that are standardized to complete a certain work process. SOP of Halal Assurance System are made for all key activities in the halal production process, namely the fields of R&D, purchasing, PPIC, quality assurance/control, production and warehouse.

Company needs to follow SOP in order to achieve the objective of HAS implementation. For Halal procurement process, there are 3 process which should be standardized to monitor halal integrity. There are purchasing, adding a new.

2.6 Standard Operating Procedures (SOP) for Procurement Process

Process	Procedure
Purchasing	1. The material purchased must refer to the list of materials known by LPPOM MUI. 2. Purchase division must be able to guarantee that the material to be purchased matches the data stated on the halal certificate/document (name and material code, company name, factory name and location). 3. Purchase documents must be well-documented and complete.

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Adding a New Supplier	1. If the material is in the critical category, it should be checked whether the new supplier has a halal certificate from the MUI or from an institution recognized by LPPOM MUI.
	2. If the supplier does not have a halal certificate, it is recommended to look for other suppliers who already have a halal certificate.
	3. If there is no alternative for a new supplier with a halal certificate, it is necessary to examine the technical specifications that explain the source of origin and the flow diagram of the material making process and consult it with LPPOM MUI through internal auditor.
	4. There must be a guarantee that the material to be purchased is in accordance with the data stated on the halal certificate.
	5. Suppliers are examined whether they are direct producers or distributor. If the supplier is a distributor, a written agreement must be made which stating that the supplier only supplies the material from manufacturer stated in the halal document.
	6. The plan to use a replaced supplier is reported to LPPOM MUI through the auditor.
	7. Materials from the new supplier can be used after obtaining approval by LPPOM MUI.
	8. Supplier data status (is active or not) must be well documented.
Examining and Receiving Material	1. The name of material, material code, manufacturer, name and location of the factory were examined for conformity with the list of materials known by LPPOM MUI.
	2. If halal certificate requires a special logo, the logo must be ensured it's on the packaging of the material.
	3. For materials whose halal certificates are issued per shipment, it is necessary to ensure that the lot number, quantity, production date and expiration date are in accordance with those stated in the halal document.
	4. Materials that have been examined and according to the criteria are given a halal pass.
	5. Materials stored in the warehouse are materials that are in accordance with the list of materials that have been known by LPPOM MUI. If there is material outside the list, the placement must be separated and ensured that there is no cross contamination.
	6. Materials stored in warehouses must be free from clean and unclean ingredients.
	7. Each mutation (income and expense) of materials from the warehouse must be recorded and equipped with a stock card, a request for goods and receipt of goods.

supplier and examining & receiving material process. Table I provides list of SOPs related to procurement process.

3. RESEARCH METHODOLOGY

Research methodology will describe how research is conducted and the method used to solve the problem.

3.1 Literatures Study

Study and summarize several literatures related to the problems and solutions such as ERP, Halal Food Supply Chain, and Halal Standardization.

3.2 ASAP Roadmap

ASAP stands for Accelerated SAP. ASAP provides the framework for an implementation roadmap. ASAP implementation methodology is a structured implementation approach that can help managers achieve a faster implementation with quicker user acceptance and efficient documentation at various stages [11].

Fig. 1. ASAP Roadmap

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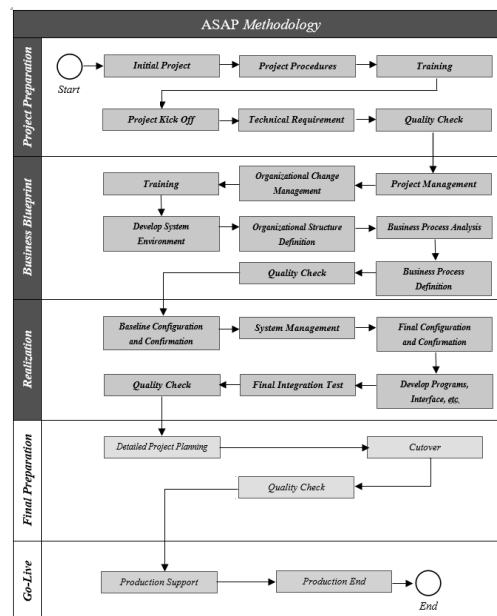
Figure 1 shows the methodology used in this research. ASAP Roadmap consists of 5 following phases: Project Preparation, Business Blueprint, Realization, Final Preparation, Go-Live. Nevertheless, this research scope is delimited to the third stage of ASAP method.

4. ANALYSIS AND DESIGN

4.1 Project Preparation

Project Preparation is a stage where the objective of this research is determined.

4.1.1.Project Goals

The objectives of this research are stated based on problems found. The goals of this research are:

1) To develop halal procurement system based on ERP concept which integrates every activity in procurement process.

2) To develop halal procurement system which can guarantee the halal integrity of procurement process based on Halal Assurance System.

3) To develop halal procurement system which can document all transactions related to procurement process and generate it.

4.1.2. User Requirements

User requirements specifies what user require from the system. Requirements are based on the goals stated before. The requirements of the system are:

1) The system covers the procurement process in accordance with SOPs of Halal Assurance System.

2) The system able to collect, store and maintain data related to halal indicator of procurement process.

3) The system able to generate document related to procurement process.

4) The system able to generate report of halal performance in procurement system.

4.2. Business Blueprint

Business blueprint is phase of design planning. Some gaps are identified and analyzed to bring the proposed business process design.

4.2.1 Gap Analysis

Gap analysis used to identify gaps between current state and desired state. By comparing current ERP system and requirements, several gaps are identified as following:

1) The current ERP system already covered the procurement process, but has not implemented Halal Assurance System yet.

2) The current ERP system does not have fields that can collect data related to halal indicator.

3) The current ERP system is not able to generate report of halal performance in procurement system.

4.2,2. Proposed Business Process Design

In order to close the gaps in system, some improvements need to be made. Odoo is used as an application to implement ERP system Designs.

1) Requesting for Purchase Raw Material Business Process
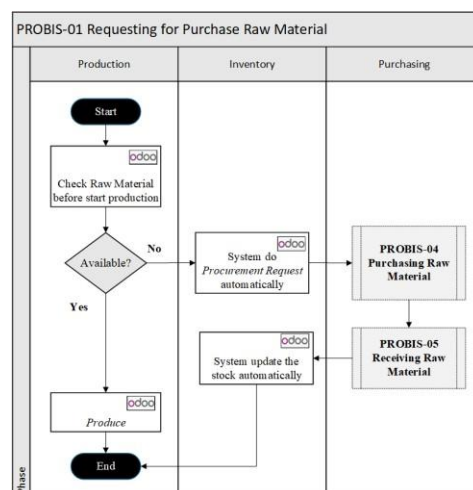
Fig. 2. Requesting for Purchase Raw Material Business Process

Figure 2 shows the flow chart of requesting for purchase raw material. When the production wants to produce a product, the system automatically checks the availability of material. If the stock runs out, system will send procurement request automatically.

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2) Bidding Business Process
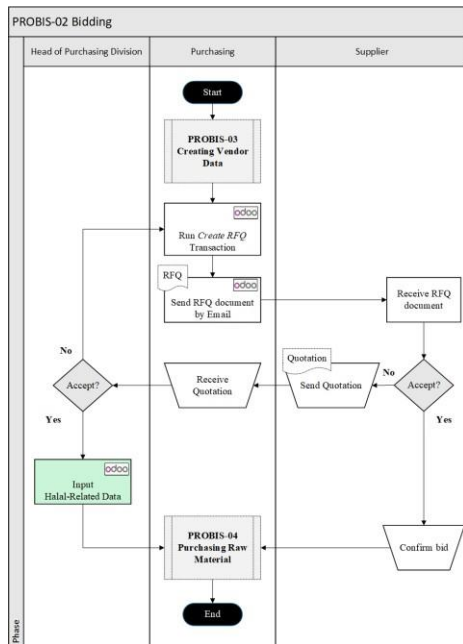
Fig. 4. Bidding Business Process

Figure 4 shows the flow chart of bidding business process. Information gathered from this process including quantity and price that supplier wants. Based on SOP of adding a new supplier (Table I), the system needs to collect Halal-related data such as Halal certificate (point 1), supplier type (point 5) and supplier status (point 8).

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3) Creating Vendor Data Business Process
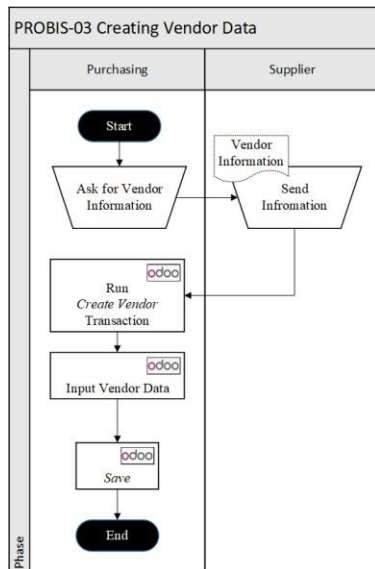
Fig. 5. Creating Vendor Data Business Process

Figure 5 shows the flow chart of creating vendor data business process. System collect information related to vendor such as company name, address, etc.

4) Purchasing Raw Material Business Process
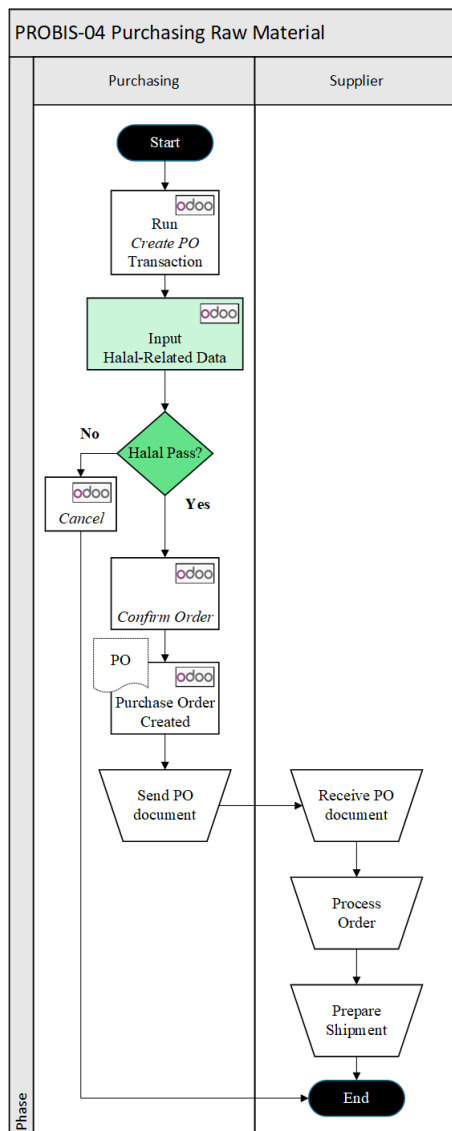
Fig. 6. Purchasing Raw Material Business Process

Figure 6 shows the flowchart of purchasing raw material business process. The purchasing section has to confirm order and request for quotation document will automatically converted to purchase order document. After that, purchase order document is sent to supplier and supplier will prepare the order.

Based on SOP of purchasing material (Table I). Purchase division must be able to guarantee that the material to be purchased matches the data stated on the halal certificate/document (name and material code, company name, factory name and location).

5) Receiving Raw Material Business Process
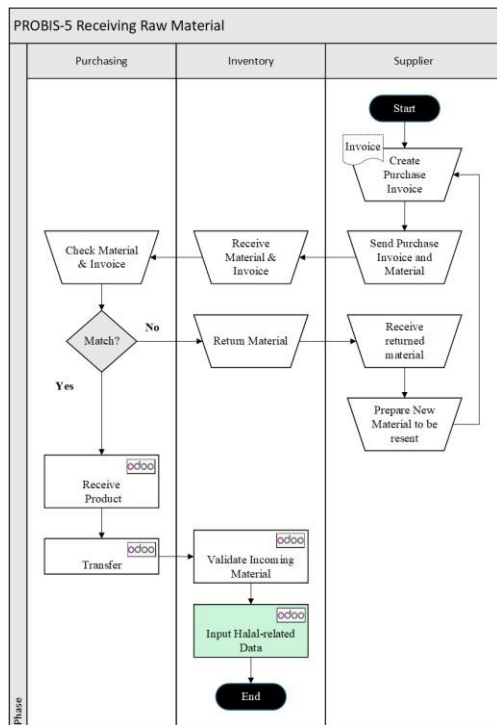
Fig. 7. Receiving Raw Material Business Process

Figure 7 shows the flow chart of receiving raw material business process. Based on SOP of examining and receiving material (Table I), the system needs to collect Halal-related data such as the existence of the logo (point 2), quantity of halal-pass material (point 4), quantity of contaminated material (point 6), quantity of uncontaminated material (point 6).

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6) Paying Raw Material Business Process
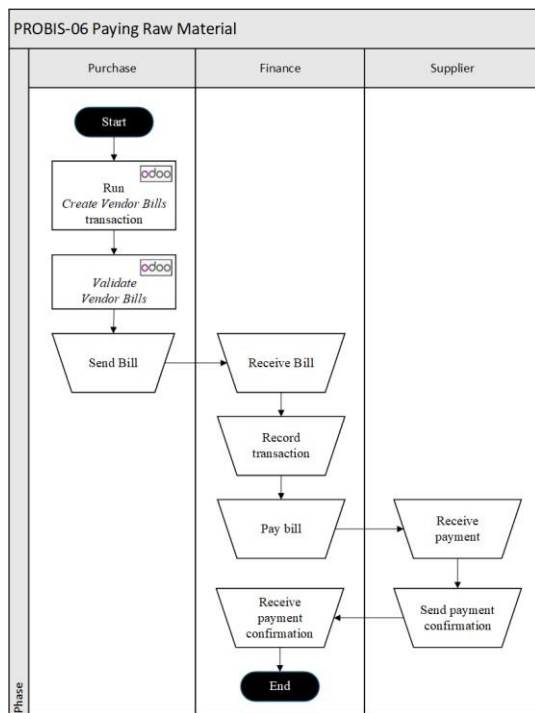
Fig. 8. Paying Raw Material Business Process

Figure 8 shows the flow chart of paying raw material business process. After receiving materials, purchase section will run create vendor bill transaction. Then accounting section will pay the bill and confirm the payment.

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7) Procurement Process Reporting Business Process
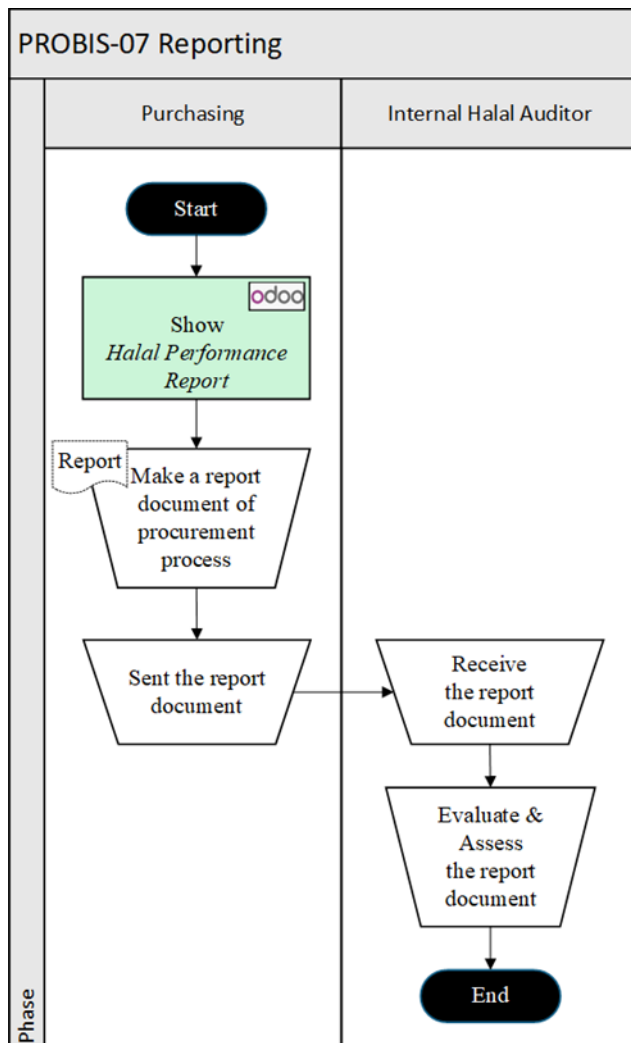
Fig. 9. Procurement Process Reporting Business Process

Figure 9 shows the flow chart of reporting material procurement business process. This process generates a report that contains information obtained from other business process, especially halal-related information. The information is evaluated, examined and assessed by Internal Halal Auditor. The report can be developed more widely by adding insights in the form of graphic or chart.

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C. Realization

Realization is a stage of configurating and customizing the system. Odoo has covered most of proposed business processes. In order to meet the requirements, the system has to be configured and customized. Some additional fields are added as Halal indicator. The following figures are the results of customization for Halal indicator feature in procurement process based on Halal Assurance System.

1. Request for Quotation Form

Fig. 10. Request for Quotation Form Based on HAS

Figure 10 shows request for quotation form based on HAS. This form is used in bidding business process (fig. 4). There are several fields added to this form, namely Check Completeness of Halal Certificate Data, Check Completeness of Vendor Data, Check Halal-Pass, Halal Certificate, Halal Certificate Number, Supplier Type, Suppler Status.

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2. Purchase Order Form

Fig. 11. Purchase Order Form Based on HAS

Figure 11 shows purchase order form based on HAS. This form is used in purchasing raw material (fig. 6). There are several fields added to this form which is the same as RFQ, namely Checking Completeness of Halal Certificate Data, Checking Completeness of Vendor Data, Checking Halal-Pass, Halal Certificate, Halal Certificate Number, Supplier Type, Suppler Status.

3. Receipts Form

There are several fields added to this form, namely Checking Halal Certificate, Checking Expire Date, Checking Sterility, Testing Halal-Pass, Expire Date, Quantity of Expired Material, Quantity of Not Expired Material, Quantity of Contaminated Material, Quantity of Uncontaminated Material, Quantity of Halal-Pass Material, Quantity of Material That's Not Pass Halal.

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Fig. 12. Receipts Form Based on HAS

Figure 12 shows Receipts form based on HAS. This form is used in receiving raw material business process (fig. 7)

4. Report of RFQ

Fig. 13. RFQ Report Based on HAS

Figure 13 shows RFQ report based on HAS. This form is used in procurement process reporting business process (fig. 9).

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5 PO Report

Fig. 14. PO Report Based on HAS

Figure 14 shows PO report based on HAS. This form is used in procurement process reporting business process (fig. 9).

6. Picking Operations Report

Fig. 15. Picking Operations Report Based on HAS

Figure 15 shows picking operations report based on HAS. This form is used in procurement process reporting business process (fig. 9).

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5. CONCLUSION

From the results of the research that has been done, it can be concluded that Odoo can cover the entire procurement business process at food Industries starting from the process of requesting material purchases until the materials are received in the warehouse. In addition, Odoo can be customized according to needs so that it can meet the requirements of the Halal Guarantee System in ensuring halal integrity for the food supply chain process. Odoo can integrate all business processes related to supply chain management of halal food starting from the procurement, production, to sales and distribution processes. Therefore, it can be said that Odoo is able to monitor halal integrity throughout the food supply chain process. This system can add more value to the company by satisfying halal food consumers as well as guaranteeing halal integrity.

This research is limited to the procurement process only. However, it is hoped that it will be more useful for other researchers in further research. Further research on halal procurement can be done by integrating procurement with other processes such as manufacturing, sales, accounting and business intelligence. Presentation of reports in the form of graphs, charts or pivot tables can make a better insight for halal food assessment.

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