

IMPLEMENTATION OF ERP WAREHOUSING CONCEPT IN BARE CORE COMPANY WITH USING ODOO 10 (PT. ALBASIA NUSA KARYA)

IMPLEMENTASI KONSEP GUDANG ERP PADA PERUSAHAAN BARE CORE MENGGUNAKAN ODOO 10 (PT. ALBASIA NUSA KARYA)

Rd. Panji Erdinanda Pandu J.¹, Rd. Rohmat Saedudin², Umar Yunan K. S. H.³

^{1,2,3}Study Program S1 Information System, Industrial and System Engineering Faculty, Telkom University
¹erdinandapandu@gmail.com, ²rdrohmat@telkomuniveristy.ac.id,
³umaryunan@telkomuniversity.ac.id

Abstract

PT. Albasia Nusa Karya is a newcomer company engaged in the Bare Core industry. The company was established since 2014 at Jalan Pasopati KM 6.2 Leuwigoong, Leles, Garut, Indonesia. As a new company in Bare Core industry, PT. Albasia Nusa Karya still needs a lot of improvements in their companies, especially the challenge to create an optimal business process, accurate, and efficient. Not yet integrated enterprise record process, causing the existence of several potential data management errors. For example, business processes that take place today often produce documents that are not appropriate between the data contained in the procurement and accounting sections. Likewise, in the procurement process is often the difference between the recording of goods requested goods, goods ordered, and with goods received so that data errors occur in the procurement and warehouse. In addition, data redundancies, data duplication, and payment processes tend to be slow

Responding to the above problem, sourced from the existing state of business and business process of Odoo 10 Inventory Module, the researcher will create solution for this company to get optimal, accurate, and efficient business process, hereinafter referred as proposal business process. The business process of this proposal will be further installation, configuration, and customization and well packaged in the form of an ERP software that will replace the Odoo 10 business process that has been running for this.

With the implementation of ERP system in this company mainly on the inventory and warehousing, all activities related to warehouse and inventory of the company become more structured. Integration of each division is considered to solve the problem that has been there in PT. Albasia Nusa Karya. The suitability of documents, reporting, and business processes of this company will become more secure.

Keywords: ERP, Odoo 10, Inventory, Warehousing, Bare, Core

Abstrak

PT. Albasia Nusa Karya adalah perusahaan pendatang baru yang bergerak di bidang industri Bare Core. Perusahaan ini berdiri sejak tahun 2014 di Jalan Pasopati KM 6.2 Leuwigoong, Leles, Garut, Indonesia. Sebagai perusahaan baru di industri Bare Core, PT. Albasia Nusa Karya masih perlu banyak melakukan peningkatan di dalam perusahaan mereka, terlebih tantangan untuk menciptakan proses bisnis yang optimal, akurat, dan efisien. Belum terintegrasinya proses pencatatan perusahaan, menyebabkan terdapatnya sejumlah potensi kesalahan pengelolaan data. Misalnya proses bisnis yang berlangsung saat ini sering kali menghasilkan dokumen yang tidak sesuai antara data yang ada pada bagian pengadaan dan bagian akuntansi. Begitu juga dalam proses pengadaan seringkali terjadi perbedaan pencatatan antara barang yang diminta, barang yang dipesan, dan dengan barang yang diterima sehingga terjadi kesalahan data pada bagian pengadaan dan bagian gudang. Selain itu masih terjadi redundansi data, duplikasi data, dan proses pembayaran yang cenderung lambat.

Menanggapi masalah diatas, bersumber pada keadaan eksisting perusahaan dan proses bisnis milik Odoo 10 Modul Inventori, peneliti akan menciptakan solusi untuk perusahaan ini untuk mendapatkan proses bisnis yang optimal, akurat, dan efisien yang selanjutnya disebut proses bisnis usulan. Proses bisnis usulan inilah yang selanjutnya akan dilakukan instalasi, konfigurasi, dan kustomisasi serta dikemas dengan baik dalam bentuk sebuah software ERP Odoo 10 yang akan menggantikan proses bisnis yang berjalan selama ini.

Dengan dilakukannya pembangunan sistem ERP di perusahaan ini terutama pada bagian inventori dan pergudangan, segala aktivitas terkait gudang dan inventori perusahaan menjadi lebih terstruktur. Pengintegrasian setiap divisi dirasa cukup menyelesaikan masalah yang selama ini ada di PT. Albasia Nusa Karya. Kesesuaian dokumen, pelaporan, dan proses bisnis dari perusahaan ini akan menjadi lebih terjamin.

Kata kunci: ERP, Odoo 10, Inventory, Warehousing, Bare, Core

1. Introduction

Every business has its own goal and achievement. According on that, every business need to ensure that every business process goes well. Today's business need technology with complete integrated function optimize every aspect of their business, one of important things that must be perform by every company is integrating both internal and external resources in a business.

PT. Albasia Nusa Karaya formed since 2014 in Garut. Garut is chosen because considered many beneficial aspects within this city, such as near big supplier of raw material provider, near harbor to perform shipping product to every buyer, and beside the beneficial from strategic location of Garut, there is no any other company that run the same business with PT. Albasia Nusa Karya.

This company are newcomer in this industry, this company need to improve many aspects. But, it can't be denied that PT. Albasia Nusa Karya can be the great company in the future.

The market segmentation of bare core product of this company is almost every country, Asia, Africa, America, and Europe. Bare core product is used for material to make almost every kind of furniture, wall, and equipment of house and office around the world. For now, in the beginning phase the product export destination of PT. Albasia Nusa Karya is Asian nations and several European nations.

Bare core is semi-finished material for make any wood product in the form of board sheets, this product is one of mainstay product of Indonesian wood industry. Bare core industry itself has big opportunity in worldwide, nowadays Indonesian bare core industry is leading 90% of worldwide market. Indonesian Albizzia wood is main ingredient for bare core, has been approved as the best quality wood for this industry. It will be one strength and opportunity for company which run this kind of industry

For business with high demand, warehousing will be big problem faced by bare core company. Several problems like, limited space of warehouse, low productivity, data accuracy, warehouse audit issues, messy warehouse, and even warehouse management will be frightening thing regarding bare core industry. Every bare core company including PT. Albasia Nusa Karya need the right solution for those problem. In the fact that PT. Albasia Nusa Karya used paper and Microsoft office to run their warehousing processes still felt less accurate for their business process. In other word, data transfer in both internal and external of warehouse division not integrated one and each other.

Enterprise Resource Planning (ERP) is one the latest technologies that many organizations have undertaken (Sadrazadehrafiei, 2013). ERP system is an enterprise-wide package that integrates all necessary business functions into a single system with a shared database. These software packages can be customized up to a certain limit to the specific needs of each organization. (Cardoso, J., Bostrom, R.P., Sheth, A., 2004, cited in Sadrazadehrafiei, 2013).

ERP offer business process automation which can directly affect the warehouse in optimizing picking efficiencies, reduce the duration of storing material in warehouse, reduce the use of paper, and of course reduce cost of warehouse operation. ERP also offer integrating warehouse division with other division so that every operation related with warehousing will be more efficient.

ERP software that used is Odoo, Odoo is one of the best open source ERP software. This research used Odoo because compared with other Open Source ERP Software like Adimpiere and Open Bravo, Odoo has several features that not owned by other. Custom from field creation, time and task, ability to define custom views to show system data and document management is extra features of Odoo compared by another Open Source ERP software.

2. Theoretical Foundation

2.1 Enterprise Resource Planning (ERP)

ERP is abbreviation from three important elements that have relation between each other:

1. Enterprise: an organization, especially a business, or a difficult and important plan, especially one that will earn money [1]
2. Resource: a useful or valuable possession or quality of a country, organization, or person [1]
3. Planning: the act of deciding how to do something [1]

These three words are a concept that culminates in the verb, "planning" which means ERP is focusing in make an optimal plan to use the resource both internal and external to run an enterprise well [2]. are stated that Enterprise Resource Planning (ERP) is Integrated cross-functional software that reengineers manufacturing, distribution, finance, human resources, and other basic business processes of a company to improve its efficiency, agility, and profitability.

2.2 Odoo

Odoo is a software with all-in-one enterprise management process that offering a range of applications with complete suite for every size of company that interested to using ERP systems. Odoo can handle many processes within company, such as CRM, Website/e-Commerce, billing, accounting, manufacturing, warehouse- and project management, and inventory [3] [4].

The open source model of Odoo has made Odoo growing very fast. ERP software can be extremely complex, as it must to meet the need and expectations of some of the largest and most sophisticated companies in the world. Open source ERP is a modern enterprise management software based on Open Object, a modular, scalable and intuitive Rapid Application Development frame-work written in python [5].

2.3 OpenERP Architecture

Some large and medium-large companies implement OpenERP with their own internal resources. They prefer their own IT service in charge of maintenance. This kind of needed perfectly suitable with OpenERP because OpenERP companies can do the implementation work themselves internally [5].

It is a free and open-source high-performance system that compares well with other database management systems such as MySQL and FirebirdSQL (both free), Sybase, DB2 and Microsoft SQL Server (all proprietary). It runs on all types of Operating System, from Unix/Linux to the various releases of Windows, via Mac OS X, Solaris, SunOS and BSD. Both components can be installed on the same server or distributed onto separate computer servers, if performance considerations require it [3].

2.4 Inventory Management

Inventory management is the process of ensuring that a company always has the products it needs on hand and that it keeps costs as low as possible [6].

In most business, Inventory Management is an important function the purpose of this function is to achieve an optimal inventory investment. Inventory management involves a trade-off between the costs associated with keeping inventory versus the benefits of holding inventory [7].

2.5 Warehouse Management

Warehouse is a part of the supply chain that facilitate consolidation of products to get more value within business process such as: reduce transportation cost, achieve economies of scale in manufacturing or in purchasing [8].

A warehouse management system primarily aims to control the movement and storage of materials within a warehouse and process the associated transactions, including shipping, receiving, put-away and picking [9].

2.6 Technology Acceptance Model

Technology Acceptance Model has been developed by Davis (1989) is one of the most popular research models to predict use and acceptance of information systems and technology by individual users. TAM has been widely studied and verified by different studies that examine the individual technology acceptance behavior in different information systems constructs [10].

3. Research Methodology

3.1. Conceptual Model

Conceptual Model in Information System Department are using design science and behavior science paradigm [11]. Design Science (DS) involves building and evaluating innovate artifacts in a rigorous manner to solve complex, real world problems, make research contributions that extend the boundaries of what is already known, and communicate the results to appropriate audiences in the form of problem solving paradigm [12] while behavior science e paradigm has its roots in natural science research methods [11].

3.2. Systematic Research

Systematic that writer use in this research is iterative waterfall method, it had been adjusted with Odoo OpenERP Implementation Methodology. This project uses Iterative Waterfall methodology to solve this systematic research, Iterative Waterfall combining both of methodology which make project works on different task simultaneously within a formal structure. There are six phases within this systematic research.

4. Analysis and Design

4.1. Identification Phase

Identification phase is the beginning phase of build or developing ERP systems within Iterative Waterfall method. In this phase, planning and preparation before developing the application are performed in this phase. Several things that considered within this phase are:

1. Preface of the project
2. Formulation of problems within project
3. Goal or purpose of the project
4. Project limitation

4.2. Requirement Definition

Every requirement that needed during the completion of this project are defined in Requirement Definition Phase. In this phase researcher are perform several identifications on the behalf to produce the documentation for organizational changes management, existing business processes that perform by PT. Albasia Nusa Karya, Odoo's ERP systems concept that fit into it, and the need analysis of PT. Albasia Nusa Karya. There are five sub-phase within Requirement Definition phase:

1. Organizational Change Management
2. Analysis of Existing Warehouse's Business Process
3. Analysis of Odoo's Inventory Module Business Process
4. Needs Analysis
5. Analysis of Gap/Fit

4.3. System and Software Design

In this phase, researcher will provide recommendations for PT. Albasia Nusa Karya including Organizational Structure Definition, Business Process Definition, Use Case Diagram of The Software Design, and Quality Check to measure that the design is ready or not. The design was produce based on previous phase on this chapter, especially on Requirement Definition Phase. The sub-phse of System and Software Design as follows:

1. Organizational Structure Definition
2. Business Process Definition
 - a. Recommendation of Requesting Raw Material Procurement Business Process using Odoo 10

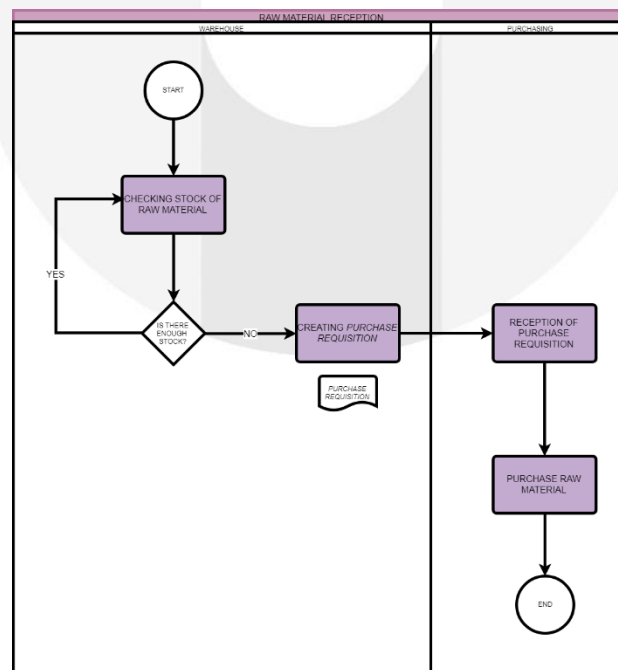


Figure 1 Recommendation of Requesting Raw Material Procurement Business

b. Recommendation of Raw Material Reception Business Process using Odoo 10

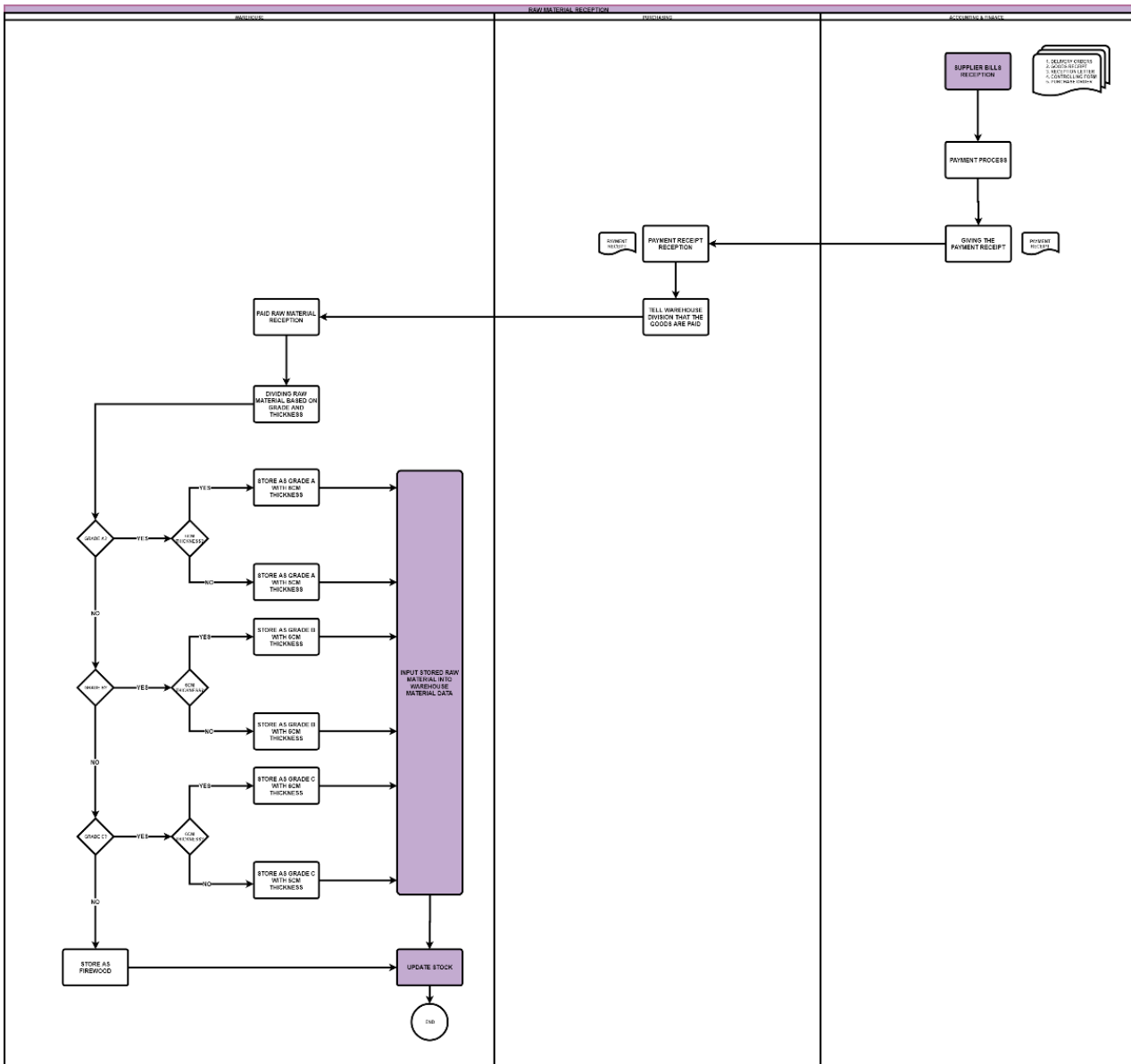


Figure 2 Recommendation of Raw Material Reception Business Process

c. Recommendation of Moving Raw Material from Warehouse to Kiln Drying (KD) Rooms Business Process using Odoo 10

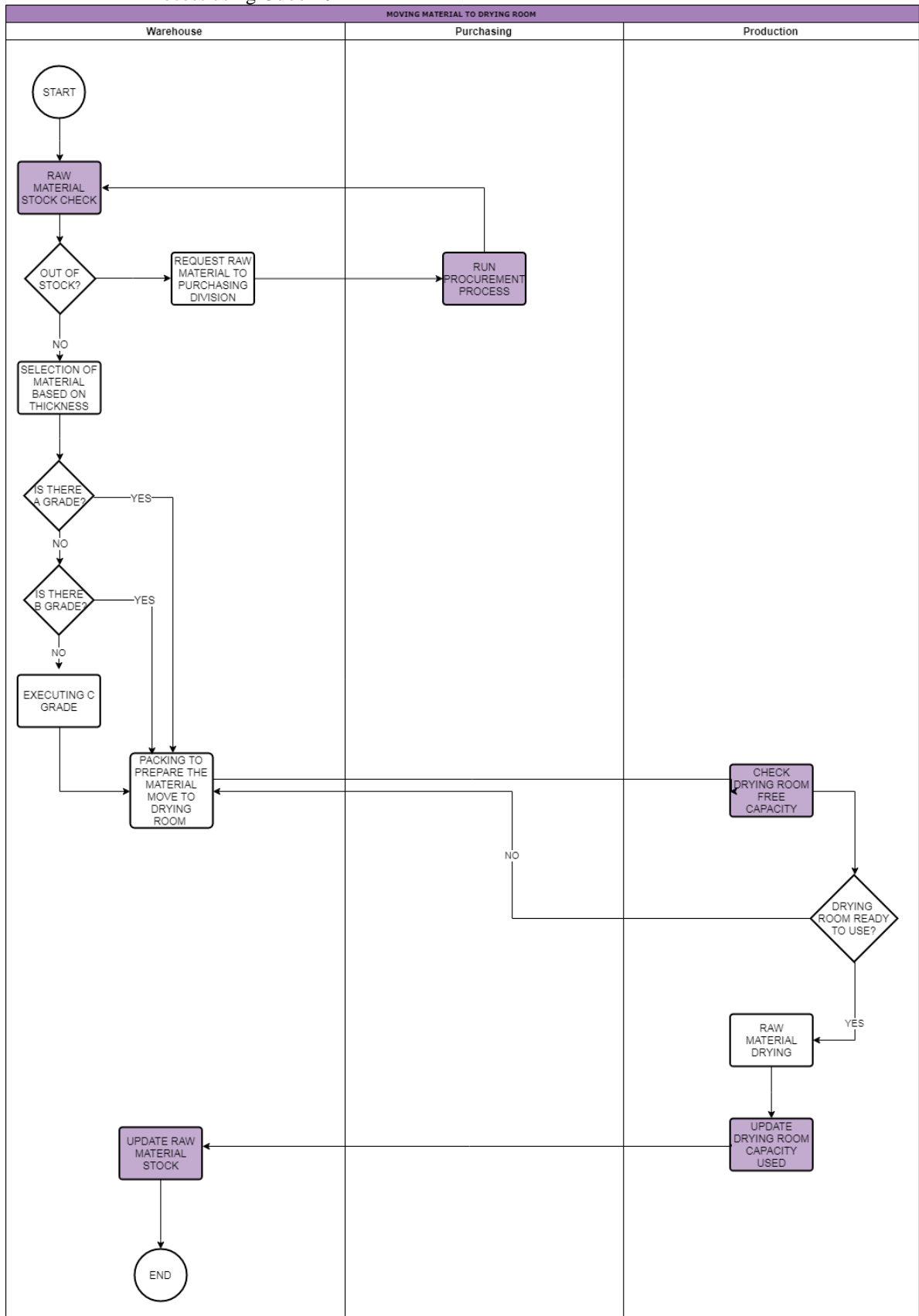


Figure 3 Recommendation of Moving Raw Material from Warehouse to Kiln Drying (KD) Rooms

5. Implementation

After designing the concept based on the existing condition in PT. Albasia Nusa Karya and comparing with Odoo 10 ERP business process that resulting the suggestion for the company. The suggestion design will be implementing in Odoo 10 ERP software.

5.1. Implementation Application

After designing the concept based on the existing condition in PT. Albasia Nusa Karya and comparing with Odoo 10 ERP business process that resulting the suggestion for the company. The suggestion design will be implementing in Odoo 10 ERP software.

1. Installation
2. Odoo 10 Adjustment
3. Configuration
4. Customization

5.2. Integration and System Testing

In Integration and System Testing phase researcher will perform analytic regarding the integration of every units that been produced in previous phase with module that have relation with this research. In this phase, is divide into four sub-phase which is Integration between modules, System Testing, User Testing, and User Feedback.

1. Integration between Modules
2. System Testing
3. User Testing
4. User Feedback

6. Conclusions

Based on the result of the research implementation of ERP warehousing concept in bare core company with using Odoo 10 (PT. Albasia Nusa Karya, here is the conclusions. Odoo 10 ERP System can be installed, adjusted, configured, and customized in accordance with the needs of PT. Albasia Nusa Karya with using iterative waterfall methodology. The result of developing warehouse management system can be seen on aspect as follows:

1. Inventory Adjustment can be perform using Odoo 10 ERP systems, company can adjust their warehouse stock with efficient and flexible process.
2. Reordering Rules can be perform using Odoo 10 ERP systems and use as initiation way for procurement activity.
3. Company can check how much the product value by running Inventory Valuation in Odoo 10.
4. Every moving material from one to another warehouse is well-documented on Stock Moves within Odoo 10.
5. Warehouse's Raw Material Reception activity can be integrated with purchase and finance & accounting division within Odoo 10.
6. Odoo 10 facilitate system that can record the stock moves of Moving Material from raw material warehouse to kiln drying rooms and moving the dried material from kiln drying rooms to pre-production warehouse.
7. Warehouse division of PT. Albasia Nusa Karya can update, check, and create of stock quantity record of every location created in Odoo 10.

Bibliography

- [1] Cambridge. (2008). Cambridge Advanced Learner's Dictionary. Cambridgeshire: Cambridge University Press.
- [2] O'Brien, J. A., & Marakas, G. M. (2011). Management Information System 10e. New York: McGraw-Hill.
- [3] Odoo. (2017, October 19). *About Odoo*. Retrieved from Odoo: <https://www.odoo.com/page/about-us>
- [4] Le, H. (2016, October 14). *TABLE OF COMPARISON BETWEEN ODOO 8 9 10 COMMUNITY AND ENTERPRISE*. Retrieved from Bloopark: https://docs.google.com/spreadsheets/d/1qnaqEyUTDj8ftdD_8v-rhNOik7cxHm0T1nLbyuJKHJY/edit#gid=0
- [5] Jindal, N., & Dhindsa, K. S. (2013). *Comparative Study of Open ERP and its Technologies*. Punjab, India: International Journal of Computer Applications.
- [6] Investing Answers. (2014). *Inventory Management*. Retrieved from InvestingAnswer: <http://www.investinganswers.com/financial-dictionary/financial-statement-analysis/inventory-management-5999>
- [7] Kontuš, E. (2014). MANAGEMENT OF INVENTORY. In *Econviews* (pp. 245-256). Vidikovac.
- [8] JJ, B. I., & ST, H. (2006). *Warehouse and distribution science*. Retrieved from warehouse science: <http://www.warehouse-science.com/>
- [9] Ramaa.A, K.N.Subramanya, & T.M.Rangaswamy. (2012). Impact of Warehouse Management System. *International Journal of Computer Applications*, 14-20.
- [10] Surendran, P. (2006). Technology Acceptance Model: A Survey of Literature. *Technology Acceptance Model*, 175-178.
- [11] Hevner A., C. S. (2010). Design Science Research in Information Systems. In M. P. Hevner, *Design Science Research in Information Systems - Theory and Practice* (pp. 9-22). Springer.
- [12] Carcary, M. (2011). Design Science Research: The Case of the IT Capability. *The Electronic Journal of Business Research Methods Volume 9 Issue 2*, 109-118.