

DESIGNING BUSINESS PROCESS FOR ENTERPRISE RESOURCE PLANNING IMPLEMENTATION IN ABO FARM INDONESIA

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Abstrak

SMEs (Small Medium Enterprises) is one pillar of Indonesia's economy, especially in the field of agribusiness. Abo Farm is one of the SMEs in Indonesia engaged in agribusiness, and also plans to expand its businesses in many other fields. Not unlike the majority of SMEs in Indonesia, Abo Farm is still limited in the data management system and documentation of its business activities. This condition raises the barriers to managing its business with greater scale and more many business branches. Efforts to improve Abo Farm business and to provide better information system bring researcher to designing business process proposal to be applied for implementing technology as the tools. Through the study of literature on previous research, it was found that the ERP (Enterprise Resource Planning) is a technology that now can solve this problem. Taking into account certain factors so the ERP type that selected to be implemented is Open ERP. In addition, this reasearch is done with depth interviews, discussions, benchmark, surveys, and the searching of secondary data in order to formulate business processes proposal. After analyzing the existing business processes, planning of Abo Farm business, benchmark with other business process so the research formulate the user needs. Then it will be analyzed in gap analysis, between the user needs and capabilities of Open ERP. All of that is formulated to be business processes proposal and procedure work of using Open ERP that further will be applied in ERP implementation of Abo Farm.

Kata Kunci : Enterprise Resource Planning, Business Process, Small Medium Enterprises.

Abstract

SMEs (Small Medium Enterprises) is one pillar of Indonesia's economy, especially in the field of agribusiness. Abo Farm is one of the SMEs in Indonesia engaged in agribusiness, and also plans to expand its businesses in many other fields. Not unlike the majority of SMEs in Indonesia, Abo Farm is still limited in the data management system and documentation of its business activities. This condition raises the barriers to managing its business with greater scale and more many business branches. Efforts to improve Abo Farm business and to provide better information system bring researcher to designing business process proposal to be applied for implementing technology as the tools. Through the study of literature on previous research, it was found that the ERP (Enterprise Resource Planning) is a technology that now can solve this problem. Taking into account certain factors so the ERP type that selected to be implemented is Open ERP. In addition, this reasearch is done with depth interviews, discussions, benchmark, surveys, and the searching of secondary data in order to formulate business processes proposal. After analyzing the existing business processes, planning of Abo Farm business, benchmark with other business process so the research formulate the user needs. Then it will be analyzed in gap analysis, between the user needs and capabilities of Open ERP. All of that is formulated to be business processes proposal and procedure work of using Open ERP that further will be applied in ERP implementation of Abo Farm.

Keywords : Enterprise Resource Planning, Business Process, Small Medium Enterprises.

Chapter II Theoretical Basis

II.1 Small and Medium Enterprises (SMEs)

SMEs or small and medium enterprises is an area of business that is currently being widely studied. Especially in relation to the development of technology for SMEs, either in Information and Communication Technology (ICT), processing machines, and others. In the field of ICT, some topics that are developed are e-commerce, Information Systems (IS), and Enterprise Resource Planning (ERP) development that suitable for SMEs. Information systems technology provides the opportunity to develop the efficiency and effectiveness of the business, even to strengthen the competitive advantage (Porter & Millar 1985, pp. 149-160). Currently SMEs referred to as one of the most business to survive the current crisis hit Indonesia. This makes the government pay attention so focused in the development of SMEs. Badan Pusat Statistik (BPS) classifies SME industry based on number of workers in it, namely:

Table II.1 SME Industrial Clusters

Type of industry	Number of workers	Revenue (Billion Dollar / Year)
House industry	1-4	≤ 1
Small industry	5-19	≤ 1
Medium industry	20-99	1-100
Large industry	> 100	≥ 100

Source: Handayani et al. 1995, p. 3

II.2 Information Systems

Information system literally consists of two words; systems and information. System means the set of elements that are interrelated to form a unified whole and integrated (McLeod & Schell, 2007). In other sources, system is defined as a network of procedures which are interconnected

together to perform an activity or to accomplish a particular goal (Jogiyanto, 2005). So we can say system is a collection of certain elements that are related to each other and perform activities of input, process, and output to produce a desired objectives.

While the information is data that has been processed into a useful form for the recipient and real, a value which can be understood in the present and future decision (Davis, 1985). Therefore, the data that has been obtained would not be helpful if it's not processed into information. Information system can be defined as a processed data presentation used by the elements in a system for a particular purpose.

II.3 Enterprise Resource Planning (ERP)

Enterprise Resource Planning (ERP) is a concept of information system that integrates all activities of the company to achieve the efficiency and effectiveness of business processes on the company. ERP (Enterprise Resource Planning) is a technique and a concept that is applied to integrate of the overall business management through the viewpoint of effective use in resource management to improve the efficiency of the company (Leon 2000, p. 14). ERP is also used as a name for the type of software that has concepts of integration such as how the concepts define. ERP implementation will help the company to expand and improve the effectiveness and efficiency of business in the course of an enterprise. Here in Table II.1 (Seddon et al. 2003, p. 79) is the advantages of use of ERP.

Table II.2 The advantages of ERP

Operating profit
By automatically connect to business processes, ERP can offer advantage form of cost reduction, cycle reduction, increased productivity, improved quality, and develop customer service.
Advantages Managerial
With centralize database and build the capacity of data analysis, ERP can manage resources better, develop a plan and make decisions, as well as improve performance.



Table II.2 The advantages of ERP (Continued)

Strategic advantage
With the involvement of the larger business scale and capabilities internally or externally, ERP can help growth, alliances, innovation, cost, difference, and external relations.
IT infrastructure
With an integrated and standardized application architecture, ERP can support business flexibility, reduce cost and the marginal cost of the IT department, and rapidly increasing capabilities in implementing new applications.
Organizations advantages
ERP affect the growth of organizational capability to support changes in organizational structure, facilitating employee learning, inspire workers, and build the latest vision.

Source: Seddon et al. 2003, p. 79

This ERP software vendors are SAP (Systems Application and Products), Microsoft Dynamics AX, Oracle Business Sweet, Dokuku, and others. In an ERP software package consists of various modules that interpret all parts of existing departments within an enterprise. However, these modules can still be customize in accordance with the company's business processes, or modules are used only for specific company needs. ERP is known as a type of technology that requires a substantial investment. But the benefit of this technology is also very good, especially if the company is to be developed. Even though ERP was generally applied to large companies, has now developed ERP vendors that offer a specific ERP package for SMEs.

Based on the results of the research (Handy et al. 2013, p. 2440), stated that the business processes for the ERP implementation that is most needed by SMEs in Indonesia are the marketing, procurement, and production. The following is a complete table of the functional processes and sub-processes required of the three business processes:



Table II.2 Summary of Business Process Requirements

Functional Process	Sub Process	%
MARKETING AND DISTRIBUSI		
Pre-sales Activity	Manage Customer Master Data	75
	Manage Material Master Data	92
	Manage Pricing Master Data	96
	Manage Inquiry	25
	Manage Quotation	25
Sales Order Processing	Manage Sales Order	100
	View Document Flow	100
Manage Inventory	View Inventory Availability	83
Shipping	Manage Shipping	100
	Create Outbound Delivery with Reference to Sales Order	100
	Update Outbound Delivery	100
	Pick Product	100
	Post Goods Issue	100
	View Outbound Delivery	100
Customer Invoice	Maintain Billing Due List	100
	View Billing Due List	100
	Create Invoice	100
	Create Invoice with Reference to Outbound Delivery	100
	Create Invoice with Reference to Sales Order	100
	Update Invoice	100
	View Invoice	100
Customer Payment	Manage Financial Accounting	92
	Post Receipt of Customer Payment	96
	View Customer Balance	92

Table II.2 Summary of Business Process Requirements

PROCUREMENT PROCESS		
Purchase Requisition	Manage Purchase Requisition	4
	Manage Vendor Master Data	100
	Manage Material Master Data	100
	Create Material Master for Trading Goods	96
	Update Material Master for Trading Goods	96
	Manage RFQ	0
Maintain Quotation from Vendors	Maintain Quotation from Vendors	0
	View Price Comparison	0
	Reject Quotation	0
Purchase Order (PO)	Manage PO	100
Invoice Receipt	Manage Invoice Receipt	100
Payment to Vendor	Manage Financial Accounting	92
	Post Payment to Vendor	88
	View Vendor Balance	83
	View G/L Account Balance	83
PRODUCTION PROCESS		
Production planning	Create consumption values for finished products (forecasting)	88
	Manage bill of material (BOM)	96
	Manage finished product routing	88
	Manage product group	92
	Manage Sales and Operation Plan (SOP)	71
Production process	Transfer SOP to demand management	75
	Run MPS with MRP	100
	Review stock/requirement list	100
	Convert plan order into production order	100
	Review production order status and documents	100
	Confirm production completion	100
	Receipt of goods from production order	100
Order settlement	Review costs assigned to production order	100
	Order settlement	100

Source: Handayani et al. 2013, p. 2440

II.4 Business Process

Business processes is one package tasks that logically related and presented to achieve a defined business outcome (Davenport & Short 1990, pp. 11-27). A process is "structured, measured set of activities designed to produce a specific output for a particular customer or market. Business process is very important to be documented, among other in (Smith & Fingar, 2006):

- Provides in-depth understanding of the business,
- Transferring knowledge between business, and related parties,
- Provides a basis for the analysis and evaluation of the business.

Business process is also carried out to develop software, see the workflow management, show the simulation, or even to implement ERP software. Business process on a smaller classification usually grouped by department or section in the company, such as the Accounting, Distribution, Human Resources, Information Systems, Marketing, and others. To document the business process can be done in several ways, such as the Block Diagram, Standard Flowchart, Cross-Functional Flowchart, Time Line Functional Flowchart, Flowchart Geographical, Relationship Mapping, or any other type of Flowchart.

Business process can be improved with consider about other business process or in internal department of company (Smith & Fingar, 2006). This reasearch also will improve the business process of Abo Farm with compare to other business process. This effort to prepare as well as possible the business process when execute the ERP implementation.

II.5 Functional Flowchart

Functional Flowchart is one of many way that used to document business processes. According to ISO 5807: 1985, the flowchart is a graphical presentation of the definition, analysis, or problem-solving methods, with the symbols that used to represent operations, data, flow, or equipment. Here is the notation used in making functional flowchart:

Table II.3 Notation on Functional Flowchart

No	Symbols	Name	Remarks
1.		Process	This notation is used to define the change operation of the value, form, or location information.
2.		Decision	Notation to perform a decision-making operation, which will determine, which alternative paths are followed.
3.		Document	Coat for input / output in the form of documents.
4.		Offpage Connector	Notation represents entry to or exit from a particular page.
5.		Punched Card	Notation represents input / output card.

Table II.3 Notation on Functional Flowchart (Continued 1)

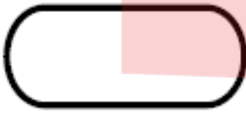
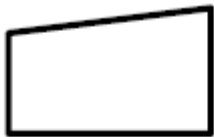
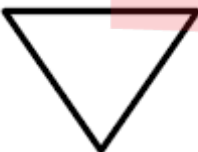
6.		Magnetic Tape	Notation represents input / output using magnetic tape.
7.		Terminal	This notation indicates start, stop, halt, delay, or interrupt of a process.
8.		Input/Output	This notation represents that the information to be input to the recording of the information has been processed (output).
9.		Connector	Notation to indicate Entry to or exit from.
10.		Arrowheads	Arrows used to connect and show the sequence of operations, and also the direction of data flow.

Table II.3 Notation on Functional Flowchart (Continued 2)

11.		Display	Indicator displays the information online, video devices, console printer, plotters.
12.		Punched Tape	Notation used to symbolize input / output using the file.
13.		Manual Operation	Offline process without the help of machines.
14.		Stored Data	Notation indicates Input / output are using any kind of storage.
15.		Preparation	This notation is used for modification instruction to change the program that regulates the switch, modify, index registers.

Table II.3 Notation on Functional Flowchart (Continued 3)

16.		Manual Input	Notation for information input by keyboard, switch settings, push-buttons.
17.		Merge	Notation which means combining two or more sets of items into one set.
18.		Extract	Removal of one or more specific set of items.
19.		Sort	This notation is to develop a set of items into a sequence
20.		Multi Document	Notation that indicates the input or output of more than one document.

Source: Smith & Fingar, 2006

II.6 Use Case Diagram

Use Case Diagrams can be defined as a diagram that shows the interaction between user and a system. Can be seen in Figure II.1 is an example of the results of the use case diagram of a system.

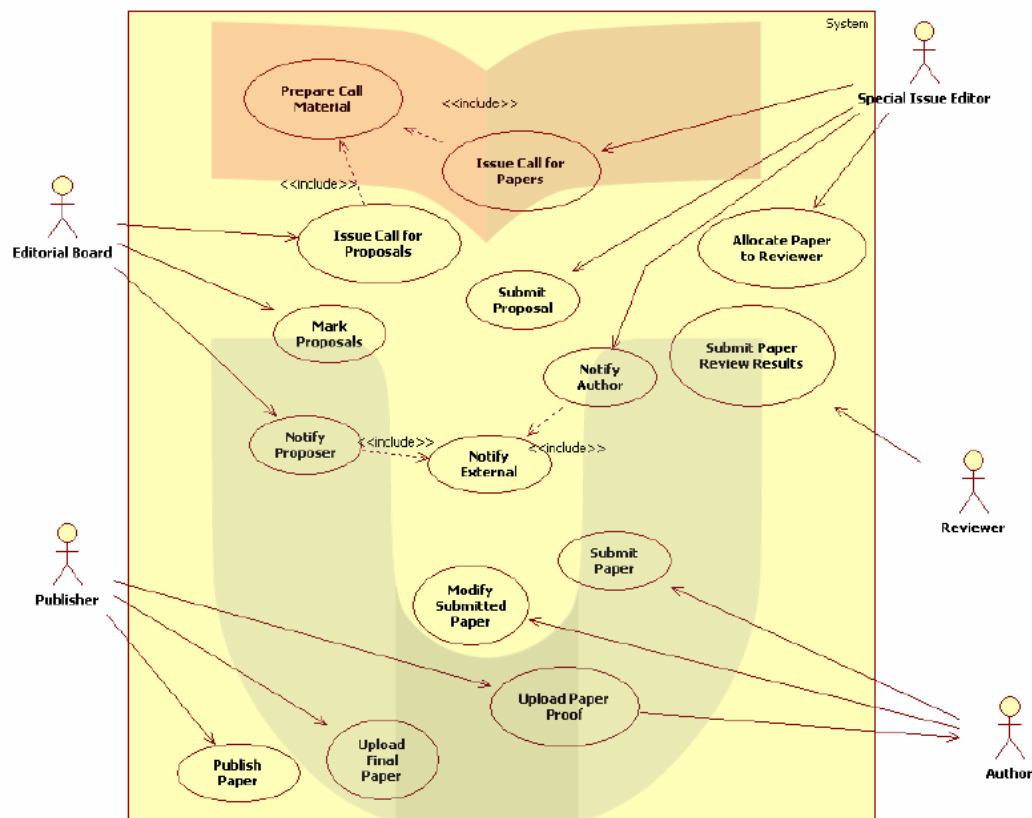


Figure II. 1 Example of Use Case Diagram

Source: Barn. 2007, p. 39

Here on Table II.4 is the notation used in making the Use Case Diagram:

Table II. 4. Notation of Use Case Diagram

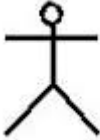
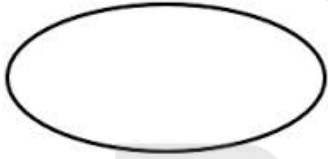
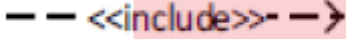
No	Symbols	Name	Remarks
1.		Actor	This notation is defined as someone or something (such as a device or system) that interacts with the system.
2.		Use Case	This notation is a functional image of a system that is used by the actor. As a description, use case-making tends to be focused on the existing functionality on system is not focused on the flow of events.
3.		Association	This notation is the liaison between the elements in the use case diagram
4.		Dependency	This notation is the liaison between the elements if these elements have dependencies with other elements.

Table II. 4. Notation of Use Case Diagram (Continued)

5.		Generalization	This notation connects an element which is a specialization of the other elements.
6.		Include	This notation represents relationships to declare that a use case is part of another use case.
7.		Extend	This notation represents relationships that will only happen if a use case meets certain conditions.

Source: Kendall, 2011

II.7 Gap Analysis

Gap analysis can be interpreted as an analysis that performed to compare between circumstances (Rahayu, 2013). It can be seen from the point view of organization, the business direction of the company, the company's business processes, and information technology that will be used by companies. According to (Kirchmer, 1198), Gap Analysis is an activity that is carried out to find a comparison and alignment between business processes required by the existing functional processes in an Enterprise System (such as ERP). Writing gap analysis was made on the table consisting of columns Requirements Process, Possibilities in enterprise system, Level Gap, and Gap analysis & decision. Level gap is defined in notation 1-5, with greater number means the greater the obstacles that is faced in implementing the system. Gap equal to 1 means very easy, 2 fairly easy, 3 somewhat difficult, 4 difficult, and 5 is very difficult.

This method will be used in research methodology to know the possibility of what function in ERP that can be used. In addition because it is familiar as one part of implementation ERP phase in Microsoft Dynamics AX and Oracle.



Chapter V Analysis and Discussion

V.1 Analysis Selection of Open ERP V.7.0

From the fourth types of ERP that is being consideration, Open ERP V.7.0 is the most appropriately software to be used by Abo Farm. Beside it is free, Open ERP has the modules functions that are complete. In addition, there is the superiority of Open ERP's modules that are not available in other three types of ERP. It is Project module.

Proweb is very impossible to be used because the infestation cost and subscribing cost are expensive. Although the completeness of Proweb modules has been good, but with Abo Farm's income that is still relative not unstable then impossible to implementing proweb technology. This is because ERP implementation also has the consequence of failure when applying directly with the investment cost is very high, the risk that threatens the SMEs is very big also. The same reasons with Proweb, Sofi Cloud also be considered because the cost is quite high. If Abo Farm want to install modules of General Ledger, Accounts Payable, Accounts Receivable, Purchasing, Inventory, and Sales, Abo Farm should pay with total cost for installation Rp 1,800,000. And that does not include training costs Rp 750,000 and Rp 750,000 for reports customization, and subscription fees for one user Rp 400,000 per month. Thus the overall cost that is needed is Rp 3,700,000. And subscription fees will rise along with the rising number of users.

The Type of ERP that is still quite possible than Proweb and Sofi Cloud is Dokuku. There is no installation costs that is required for the installation of ERP Dokuku. Dokuku team can be asked to come making customization, instalation, or training to customer without extra charge. For a subscription fee either is used or not used at all after the installation, the customer still has to pay a monthly subscription fee of Rp 50,000 - Rp 300,000. Modules and views belonging to quite simple but very relevant to the needs of the SMEs majority. Weakness Dokuku is the module associated with the finance function in ERP unavailable.

Overall from four ERP that is discussed, the most appropriate type to be used is Open ERP V.7.0. Although there are several Open ERP V.7.0 functions that may not be used because of the excessive function from what is needed for Abo Farm,

but it have been found other functions that are appropriate to the needs of Abo Farm. The excessive functions in Open ERP V.7.0 when it is implemented in Abo Farm, because this application was developed based on existing business processes globally in the world. Open ERP V.7.0 not developed specific for Indonesia. However, because the right to use this product given for free (for 3 user) and its functions can be used in software globally then this be a big attraction for users of ERP for small and medium companies around the world.

V.2 Comparative Analysis Between Business Process Abo Farm with Business Process That Underlie ERP Generally

Before designing business processes Abo Farm proposal, the analysis is required for the development of existing business processes. In this research is done analysis between business process existing of Abo Farm with business process that underlie ERP generally. Business process that are currently running Abo Farm is grouped into two, are sales business process and procurement business processes. Here in Figure V.1 and Figure V.2 are picture of the sales business process that has been marked with number codes. If there are the same number in particular process in both the pictures, it means between business process in figure V.1 and business process in figure V.2 are compared. And the description of the comparative analysis is in Table V.1 below the pictures.

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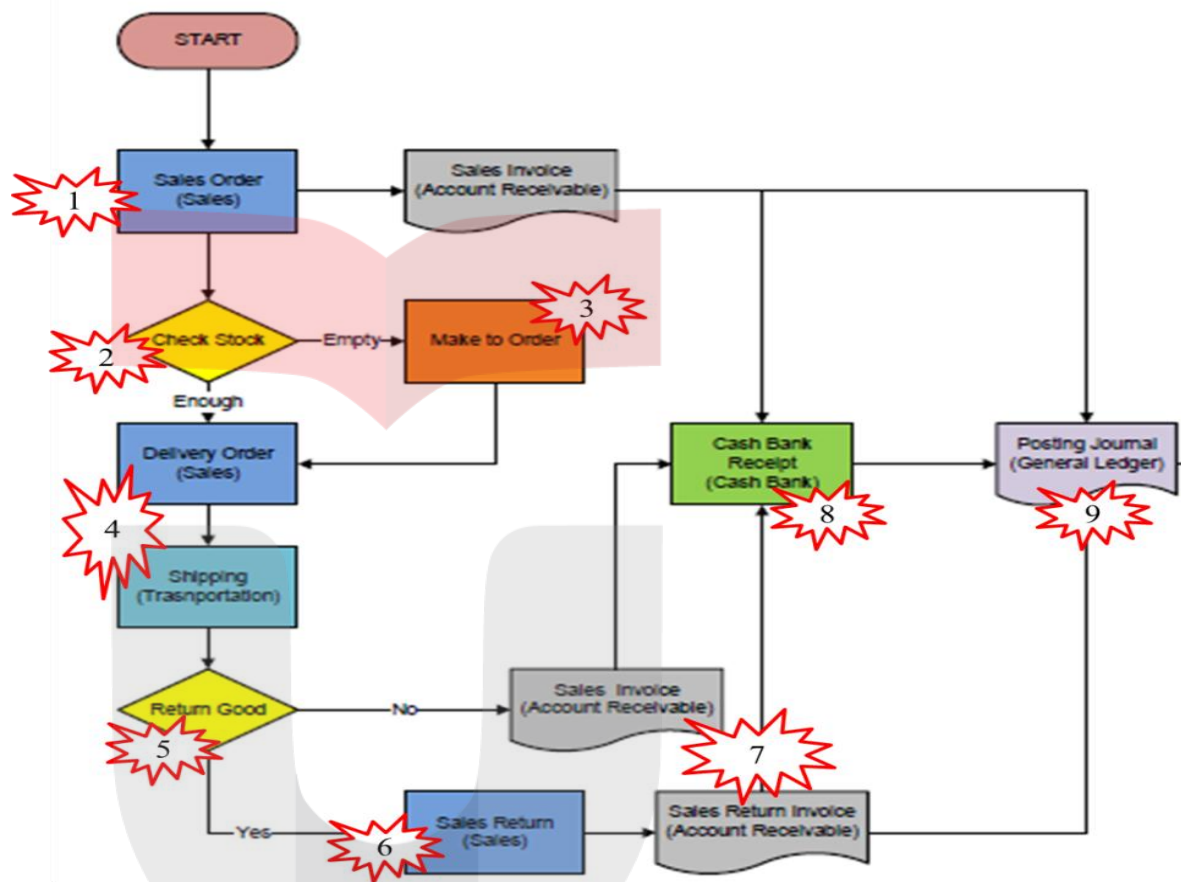


Figure V. 1. Sales Business Process For Comparison
Source: Herlambang et al. 2013, p. 184

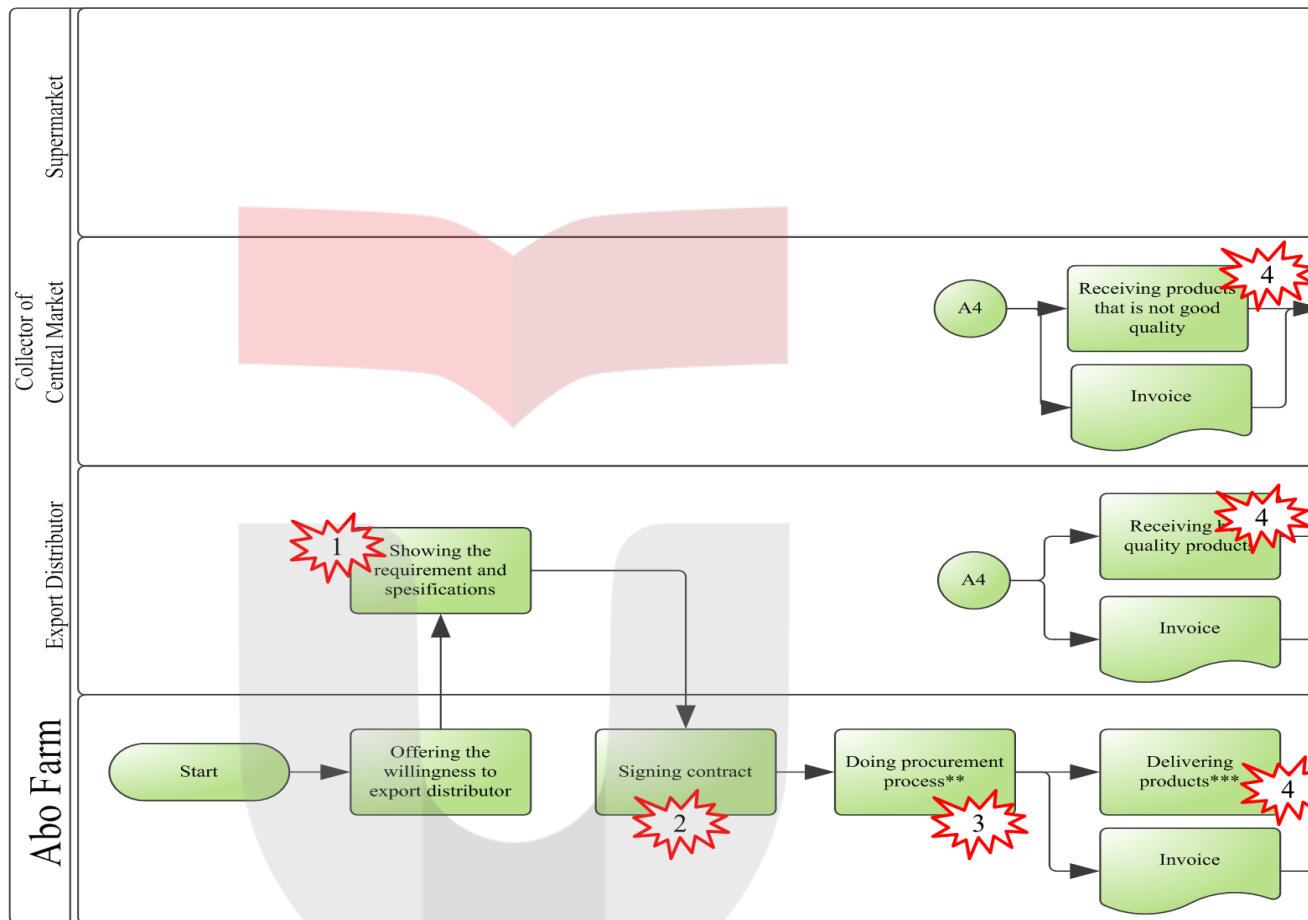


Figure V. 2. Sales Business Process That Is Compared

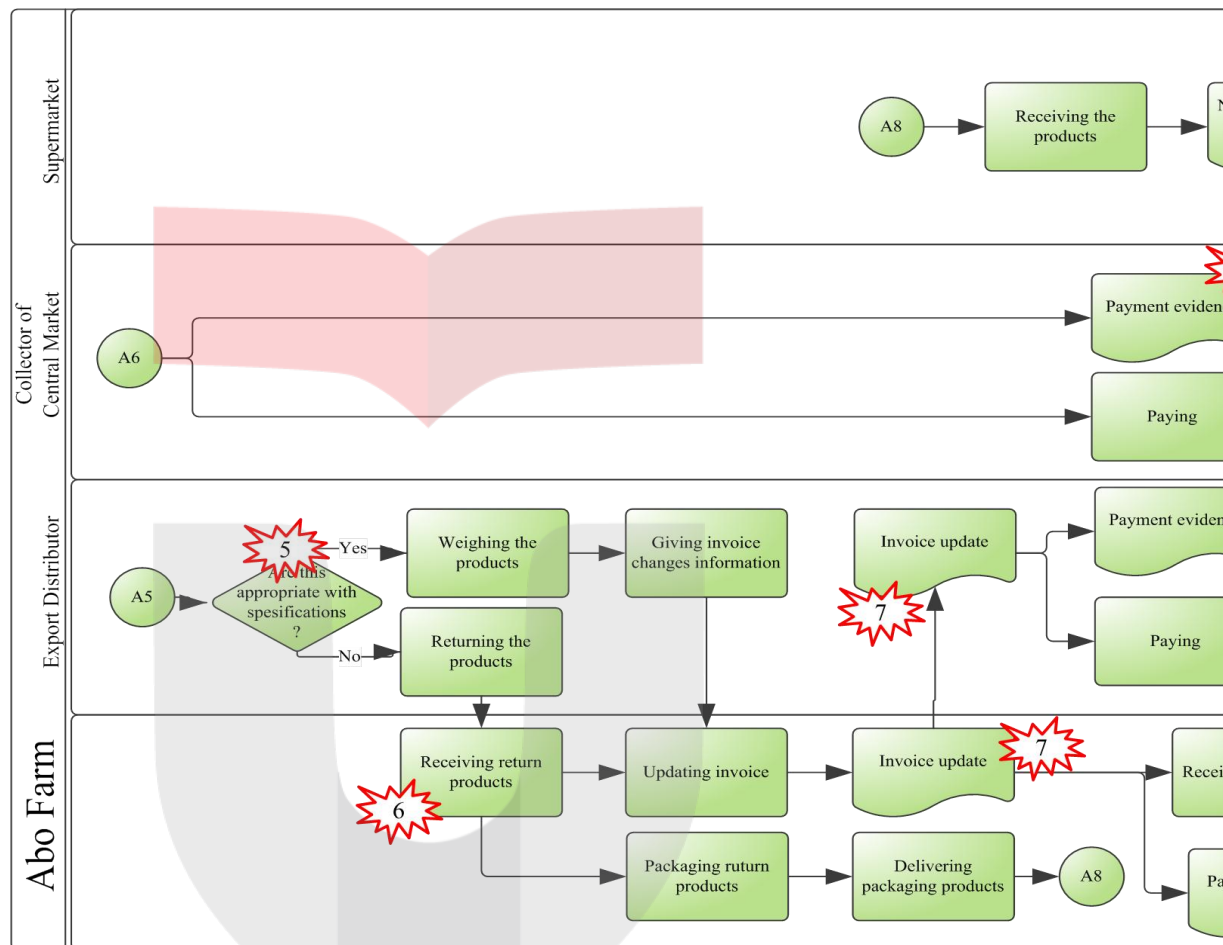


Figure V. 2. Sales Business Process That Is Compared (Continued 1)

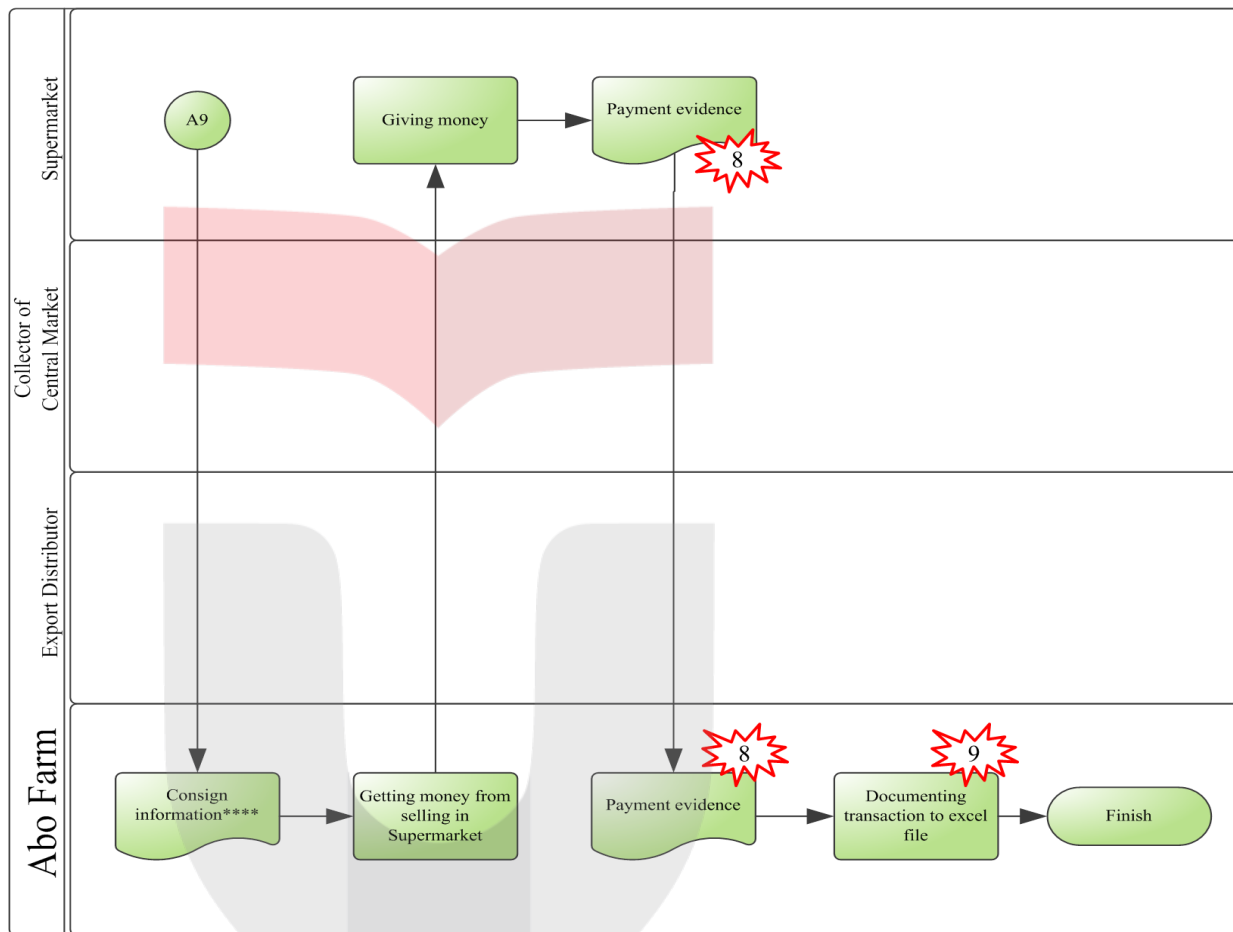


Figure V. 2. Sales Business Process That Is Compared (Continued 2)

Table V. 1. Business Process Analysis in Figure V.1 and Figure V.2

Code Number	Business Process Analysis	
	Abo Farm	ERP
1	Export distributor directly deliver specification requirements when Abo Farm comes to location of Export Distributors. This condition can make Abo Farm tend to be not ready with ability information to provide products of Abo Farm. Supposedly, Abo Farm prepare properly the information of ability prediction on products which probably will be ordered.	Customer create order to departemen sales corresponding with product that previously ever be offered base on company data. This is can applicable if the company have been good enough in giving product information that is provided. Because in generally ERP adopt bisnis process in manufacturing so production will remain be done when inventory is empty. Unlike Abo Farm that can not production (harvest) in all time.

Table V. 1. Business Process Analysis Figure V.1 and Figure V.2 (Continued 1)

2	After getting the offering, Abo Farm signed a contract. This process is similar to the existing processes in the ERP business processes. But there is no recording of the invoice in Abo Farm. Whereas in the business process ERP, invoice also will be inputed to database that will change financial condition of company so that the company knows that there will be a cash in on a certain date or if the customer wants to pay cash up front then it can also be checked easily because it has been documented. Basically Abo Farm still can make order rejection process if it does not match ability to fullfill product. This process can not necessarily be equated with ERP business processes. Because Abo Farm product is the crops that can't be harvested all the time. And storage processes can not be in long run. Abo Farm must consider about penalty that will be happen if it is forced for accepting the order although actually Abo Farm can't fullfill it. On the other hand, if Abo Farm impose to be able to fullfill the order then it is possible that the supplier will raise the sales price. This condition actually happened in Abo Farm.	Sales will receive the order from customer, and send the sales invoices. These sales invoice will update the condition of cash on the company's bank account and financial journals automatically.
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Table V. 1. Business Process Analysis Figure V.1 and Figure V.2 (Continued 2)

3	Although the process of making the product is not the same with business processes ERP but Abo Farm can benchmarks some side about it, such as production scheduling activities that is performed in manufacturing companies. Abo Farm can document the planning activities of harvest, harvest schedule, until the sorting process.	Enterprise make a planning, scheduling and production control of goods that is ordered.
4	Abo Farm does not have a special vehicle for the delivery of goods. And documents are included in the bill at the same time with the delivery of goods. Something that is feared if the order is very much and Abo Farm can't go along with the driver then will likely lead to fraud that can be detrimental to customers and reduce the level of customer satisfaction at Abo Farm.	There are specific department with special vehicles that are assigned to deliver product orders. The employee who deliver only bring a photocopy of customer invoice that already validated. And the original document will be sent to customers email or by fax. This is to prevent fraud by the editing of the payment amount.

Table V. 1. Business Process Analysis Figure V.1 and Figure V.2 (Continued 3)

5	Product return process is also done by the customer Abo Farm. It's just that for supermarket and collector did not use return process. Product returns are not necessary because all the quality is definitely acceptable by collectors. The product that is returned then will be packaged and sold to the Supermarket. But the disadvantage of this process is the lack of trigger for quality specifications on the product delivered to the distributor export. And the packaging process and delivery of packaging products still have to wait for the completion of this process. If the direct sorting activities are divided into 3 categories of quality then the product sorting will be very strict. This will minimize product returns from distributors Export. Transportation can also be done in one time that minimize transportation costs. And also the time to do the business cycle becomes faster. Supermarket have business system like an consign system, the money will be received after the product of Abo Farm sold. If Abo Farm still waiting for return product to do packaging process then it will minimize the time to put the product in Supermarket. Because the product at that time should be consigned directly in Supermarket to be sold.	The product that was not good after in customer will be return to sales. There is no process production after this process.
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Table V. 1. Business Process Analysis Figure V.1 and Figure V.2 (Continued 4)

6	Abo Farm receive the return product without automatically update the cash condition in account bank of Abo Farm. This because the update of invoice is not be done automatically. This condition tend to make Abo Farm will input the data in jurnal after all the business process will or already finish.	Sales receive the return product and update the invoice to bank cash and financial journal. Thus the company can always monitor the financial condition in real time.
7	The update of invoice is delivered physically or via Email. However, these data are not integrated with financial and bank cash journal so to know the condition of bank cash and financial journal, Abo Farm need input one by one the data to excel file.	When an invoice document is published then at that time all department that is related will receive the same document also.
8	When maturity to pay, customer will pay and give the evidence of payment. This process is important process, after customer pay the product, the customer must show the evidence also even if there will be a bank account description in Abo Farm. This is to avoid any errors in the bank system, thus the proof can be reported when filing complaint.	This process is not pictured in the sales business process in ERP, but in fact this activity is there.

Table V. 1. Business Process Analysis Figure V.1 and Figure V.2 (Continued 5)

9	Abo Farm usually input their data at the end of the business. This could allow Abo Farm to forget to input certain data. So it is better if Abo Farm consistently input every important data without wait until the end of business.	All the data of company always be documented and managed neatly. Each departement of company have their own admin that have responsibility in ERP system operational and accuracy of data that are entered by them.
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Based on the Table V.1 then in Table V.2 below is a summary of the conclusions of the comparation analysis:

Table V.2. Summary of Comparative Analysis

Code Number	Conclusion
1	• Abo Farm decide carefully about the type of products and capacity can be offered. • Abo Farm sends a file which contains information on the type of products and capacity offered Abo Farm. • Abo Farm have to review of the order. • Abo Farm conduct meetings to negotiate.
2	• Abo Farm makes a decision (accept or not). • If Abo Farm accept customer order, Abo Farm sign contract. • Abo Farm send sales invoices. • Sales invoice is also documented in any other business functions that need.

Table V.2. Summary of Comparative Analysis (Continued 1)

3	• Abo Farm documenting harvesting planning • Abo Farm documenting the harvest schedule • Abo Farm planning a sorting process as per the specifications given.
4	• Documents that are brought by the people who deliver the product only in form of photocopy invoices which is already validated. • Or, if the customer is willing, Abo Farm can only send the official invoice via email. • If Abo Farm involve in delivering product so the invoice can be included.
5	• Abo Farm does not have to wait for the product returns to find the mid quality products that are sold to Supermarket. • Abo Farm directly divides the quality into 3 parts, are the quality 1 (very good), quality 2 (good), and quality 3 (not good). • Packaging process is done before return product arrived. • Abo Farm directly consign quality 2 of products to supermarkets or other similar places.
6	• Abo Farm integrate invoice data with other functions in the business, including the finance function Abo Farm. • Abo Farm can monitor its financial condition in real time.
7	• Abo Farm does not need an input of data one by one to each of other functions system in the business Abo Farm. • Abo Farm does not need to calculate or process financial data manually.
8	• Abo Farm still receive proof of payment from each transaction. • Abo Farm give the evidence of payment if there is problem with the banking system.

Table V.2. Summary of Comparative Analysis (Continued 2)

9	• There are a worker or a (second owner) who was given the role of being an admin Abo Farm. • Admin had always input or update the data that need to be entered into the ERP system of their business. • Admin print and send all administrative purposes of Abo Farm. • Admin Operations ERP system to manage the business information system.
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Here in Figure V.3 and Figure V.4 are the design of sales business process which has been marked with letter code. If there are the same letter in particular process in both the pictures, it means between business process in figure V.3 and business process in figure V.4 are compared. And the description of the comparative analysis is in Table V.3 below the pictures.

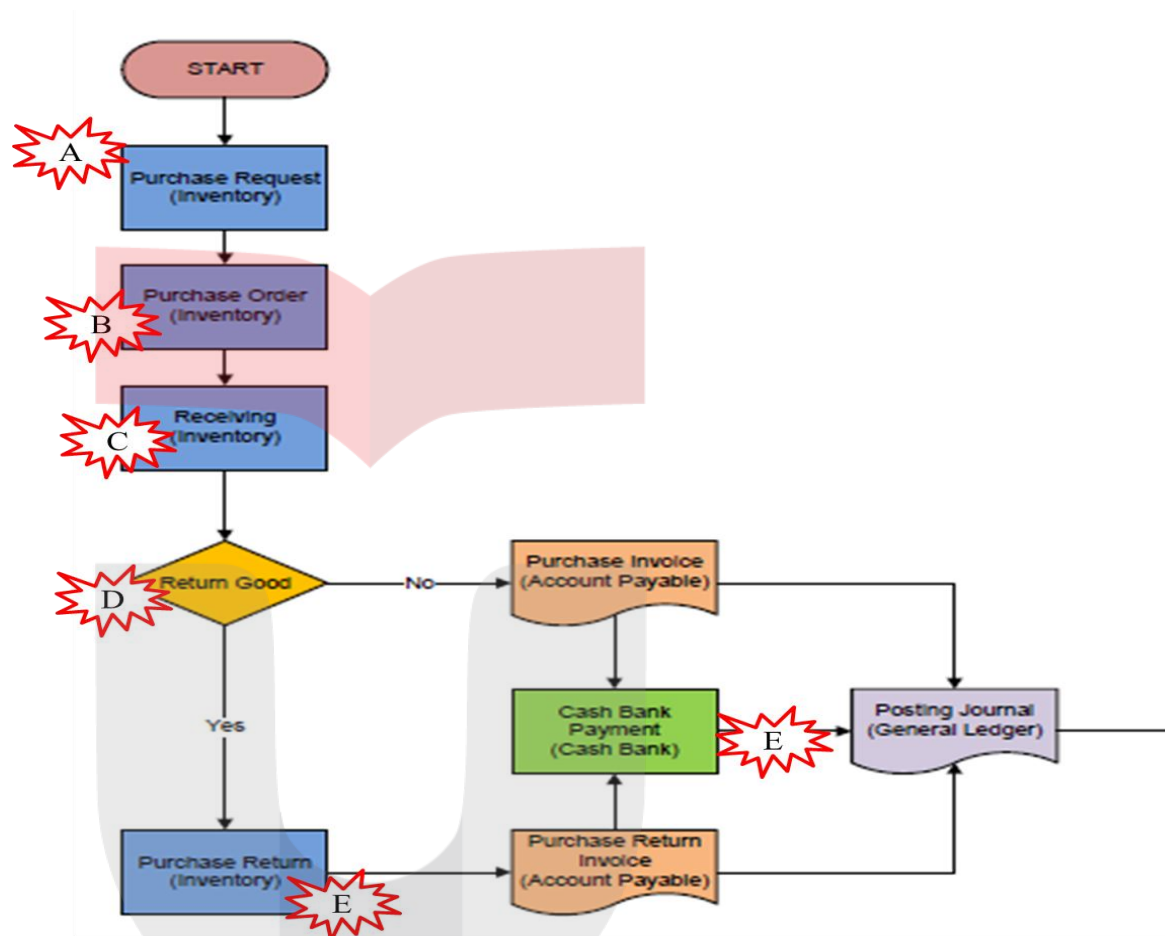


Figure V. 3. Procurement Business Process For Comparison
Source: Herlambang et al. 2013, p. 184

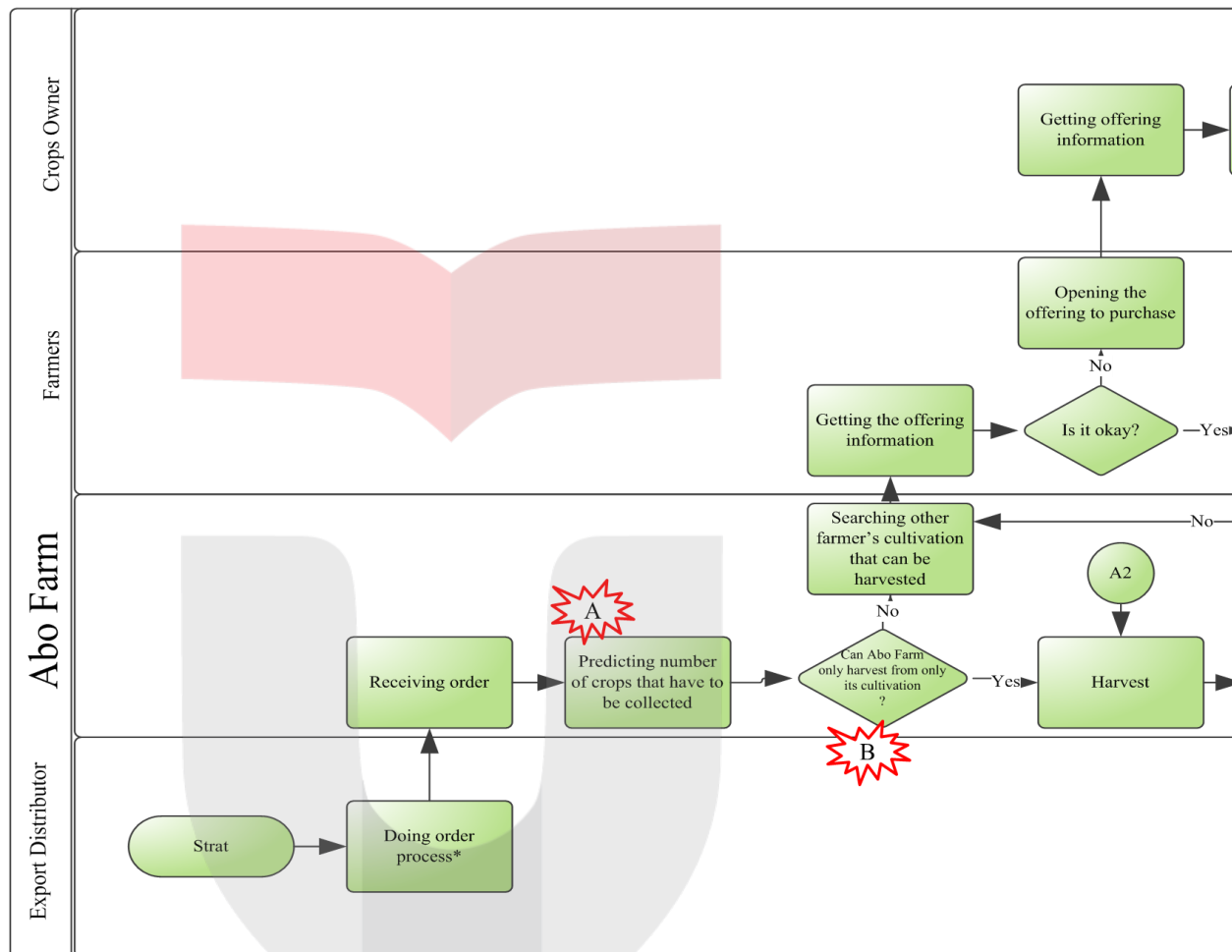


Figure V. 4. Procurement Business Process That Is Compared

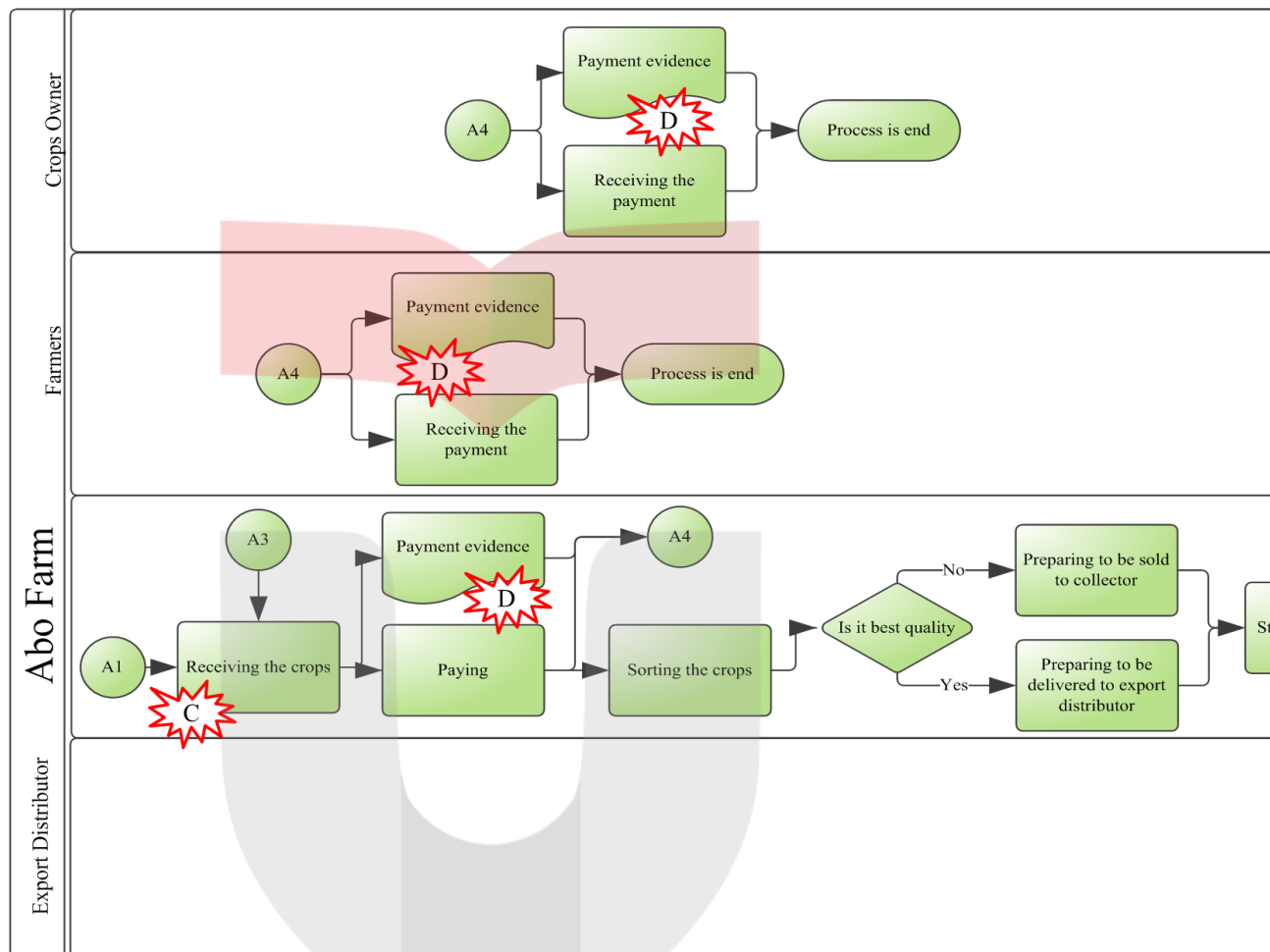


Figure V. 4. Procurement Business Process That Is Compared (Continued)

Table V. 3. Business Process Analysis Figure V.9 And Figure V.10

Letter Code	Business Process Analysis	
	Abo Farm	ERP
A	When Abo Farm want to start harvest process, Abo Farm estimate the total number of crop that must be gotten if the product that is ordered with certain number. Total yields must be greater than the number of products that were ordered. This decision can also be obtained with historical data. For example, if usually umpteen kilos agricultural products will be sorted to be how many pounds of product with excellent quality.	Inventory department will ask to purchasing to supplier. It is approved then the goods will be ordered. This ordering is done based on the material required in the production process.

Table V. 3. Business Process Analysis Figure V.9 & Figure V.10 (Continued 1)

B	Abo Farm offers the willingness to another supplier after harvesting activity completed, and the yields are less than required (example, it is less). Though estimation of how much the amount of crops that must be obtained from other than Abo Farm's cultivation can be estimated previously so Abo Farm can do the activities simultaneously. Suppose while Abo Farm harvest, Abo Farm can begin to offer the willingness of suppliers to provide material (crop). Or if the offer is quickly taken then Abo Farm can harvest their cultivation at same time with the supplier's (farmer) cultivation. This is very helpful especially when the delivery deadlines of order products are very short. The estimation of crop is based on the estimation number of crops in every certain acres of cultivation with the certain plant types. This is already discussed about how possible to be implemented. Because based on experience, the result of the calculation is approximately correct. But unfortunately, it have not be done yet optimally. In addition Abo Farm can also make an offer to the supplier without having to visit the location of the farmer directly. In order not to waste time, Abo Farm should have documented the data of suppliers completely. And make order to supplier by email or at least by phone before go to the farmer's location. After there is a possibility or even certainty regarding the farmers' willingness then Abo Farm can come to the site to take the survey or harvest directly.	In inventory departement make order of purchasing like what agreed upon in the previous process. In a large company, the document that is included is called the documents purchase orders which can also be sent automatically from the company's ERP system.
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Table V. 3. Business Process Analysis Figure V.9 & Figure V.10 (Continued 2)

C	Abo Farm received the yields for the purchasing of the crops that have harvested, and the crops that have not harvested. This is understandable because the crops are harvested directly by Abo Farm has a total price that is likely to be cheaper but there is no delivery services by farmers.	The company just received the goods from the supplier. Because companies tend to be much stronger position than the position of the supplier so the supplier shall provide services to the company.
D	All the crops that is bought by Abo Farm will not be returned to the seller or the farmer. Whether that's good or not all the crops will be accepted. Sometimes that to be constraints is some crops from sellers who come to the Abo Farm was destroyed during the process of delivery to Abo Farm. The condition of crops which destroyed make the crops can not be sold at all. Even though the quality of agricultural products in the category basically are very good, but if destroyed or damaged due to shocks load in the vehicle then it can not be sold.	The goods that come on hands in poor condition will be returned. This agreement has been written with the firm when the contract that was signed. It is very helpful for the company to be able to sue the supplier if there is a discrepancy or damage to the product.

Table V. 3. Business Process Analysis Figure V.9 & Figure V.10 (Continued 3)

E	In this process, the existing warehouse at Abo Farm is only used to temporarily store a few days while waiting for a shipment arrived.	While the business processes in large enterprises, the warehouse is the place to put the number of products until there are customers that want to buy it. The warehouse data will always be updated when there are returning products, and activities out and the entry of goods in the warehouse.
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Based on the Table V.3 then in Table V.4 below is a summary of the conclusions of the comparison analysis:

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Table V. 4. Summary of Comparative Analysis

Letter Code	Conclusion
A	• Abo Farm consider the data that is stored about how many pounds of crops needed for umpteen kilos of products with excellent quality. • Abo Farm have to estimate the number of crops are more than the amount of the expected product.
B	• Abo Farm estimate how many pounds the crop that is gained from certain acres so that Abo Farm can make an offer immediately if the result of calculation less than the number of products that is targeted. • Abo Farm make offers willingness of suppliers by electronic mail or telephone before coming directly to the location of the supplier. • Abo Farm should be able to do the job in parallel especially if the product delivery deadlines are very short.
C	• Abo Farm will give priority to the supplier with the lowest selling price even though there is no delivery service of products. • In the trading system owners (farmers) deliver the harvest of agricultural products to be sold on-site Farm Abo. Abo Farm will set a standard price that both parties are not harmed.

Table V. 4. Summary of Comparative Analysis (Continued)

D	• Abo Farm requires an agreement that damaged crops when supplier is delivering, it is not the responsibility of Abo Farm Farm. • Abo Farm will return the damaged goods, and withdraw money if the payment has been paid or redress to the good stuff
E	• Warehouse Abo Farm is only a temporary storage. • Abo Farm always update the product information about out of entry the products in the warehouse.

V.3 Formulation of The Needs Analysis of Business Process

The needs of business process is formulated with considering about result of comparative analysis of business process and also about planning of Abo Farm. After a series of analysis, business process Abo Farm need some process and some function in ERP system to improve business process currently.

Based on the result of comparative analysis in discussion V.2 and consideration planning of Abo Farm then the following are the formulation of business process Abo Farm:

A. The Needs of Sales Business Process

a. Process That Is Needed

1. Abo Farm decide carefully about the type of products and capacity that can be offered.
2. Abo Farm sends a file which contains information the type of products and capacity that offered Abo Farm.
3. Abo Farm reviews the order.
4. Abo Farm conducts meetings to negotiate.
5. Abo Farm makes a decision (accept or not).
6. If Abo Farm accept the order of customer, Abo Farm sign the contract.
7. Abo Farm send sales invoices via electronic.
8. Abo document the harvesting planning document.

9. Farm documenting the harvest schedule.
10. Abo Farm plan sorting process as the specifications that is given.
11. Documents that is brought by people that deliver the product to customer simply photocopy invoices that has been validated.
12. Or if the customer is willing, Abo Farm only send the official invoice via electronic mail.
13. If Abo Farm involve in delivering customer order so invoice can be included.
14. Abo Farm does not have to wait for the product returns to find the mid quality products to be sold in supermarket.
15. Abo Farm directly divides the quality into 3 parts, are the quality 1 (very good), quality 2 (good), and quality 3 (not good).
16. Packaging process is done before return product arrived.
17. Abo Farm directly consign quality 2 of products to supermarkets or other similar places.
18. Abo Farm integrate invoice data with other functions in the business, including the finance function Abo Farm.
19. Abo Farm can monitor its financial condition in real time.
20. Abo Farm still receive proof of payment from each transaction.
21. Abo Farm give the evidence of payment if there is problem with the banking system.
22. Admin had always input or update the data that need to be entered into the ERP system of their business.
23. Admin print and send all administrative purposes of Abo Farm.
24. Admin Operations ERP system to manage the business information system.

b. Function That Is Needed in ERP System

1. Abo Farm must document the customer's order, because it is very important.
2. Abo Farm need a file that contain of the kind of product information and capacity that Abo Farm have to be offered to customer.
3. Abo Farm need the sales invoice via electronic.

4. Abo Farm need sales invoice that is documented in every other business function that need it.
5. Abo Farm need the integration of invoice data and other data with other business function in Abo Farm, especially financial function of Abo Farm.
6. Abo Farm can monitor its financial condition in real time.
7. Abo Farm does not need an input of data one by one to each of other functions system in the business Abo Farm.
8. Abo Farm does not need to calculate or process financial data manually.
9. There are a worker or a (second owner) who was given the role of being an admin Abo Farm.
10. For long term planning of Abo Farm in build personal outlet of Abo Farm, Abo Farm need an POS (Point of Sales) application for their outlet.
11. Now Abo Farm is receiving order Rp 1 trilion to make project procurement of eggplant. To optimize this function, Abo Farm requires the Project Management Module.

B. The Needs of Procurement Business Process

a. Proses That Is Needed

1. Abo Farm consider the data that is stored about how many pounds of crops needed for umpteen kilos of products with excellent quality.
2. Abo Farm have to estimate the number of crops are more than the amount of the expected product.
3. Abo Farm estimate how many pounds the crop that is gained from certain acres so that Abo Farm can make an offer immediately if the result of calculation less than the number of products that is targeted.
4. Abo Farm make offers willingness of suppliers by electronic mail or telephone before coming directly to the location of the supplier.
5. Abo Farm should be able to do the job in parallel especially if the product delivery deadlines are very short.

6. Abo Farm will give priority to the supplier with the lowest selling price even though there is no delivery service of products.
7. In the trading system owners (farmers) deliver the harvest of agricultural products to be sold on-site Farm Abo. Abo Farm will set a standard price that both parties are not harmed.
8. Abo Farm requires an agreement that damaged crops when supplier is delivering, it is not the responsibility of Abo Farm Farm.
9. Abo Farm will return the damaged goods, and withdraw money if the payment has been paid or redress to the good stuff.
10. Warehouse Abo Farm is only a temporary storage.
11. Abo Farm always update the product information about out of entry the products in the warehouse.

b. Function That Is Needed in ERP System

1. Abo Farm can make the orders of supplier willingness via email or telephone before come directly to supplier's location.
2. Abo Farm can update the products informations that out and entry in warehouse.
3. When the personal outlet of Abo Farm has been open, Abo Farm need a system that can save products informations that is sold in their outlet.
4. Abo Farm needs a information data of supplier completely.

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V.4 The Description of Funcional Process in Open ERP V.7.0

There are 10 functional processes in Open ERP system that is very important to be applied in SMEs. The following is description of its use in a business process:

1. Pre-sales Activity

The functional process of pre-sale activity based on the research consists of 3 sub-critical processes, are Manage Customer Master Data, Manage Material Master Data, Pricing and Master Data Manage. To Manage Customer Master Data in Open ERP, a user only needs to enter into the Sales Module, and click the Custmers menu. Then it will appear on the screen a button red with Create description, click the button and fill in all the required data in the form, and finish with the click Save. Manage Material Master Data can be entered into the Sales Module, and click on Products menu. Then it will appear on the screen a button red with Create description, click the button and fill in all the required data in the form, and finish with the click Save. Manage Pricing Master Data can be done with the same process on the Manage Material Master Data.

2. Sales Order Processing

In Open ERP, this functional process is done by a sub process Manage Sales Order process. Manage Sales Order is done with going to the Sales Module, and click the Sales Order menu. Then it will appear on the screen of a button red with create description, click the button and fill in all the required data in the form, and finish with the click Save.

3. Manage Inventory

In Open ERP, this functional process is done by sub-process View Inventory Availability. View Inventory Availability done by going to the Warehouse Module, and click Inventory control menu to see the conditions of supply of inventory.

4. Shipping

In Open ERP functional process consists of the Manage Shipping, the Create Outbound Delivery with Reference to Sales Order, Outbound Delivery Update, and View Outbound Delivery. Manage Shipping is done by going into the Module Warehouse, and click Deliver

Product menu. Then it will appear on the screen of a button red with Create description, click the button and fill in all the required data in the form, and finish with the click Save. Create Outbound Delivery with Reference to Sales Order and Update, Outbound Delivery is done by going into the Module Warehouse, and click the Delivery Orders menu. Then it will appear on the screen of a button red with create description, click the button and fill in all the required data in the form, and finish with the click Save. Outbound Delivery View is made with enter into the Reporting Module, and click the menu Warehouse. And Outbound Delivery conditions can be seen from the report presented.

5. Customer Invoice

In Open ERP, this functional process consists of the Maintain Billing Due List, View Billing Due List, Create Invoice, Create Invoice with Reference to Sales Order, Invoice and Update, View Invoice. Maintain Billing Due List, Create Invoice with Reference to Sales Order, View Invoice and Invoice Create done by going to the Accounting Module, and click the menu Customer invoice. Then it will appear on the screen of a button red with Create description, click the button and fill in all the required data in the form, and finish with the click Save. Billing Due List View is done by going to the Accounting Module, and click the menu Customer Payment. Then it will appear on the screen of a button red with Create description, click the button and fill in all the required data in the form, and finish with the click Save. Invoice Update can be done by going to the Accounting module and click Update Invoice.

6. Customer Payment

In Open ERP, this functional process consists of the Manage Financial Accounting, Post Receipt of Customer Payment, and View Customer Balance. Manage Financial Accounting is done by going to the Accounting Module. Post Receipt of Customer Payment is done by going to the Accounting Module, and click the Sales Receipt menu. Then it will appear on the screen of a button red with Create description, click the button and fill in all the required data in the form, and finish with the

click Save. View Customer Balance Payment is done by going to the Accounting Module report, and click the menu Balance Sheet. Then will appear on the display to see the Customer Balance Payment.

7. Purchase Requisition

In Open ERP, this functional process consists of Update Material Master for Trading Goods and Manage Vendor Master Data. Update Material Master for Trading Goods is done by going into the Module Warehouse, and click the menu Inventory Control. Manage Vendor Master Data done by going into the module Warehouse, and click the Supplier menu. Then it will appear on the screen one button red with the Create description, click the button and fill in all the required data in the form is, and finish with a click Save.

8. Purchase Order (PO)

In Open ERP, this functional process is done by a sub process Manage PO. Manage PO is done by going into the module Warehouse, and click the menu Incoming Shipment. Then it will appear on the screen one button red with Create description, click the button and fill in all the required data in the form, and finish with a click Save.

9. Invoice Receipt

In Open ERP, this functional process is done by a sub process Manage Invoice Receipt. Manage Invoice Receipt is done by going into the Modules Accounting, and click the menu Supplier Invoice. Then it will appear on the screen one button red with Create description, click the button and fill in all the required data in the form is, and finish with a click Save.

10. Payment to Vendor

In Open ERP, this functional process consists of the Manage Financial Accounting, Post Payment to Vendor, Vendor Balance View, and View G/L Account Balance. Manage Financial Accounting is done by going into the Module Accounting. Post Payment to Vendor is done by going into the Modules Accounting, and click the Supplier Payment menu. View Vendor Balance ia be carried to enter into Modules Accounting, and click

the menu Accounting Report for see the report. View G / L Account Balance is done by going into the Modules Accounting , and click the Reporting menu.



V.5 Gap Analysis

Gap consists of a scale of 1-5, with 1 (very easy), 2 (fairly easy), 3 (somewhat hard), 4 (difficult), and 5 (very difficult). Here in Table V.7 is the gap analysis for implementation ERP in business process Abo Farm as a whole.

Table V. 5. Analysis Gap of Open ERP Implementation

The Needs of Business Process	Functional Process	Gap	Analysis & Decision
Abo Farm requires a file which contains information of product types and capacity that is Abo Farm have to be offered to the customer .	Pre-sales Activity	3	This functional process (especially at sub process Manage Quotation) is rather difficult to implement because when Abo Farm want to offers the products, they must be absolutely sure that the offers is appropriate. However, for the operational process, this functional process is actually easy. This is very important so Abo Farm should apply, with notes Abo Farm should consider carefully when using the function Manage Quotation in this functional process . (Decision: Applied)

Table V. 5. Analysis Gap of Open ERP Implementation (Continued 1)

Abo Farm is very important to document the customer's order.	Sales Order Processing	1	The needs of Abo Farm will be met with a functional process Sales Order Processing. As described in the discussion V.4, to implement this functional process Abo Farm will not have much trouble. Because it only need to do one sub-process. But it is really need the consistency of admin to always doing the same process for each customer. (Decision: Applied)
Abo Farm requires sales invoices via electronic.	Customer Invoice	2	Implementation will be fairly easy, although there will be many updating activity. But with patience of an admin then this is not an issue. (Decision: Applied)
Abo Farm requires sale invoices that is documented that can be used for other business functions that is needed.	Invoice Receipt	1	This is very easy to do, as long as the data of invoice always be updated and documented then the system automatically will be forwarded other business function in Abo Farm. (Decision: Applied)

Table V. 5. Analysis Gap of Open ERP Implementation (Continued 2)

Abo Farm need the integration of invoice data and other data with other business function in Abo Farm, especially financial function of Abo Farm.	*ERP system in general already fullfill it	1	With using the ERP system then this needs will be met. Because ERP systems use the concept of data integration in the enterprise. (Decision: Applied)
Abo Farm can monitor its financial condition in real time.	Customer Payment, and Payment to Vendor	2	It is fairly easy to do as long as admin always documenting the financial transactions or the sale and procurement of goods that is made by Abo Farm. (Decision: Applied)
Abo Farm does not need an input of data one by one to each of other functions system in the business Abo Farm.	*ERP system in general already fullfill it	1	With using the ERP system then this needs will be met. Because ERP systems use the concept of data integration in the enterprise. (Decision: Applied)

Table V. 5. Analysis Gap of Open ERP Implementation (Continued 3)

Abo Farm does not need to calculate or process financial data manually.	Customer Payment	2	As long as admin always documenting financial transactions, Abo Farm will not get difficulty to fullfill this needs. However Abo must be consistent in documenting all the data related to functional processes of Customer Payment. (Decision: Applied)
There are a worker or a (second owner) who was given the role of being an admin Abo Farm.	-	-	This decision depends on the owner policy.

Table V. 5. Analysis Gap of Open ERP Implementation (Continued 4)

For long term planning of Abo Farm in build personal outlet of Abo Farm, Abo Farm need an POS (Point of Sales) aplication for their outlet.	*ERP system have POS module	5	This is very hard to be implemented because the equipment, such as cashier printer is not owned by Abo Farm. In addition, the planning for building a personal outlet is still unknown the certainty. Because there are many other business of Abo Farm that have priority to be solved. POS will be implemented later after the outlet already build or want to be build clearly. That instalation of POS module is to minimizing the act of cheating by the shopkeeper at the booth. Because one of the problems is an important issue in many kinds of retail businesses that is about the limitation amount of human resources to be employed that is honest. (Decision: Have not applied)
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Table V. 5. Analysis Gap of Open ERP Implementation (Continued 5)

Now Abo Farm is receiving order Rp 1 trillion to make project procurement of eggplant. To optimize this function, Abo Farm requires the Project Management Module.	*ERP system have project management module	1	This module is very easy to use, because basically this module only help manage a schedule of activities or projects undertaken. Implementation is highly dependent on whether the project is be followed up by Abo Farm or not. And the same condition with projects that will be offered later, this module can be used as needed when the implementation of the project. (Decision: Applied)
Abo Farm can make the orders of supplier willingness via email or telephone before come directly to supplier's location.	Purchase Requisition	2	This process will be fairly easy to do if the supplier has an e-mail account or any number of mobile/ telephone contact. But unfortunately there is still the possibility of the majority of farmers who do not have e-mail addresses. The solution offers can be done through a number of handphone / telephone. (Decision: Applied)

Table V. 5. Analysis Gap of Open ERP Implementation (Continued 6)

Abo Farm can update the products informations that out and entry in warehouse.	Manage Inventory	2	It is fairly easy to do if admin always documenting warehouse activities in the ERP system or the sale and procurement of goods that id made by Abo Farm. (Decision: Applied)
Abo Farm need a system that can save products informations that is sold in their outlet.	Manage Inventory	2	Same with the previous explanation, it is fairly easy to do if admin always documenting warehouse activities in the ERP system or the sale and procurement of goods that id made by Abo Farm. (Decision: Applied)
Abo Farm needs a information data of supplier completely.	Purchase Requisition	3	Abo Farm must have a lot of network with suppliers and the contact information about them. Search the informations to be inputed is difficult part to be done. But when Abo Farm already have many network, the utilization of this information will be very helpful. (Decision: Applied)

V.6 Designing Business Processes Proposal

V.6.1 Business Processes Proposal

A. Sales Business Process Proposal

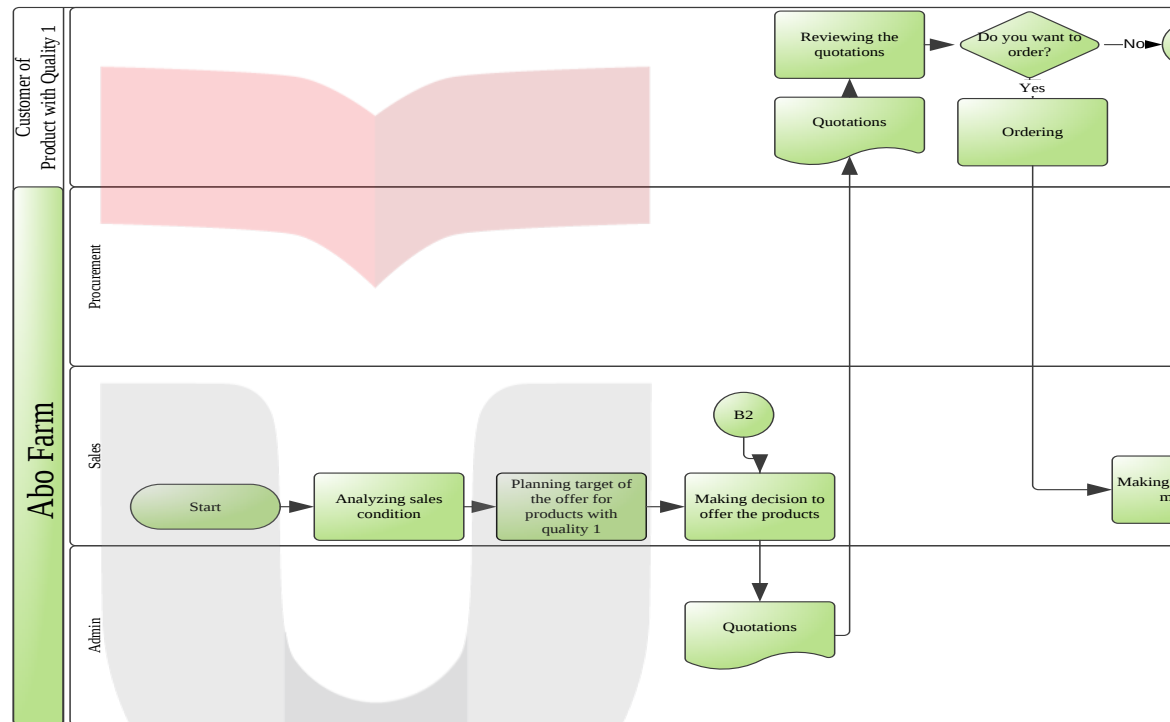


Figure V. 5. Sales Business Process Proposal

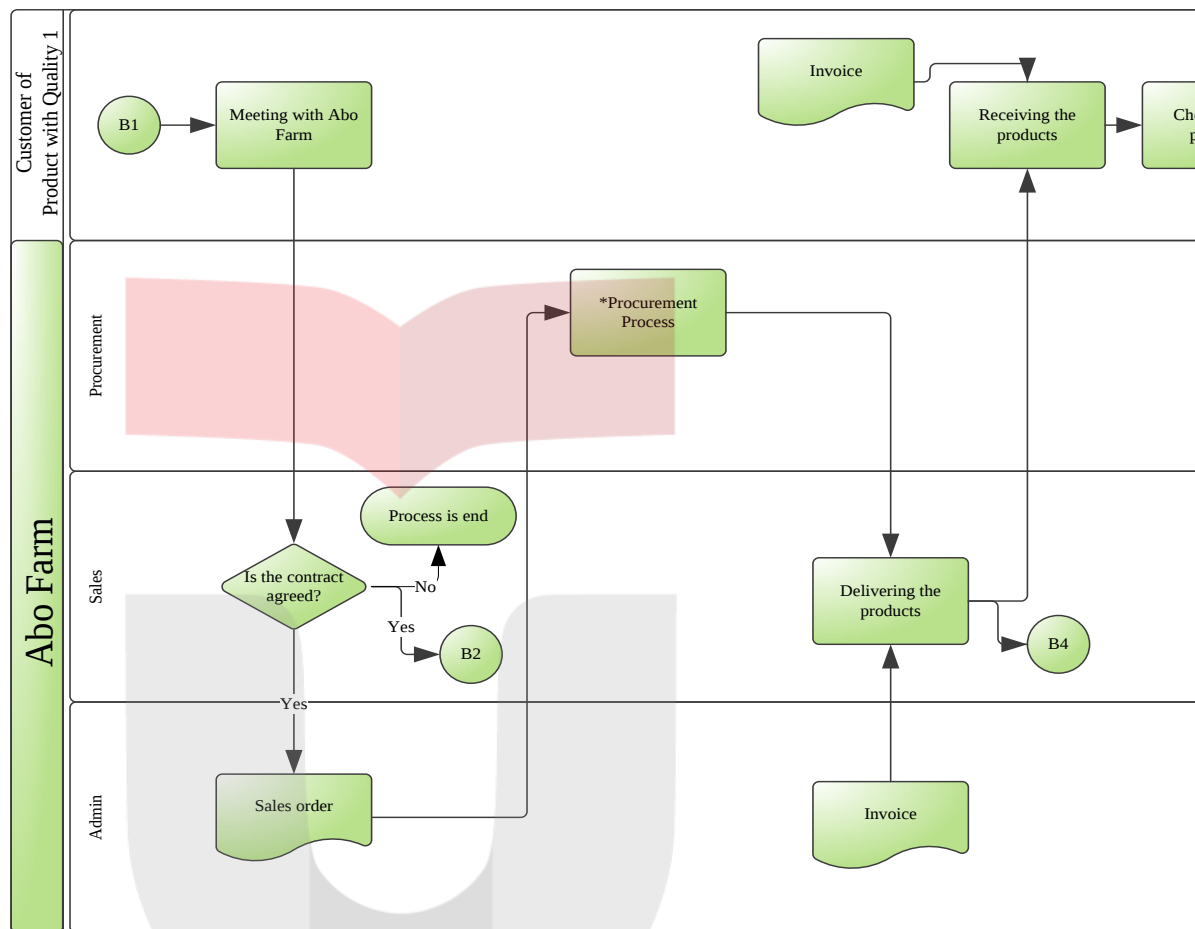


Figure V. 5. Sales Business Process Proposal (Continued 1)

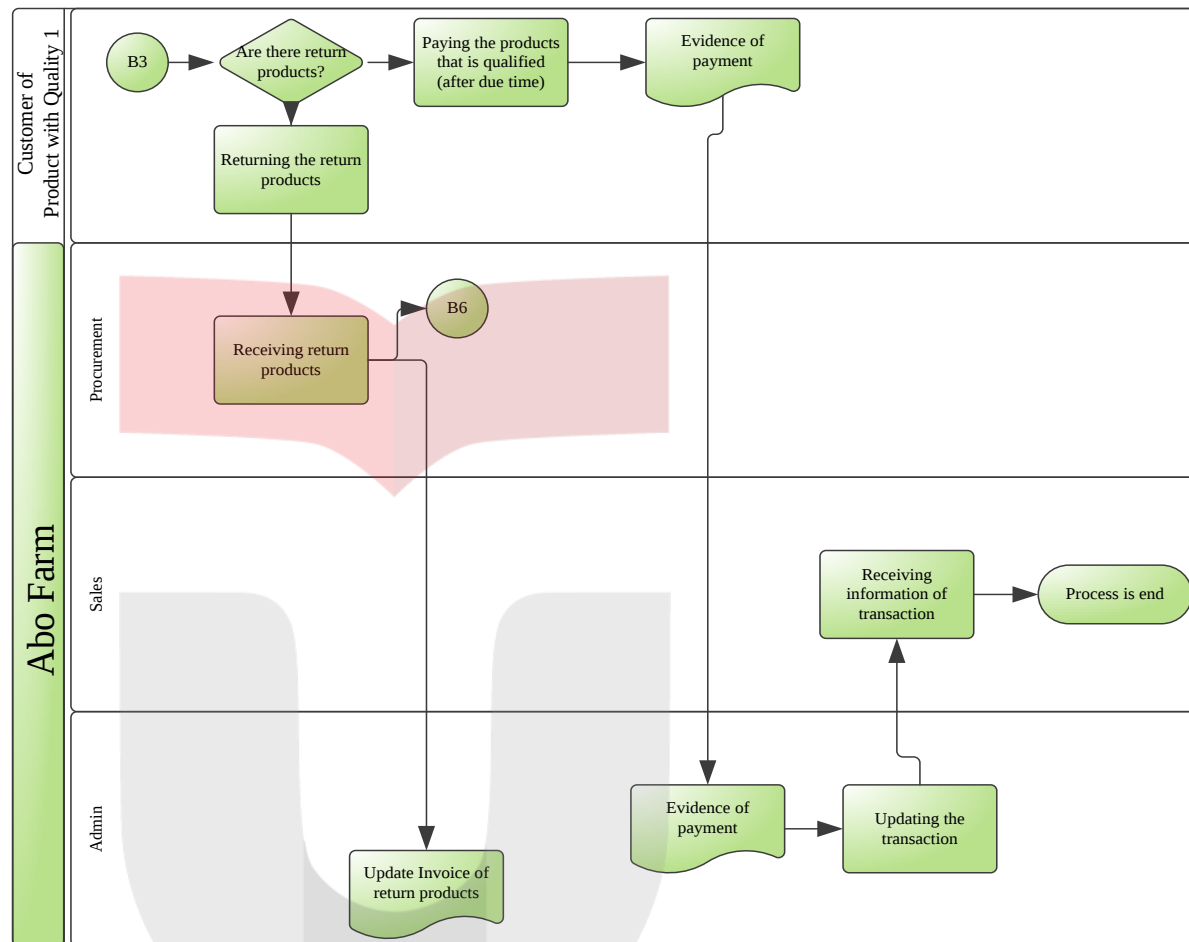


Figure V. 5. Sales Business Process Proposal (Continued 2)

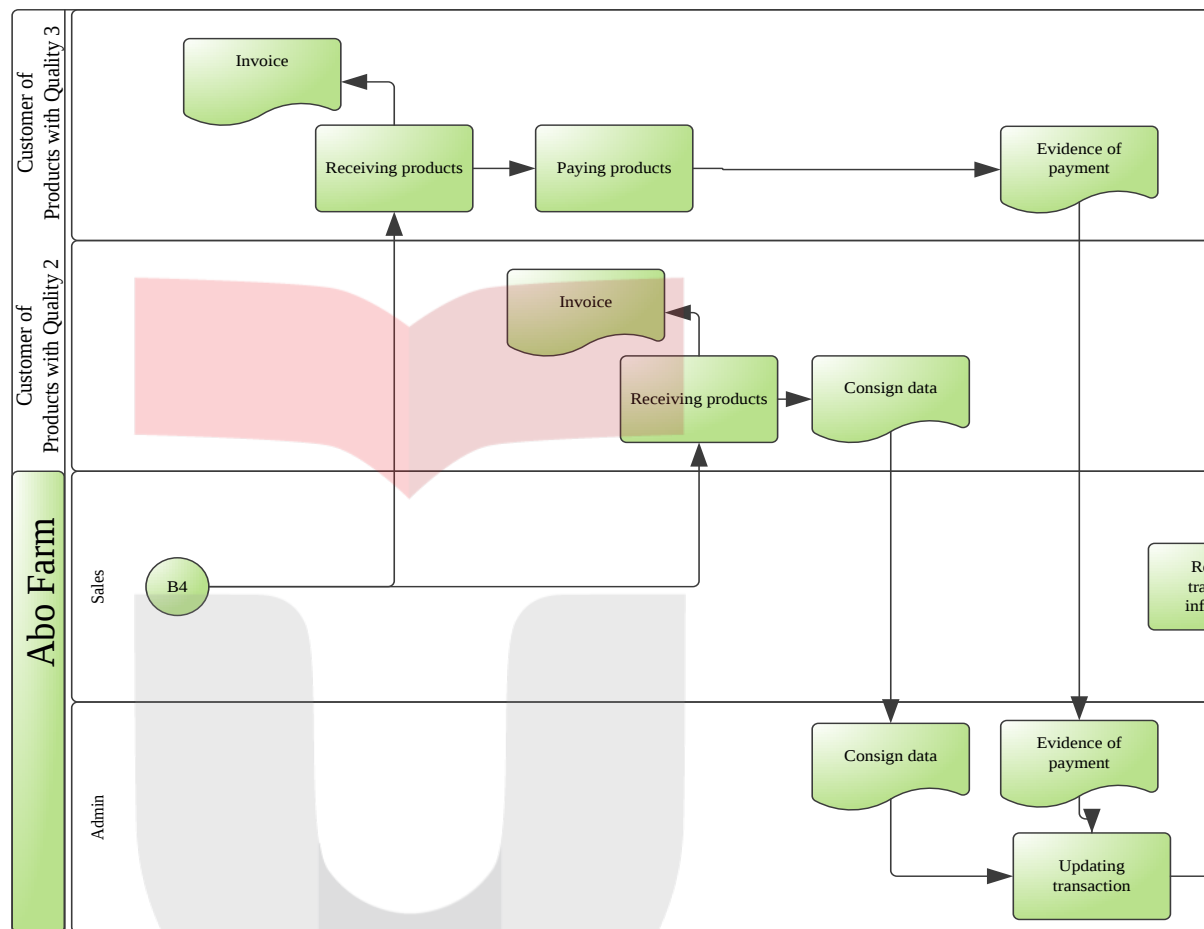


Figure V. 5. Sales Business Process Proposal (Continued 3)

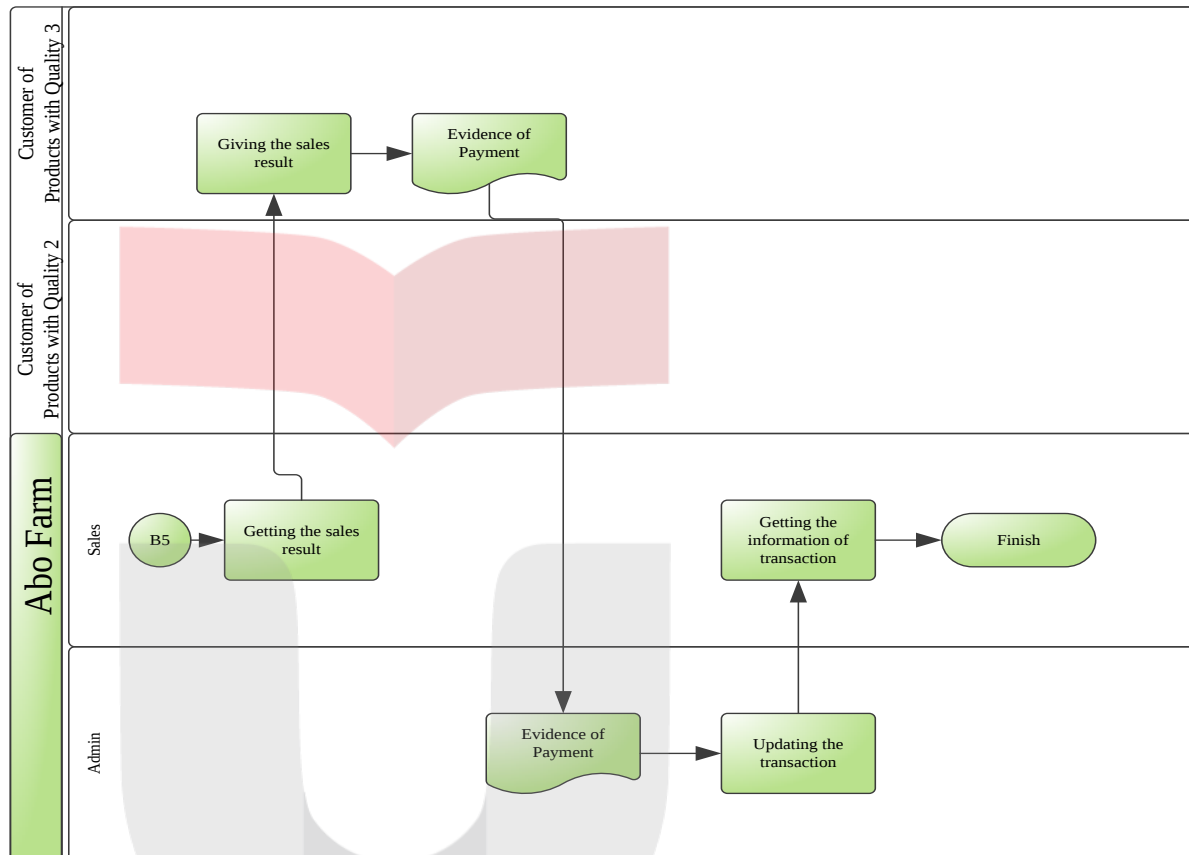


Figure V. 5. Sales Business Process Proposal (Continued 4)

B. Procurement Business Process Proposal

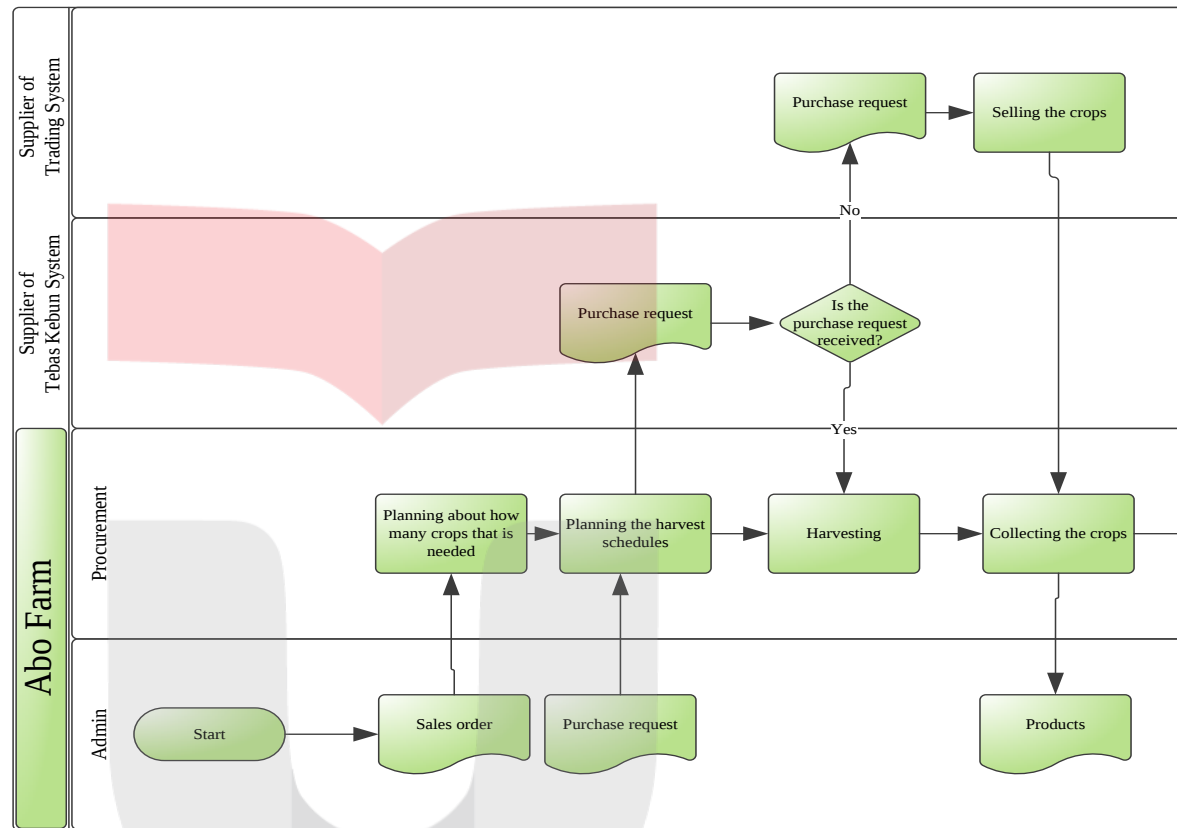


Figure V. 6. Procurement Business Process Proposal

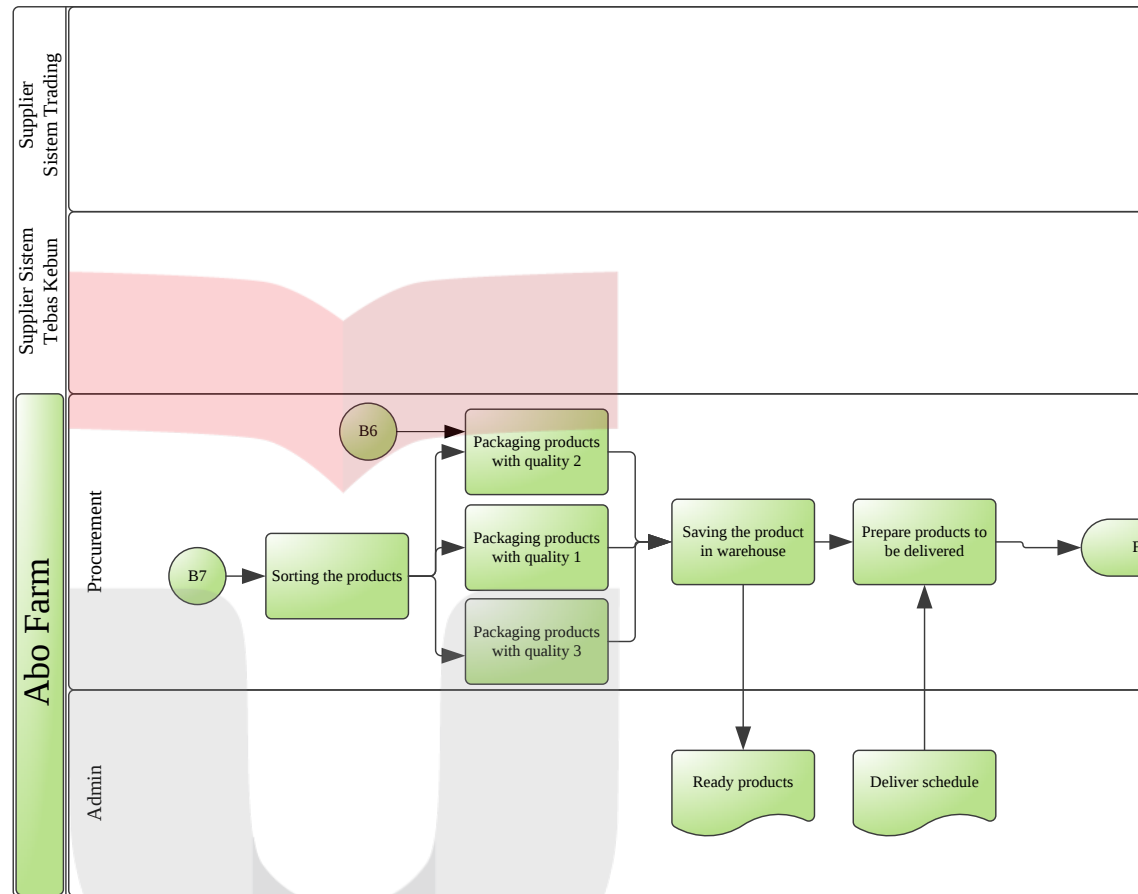


Figure V. 6. Procurement Business Process Proposal (Continued)

V.6.2 Use Case Diagram

Here in Figure V.7 is the use case diagram of the ERP systems implementation in business processes proposal of Abo Farm. In this diagram can be seen how the interaction between the system users and the system itself.

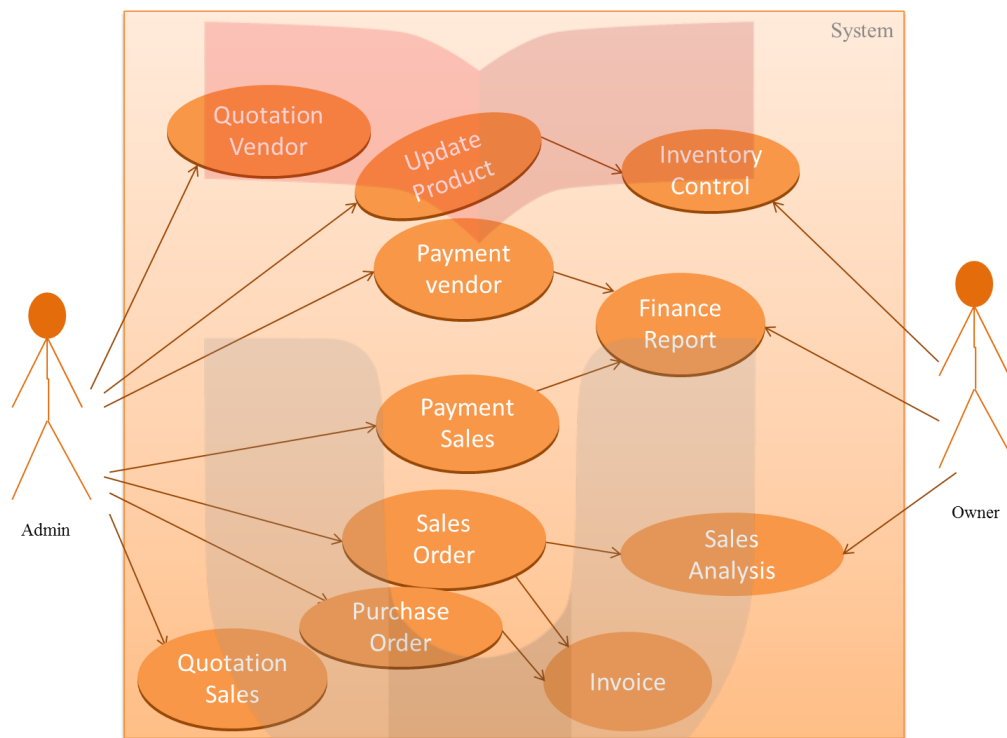


Figure V. 7. Use Case Diagram

The main users of the ERP system is the admin ERP system. And the owner as a party to take advantage of existing information on the ERP, only limited to monitoring the results of documentation that is conducted by admin. In this diagram it can be seen that the interaction of an owner to the ERP system is to see the condition of inventory with Inventory Control, see the financial statements with the Finance Report, and see the sales analysis in ERP. While Admin interact through the system to function Quotation Vendor, Product Updates, Vendor Payment, Sales Payment, Sales Order, Purchase Order, Payment Sales, Sales Order, Sales Quotation and Invoice.

V.7 Analysis of Business Process Proposal

In the business process proposal is proposed for placing a special admin to handle the ERP system that is used. In addition, in the business internal, Abo Farm is expected to be two sections (functions) of the business process Abo Farm. The two sections of this are the sales section and procurement section. The consideration to make Abo Farm into smaller entities, ie, admin, sales, and procurement, is essential to determining who has the responsibility for the certain process. Although in some sections here may be still done by one person, it is not a problem because in the implementation adjusted to the ability of Abo Farm. However, in this circumstance is targeted to be Abo Farm.

If the sales and procurement section can not be realized now then Abo Farm may apply in stages. Abo Farm currently has 2 owner, ie Mr. Dadang and his wife (Mrs. Dadang). Mr. Dadang can have responsible as sales section and procurement section at the same time. And Mrs. Dadang can have responsibility as an admin. And as the development of business in further, Abo Farm can place a special employee to handle the admin, and both or one of these sections. Or even at a higher level Abo Farm can provide access (user of ERP) to each section. But especially for business processes that currently is still running, Abo Farm is very necessary to put an admin (can be Mrs. Dadang or other) who will take care of the entire operation of the ERP system.

At the sales business processes proposal, can be seen that the most visible change is the addition of the process in prior of sale transaction. This is after taking into account that the characteristics of the agricultural business that Abo Farm has big risk on crop shortages after a contract is already agreed. Abo Farm now makes the process of pre-selling as one of the important processes. The business activities that are carried out need to be documented to be output on the sales analysis in ERP system. This process will be aided by the use of functional process Pre-Sale Activity that exist in Open ERP V.7.0.

If the previous business process, Abo Farm focuses on every existing customer. the business process proposal, Abo Farm must divide the process into three categories based on the criteria of the product that is ordered typically. External entities in the sales business process is divided into 3, are Customer of products

with Quality 1, Customer of products with Quality 2, and Customer of Products with Quality 3.

And regarding to the character of every customer that is diverse then particularly for group customers of products with quality 1, properly offering will be done before making a contract offer. The main important of implementation of this system actually is documenting activities consistently because all the documentation will useful be input data for further processing. While in the procurement business process, a process that needs to be done is the planning in order to procure order's products of Abo Farm. This is to avoid excess or shortage of products that cause harm. If the excess of products then the product will be damaged. And if products is less then ordered then Abo Farm must pay a fine of contract.

At the time of sorting, Abo Farm should have set of the standard to be quality 1, quality 2, and quality 3. It is to elevate the quality of sorting products with quality 1, because it has passed 2 stages before. And then the product return from customers will reduced. Abo Farm can do the packaging process more quickly without waiting return product come so that the retention of the packaging products will be longer and still fresh when consign to the supermarket. In general, a fundamental change in the business process proposal of ERP implementation in Abo Farm is the documentation of important processes carried out by the admin. The whole series of processes that are carried out by the admin requires consistency in its implementation.

V.8 Recommendations

Beside the business process proposal itself to be recommended in ERP implementation in Abo Farm. There is result of comparative analysis which can not be met in the process of gap analysis because that are not relevant to the Open ERP solution, is creating the formula to calculate the approximate approach of yields based on the number of hectares of land. This can be made by Abo Farm itself, and documented as tools when Abo Farm need to make decision or consideration of purchase request.

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