

# **Implementation and Configurations Open Source ERP in eCommerce Module ( A Case Study on SME )**

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## **Abstract**

*ERP (Enterprise Resource Planning)* is an integrated information system to manage a company's business processes. Small and Medium Enterprise (SME) needs ERP but lack the funds necessary. Open Source System ERP (OSS ERP) becomes the choice for applying ERP by SMEs for the price and customizability. This research aims to identify the characteristics and configuration of e-commerce module OSS ERP at KKPS (Koperasi Karyawan PT SRI) using OSS ERP Odoo. Sales Section is the most important part in Employees Cooperation PT Suryaraya Rubberindo Industries (KKPS). Most of the turnover is generated from the sales process. Currently the sales process is still done manually and the procurement of goods has not been computerized, thus causing delays in data transmission from one part to another. To improve the sales process in KKPS, a system that supports the integration of each part is needed. Data integration with Enterprise Resource Planning (ERP) system implementation is expected to help the sales process to be more efficient. The selected ERP system is Odoo, as it is an open source ERP application that has various business application programs. Business Process Modeling Notation (BPMN) is used to create business process analysis and modeling so that KKPS performance can be improved. Simulated purchase of goods is done to ensure the Odoo Website and E-commerce module runs well. After the implementation of Odoo Website and E-commerce module on KKPS, information on KKPS is more accessible to its members. The purchase of products or services through KKPS can be done more easily through e-commerce.

## **Keywords**

E-commerce, ERP, Odoo, Website

## **1. Introduction**

Along with the increasingly tight competition in the business world, the existence of data processing into information in computerized has contributed greatly to improve the performance of a company. Computerized data processing is a series of activities to provide information so that the information can be used as an effective decision support tool. Computerized data processing has various advantages, such as data processing is fast, accurate, and support data processing on a large scale compared with data processing manually.

PT Suryaraya Rubberindo Industries (SRI) is one of the companies in Astra Group which is a subsidiary of PT Astra Honda Motor (AHM). PT SRI established since 1991 and engaged in the industry of tires outside and tires in special motorcycles. PT SRI has a business entity that is Employees Cooperation PT SRI (KKPS), which has several types of business including trade/sales, savings and loans, and other businesses. Sales Section is the most important part in KKPS, because most of the turnover is generated from sales process. Currently the sales process is still done manually and the procurement of goods has not been computerized, thus causing delays in data transmission from one part to another.

To improve the sales process in KKPS, a system that supports the integration of each part is needed. This integrated data can help the sales process to be more efficient. One concept that can integrate the process of each part in an organization is the concept of Enterprise Resource Planning (ERP). The selected ERP system is Odoo. Akbar *et. al.* (2015) research indicates that the use of Odoo can improve the purchasing, inventory, and sale information systems of the Wholesale and Retail Emi Stores.

## **2. Theoretical Basis**

### **2.1 Information System Development**

System is a set of parts that are interconnected regularly to achieve common goals. The system may consist of several subsystem. Subsystems interact to achieve a unity that is integrated so the objectives of system can be achieved (Jogiyanto, 2005). Information is data that is processed into a form that is more useful and more meaningful so it can be used as a basis for making the right decision by the person who received it.

An information system is a system that records and organizes data to produce useful information to support an organization whether employees, customers, suppliers, or other co-workers (Whitten and Bentley, 2007). System development is the preparation of a new system to replace the old system as a whole or improve the existing system. Commonly used system development methods are System Development Life Cycle (SDLC) and Prototyping. SDLC or often referred as Water Fall Method is a common method used by system analyzers. The core of the waterfall method is the workmanship of a system performed sequentially or linearly. If first step has not been done then it will not be able to do the next step. The steps of waterfall method are analysis, design, coding and testing, application, and maintenance. Prototyping method refers to user satisfaction. Prototyping method stages are function selection, preparation of information systems, evaluation, and subsequent use.

### **2.2 Business Process**

Business process is a collection of work relationships that together generate value for customers (Gunasekaran and Kobu, 2002). Business process analysis is the analysis and modeling of business processes for improvement and automation so the performance of a company can increase. Business process analysis generally involves mapping processes and sub processes in to the level of activity. Bizagi Process Modeler is a freeware application for graphics diagrams, documents and simulates processes in a standard format known as Business Process Modeling Notation (BPMN). BPMN is designed not only to be easy to use and understand, but also has the ability to model complex business processes, by displaying the sequence of business processes and supporting information (White and Miers, 2008).

### **2.3 Enterprise Resource Planning (ERP)**

Enterprise Resource Planning (ERP) is a cross-functional integrated information system designed to be used to handle most businesses (Kadir, 2014). The system has modules such as inventory control, trade payables, and accounts receivable, material requirements planning to human resource handling. Implementation of ERP can provide benefits such as cost savings, improved collaboration, better analysis, improved productivity, improved customer satisfaction, improved consistency and accuracy, and operational efficiency for business growth.

### **2.4 Odoo Software**

Fabien Pinckaers, founder and CEO of Odoo S.A, developed TinyERP in 2005. Three years later TinyERP's name was changed to OpenERP in order to be recognized and entered into a large company. OpenERP is renamed to Odoo and adds CRM, Website, and E-commerce apps to the system in 2014. The company continues to grow and by 2015, Odoo is on the list of one of the fastest growing companies in Europe by Inc. Magazine. The Odoo app is capable of performing all of the company's automation, covering most of the needs and integrated enterprise processes (Tutorial Odoo, 2017). Odoo has many modules ready for download and use. Most of the modules can be obtained for free. Some of the modules included in the Odoo software, such as Sales, Manufacturing, Purchase, Warehouse, HRD, Accounting, Website, and E-Commerce. The modules are generally available in one package when Odoo is installed.

## **2.5 Website on Odoo**

A website is an interconnected webpage that generally resides on the same server containing a collection of information provided by individuals, groups, or organizations. A website is usually placed at least on a web server that can be accessed through a network such as the internet, or a local area network (LAN) through an internet address identified as a URL. The combination of all publicly accessible sites on the internet is also called the World Wide Web (WWW). In general, websites are classified into three types: static, dynamic, and interactive websites.

Website on Odoo is a facility provided by Odoo to manage the website without having to rebuild from scratch, and facilitate the web designer. Its only need to drag and drop Website module to create web pages in Odoo. Website on Odoo is already integrated with modules that have been installed. Website module is also provided other features such as Blog and Forum.

## **2.6 E-commerce**

Electronic commerce (E-commerce) is the dissemination, purchase, sale, marketing of goods and services through electronic systems such as internet or television, www, or other computer networks. E-commerce can involve the transfer of electronic funds, electronic data exchange, automated inventory management systems, and automated data collection systems. E-commerce can be used to support buying and selling activities, marketing of products, services, and information via internet (Kadir, 2014).

E-commerce is generally grouped into business to business (B2B), business to consumer (B2C), consumer to consumer (C2C), and consumer to business (C2B). Characteristics of e-commerce are unlimited and anonymous transactions, digital and non-digital products, intangible items. Implementation of e-commerce in the world of industry not only provides convenience in business, but also change the atmosphere of the competition becomes more dynamic and global.

## **3. Methods**

This study is classified into case study research as it requires a special focus on a particular area, which is a KKPS retail business which has two business units with different characteristics. In addition to case study research, this study is also included in action research. Data is collected from users to assess or improve ongoing processes. This action research is very relevant because in this research resulted identification, configuration and implementation of OSS ERP from various parts of business function.

This study uses interviews to all business stakeholders (KKPS) such as Chairman of Cooperatives, Administration, Purchasing staff, Store Manager, and shopkeeper. This research also observes the process and system that is considered problematic. For system aspect, interview is done to people who have the best understanding and have responsibility for information system and business process, which is Chairman of KKPS and Administration. All the information obtained is poured into the Rich Picture. Rich picture is used as input reference in the initial phase of user requirement which will generate conceptual model as final output of ASAP phase. The conceptual model is validated with real-world situations using focus group discussion approach (FGD). FGD participants are all KKPS employees.

The study was conducted using ASAP (Accelerate SAP) method and limited to Go Live and Support stage, limited to ERP design. Here is an explanation of the research methodology designed:

- a. **Project Preparation**, identifying the background of the problem and raising the problem in the research and the steps that need to be done in research work. Based on the problems found, the goal set is to build a website and e-commerce system using Odoo on KKPS.
- b. **Business Blueprint**, identification of the company's current business processes and target business processes, then analyzes existing gaps and generates system designs to be developed.
- c. **Realization**, carried out project work in accordance with established goals and stages of workmanship.
- d. **Final Preparation**, the experimental process on the project that has been done and done repairs if found part that is not right. Next make the transfer of existing data from the old system to the new system. After doing so, then provided training for users who will use the system.
- e. **Go live and Support**, once the system is implemented, supervision of the system is already in place.

## 4. Result and Discussion

### 4.1 Business Process

Diagram Bizagi level 1 (Figure 1) illustrates the whole business process, including the business processes that occur within the KKPS itself. Diagram level 2 (Figure 2) illustrates the processes that occur within the KKPS, where all parts are integrated into each other.

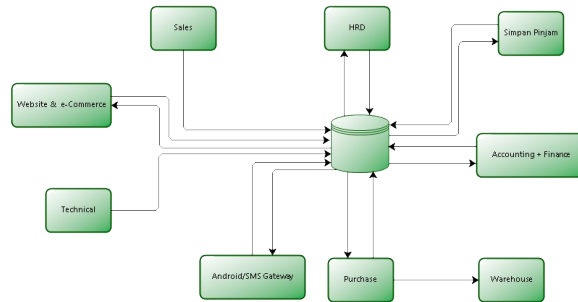


Figure 2. Processes that Occur within the KKPS

Level 3 describes the process that occurs on the website of KKPS (Figure 3). Diagram level 4 (Figure 4) describe the process that occurs in E-commerce KKPS.

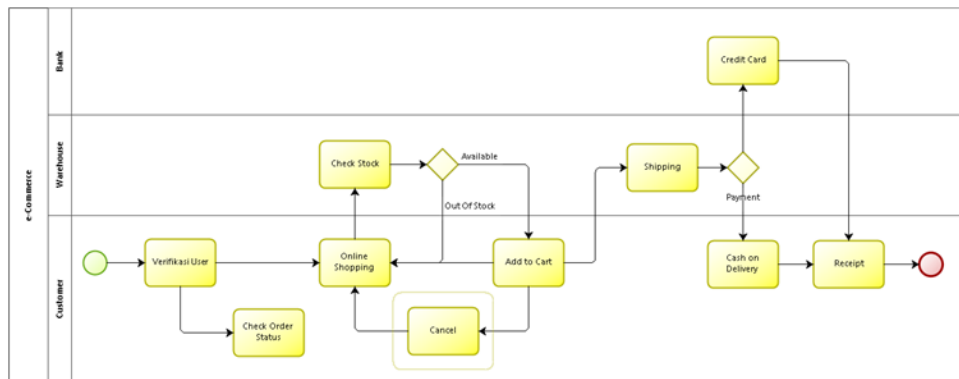
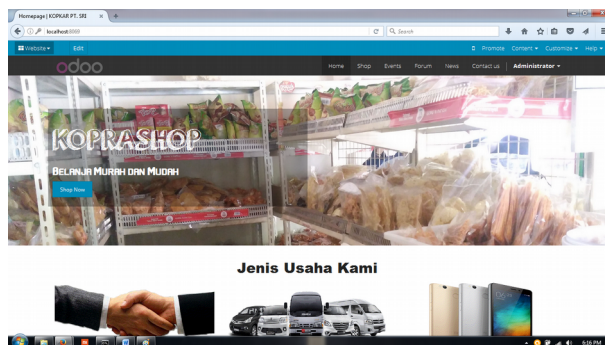


Figure 4. Process that Occurs in E-commerce KKPS

### 4.3 Creating a Database and Installing Modules

- The next stage after finished designing the initial look of the website is to create a forum, click the forum menu (Figure 22).



- b. The next step is setting up on E-commerce, click Shop menu. The display will appear like Figure 30, product/goods will be filled automatically when the goods entered by the Purchasing section, but only visible to the admin (not yet in publish).
- c. To publish products/goods click on products/goods that want to publish (Figure 31).
- d. Then click Publish (Figure 32). Will see the difference between products/goods that have been in publish and that have not been published (Figure 33).
- e. The next step is to make Delivery method, before making delivery method need to add Delivery Cost module (Figure 34). Enter the settings menu, remove apps on search bar and write delivery then enter. Install the Delivery Cost Module.



Figure 32. After Selecting Publish

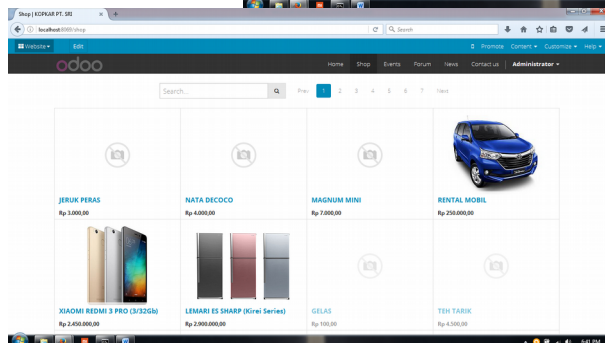


Figure 33. Display Online Shop

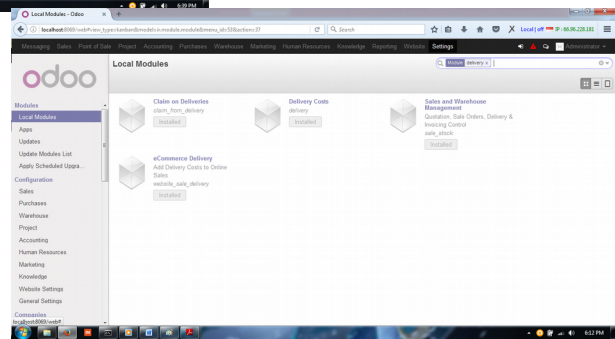


Figure 34. Installing Delivery Cost Module

- f. Click the warehouse menu (Figure 35) then choose Delivery Method.
- g. Click create to create a delivery method (Figure 36). Click save when it's done.

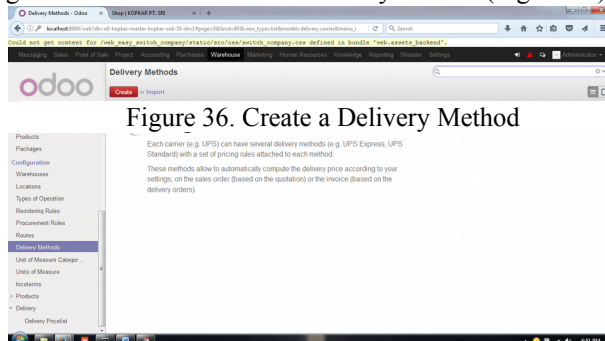


Figure 36. Create a Delivery Method

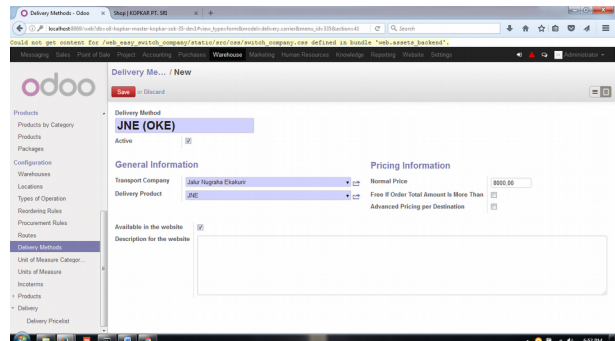


Figure 30. Menu Shop

- h. Further purchase process through website, return to website menu. Select the menu shop (Figure 37).
- i. Select products/items to buy (Figure 38).
- j. Click Add to Cart to buy (Figure 39). If you want to continue shopping, click Continue Shopping.
- k. Click Process Checkout (Figure 40). Input personal data and delivery address of goods. Click confirm.
- l. Next choose the delivery method (Figure 41).
- m. Click pay now to continue the purchase process (Figure 42).
- n. The purchase process is complete.

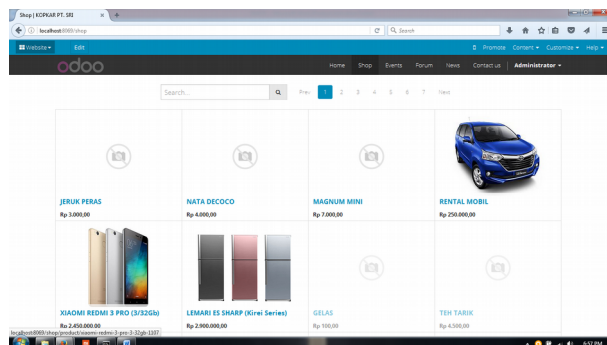


Figure 37. Menu Shop

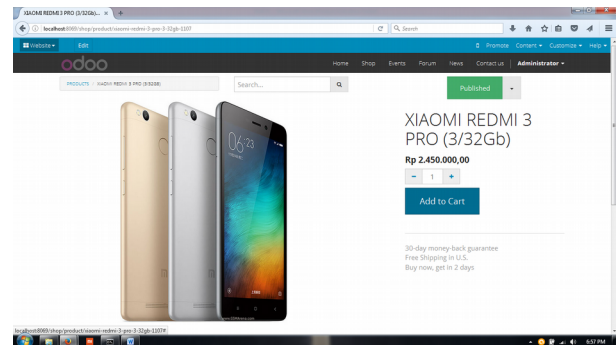


Figure 38. Select Items to Buy

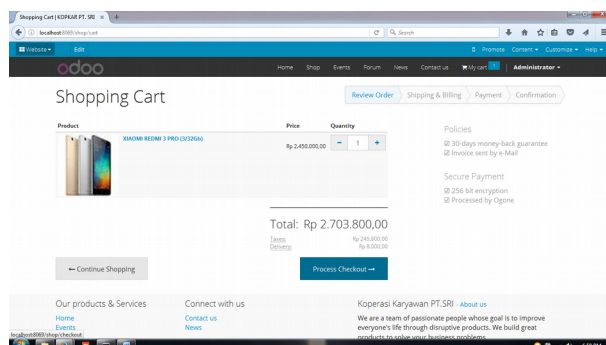


Figure 39. Add to Chart

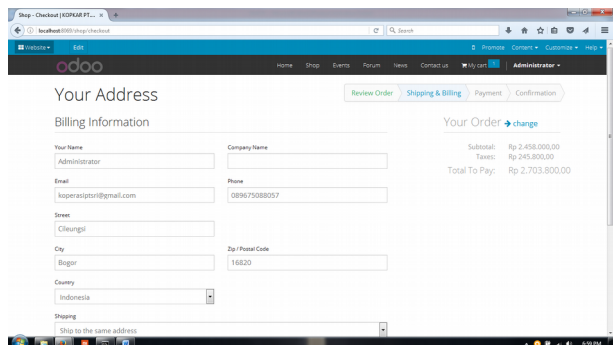


Figure 40. Process Checkout

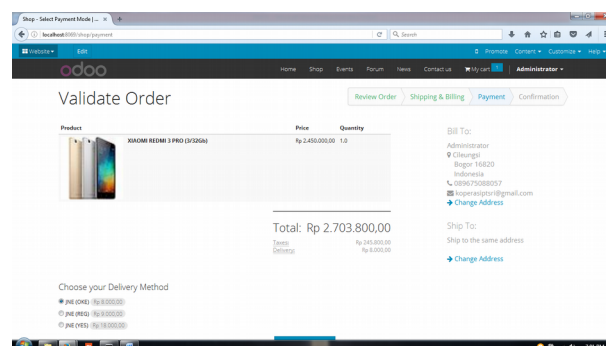


Figure 41. Choosing Delivery Method

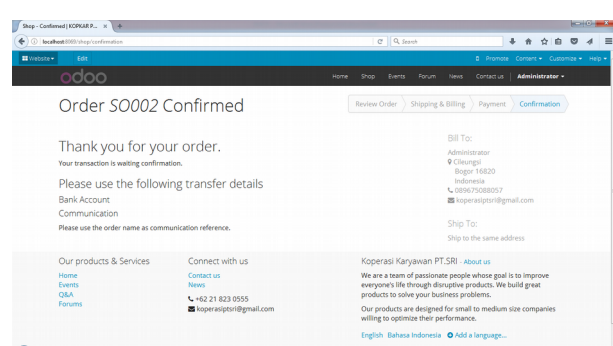


Figure 42. Purchase Process



#### 4.4 Trial of Goods Purchase Scenario

Trial of goods purchase scenario is done to ensure the system is running well. Here is a trial of goods purchase scenarios on e-commerce.

- Figure 43 is the initial page when the web is accessed and not logged. To buy goods is not required login, the order from customer will be changed directly by the system into quotation so that the seller does not need to enter customer data or register the customer to login. This happens because during the purchase process on the website, the customer will get a command to fill in the data information themselves.
- Selection of Goods, done by the customer (Figure 44), and incorporated into the shopping chart (Figure 45).
- After the customer finished selecting the items to be purchased, will appear in the form of a command to fill in the data themselves (Figure 46).



- d. After finished filling the data themselves, then the customer needs to validate the products ordered and the selection of payment methods to be made (Figure 47).
- e. After the validation process is completed, it will display a message indicating that the order has been confirmed and the customer is expected to wait for further information from the Admin (Figure 48).
- f. Once the customer has finished ordering the goods, the sales department is in charge of checking the quotation that is formed (Figure 49).

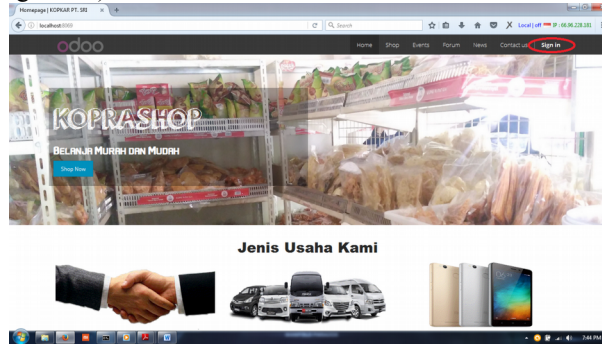


Figure 43. Website Initial View

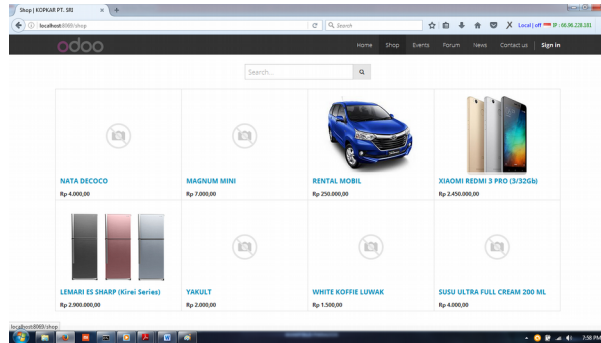


Figure 44. Selection of Goods by Customer

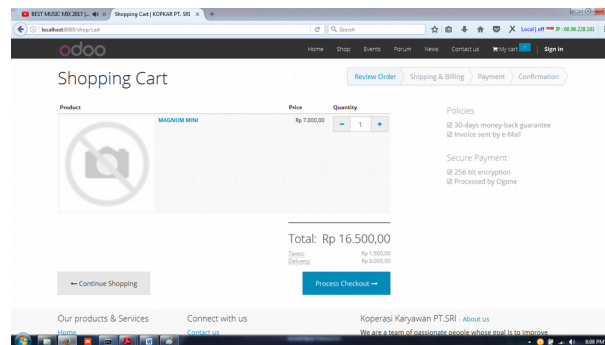


Figure 45. Shopping Chart



**Your Address**

**Billing Information** [Sign In](#)

Your Name: Andi Albarry Renaldi  
Company Name:   
Email: albarryrenaldi@gmail.com  
Phone: 08967508057  
Street: J. Delima  
City: Bogor  
Country: Indonesia  
Zip / Postal Code: 16820

**Your Order** [change](#)

Subtotal: Rp 15,000.00  
Taxes: Rp 1,500.00  
Total To Pay: Rp 16,500.00

[Return to Cart](#) [Confirm](#)

Figure 46. Customer Data Form

**Validate Order**

Product	Price	Quantity
MAGNUM MRE	Rp 7,000.00	1.0

**Total:** Rp 16,500.00  
Taxes: Rp 1,500.00  
Subtotal: Rp 15,000.00

**Choose your Delivery Method**

- ☒ per one (Rp 16,500.00)
- ☐ per two (Rp 16,500.00)
- ☐ per three (Rp 16,500.00)

**Payment Method:**

- ☒ Wire Transfer

[Pay Now](#)

Transfer information will be provided after choosing the payment mode.

**Bill To:** Andi Albarry Renaldi, J. Delima, Bogor 16820, Indonesia, albarryrenaldi@gmail.com, 08967508057

**Ship To:** (Ship to the same address)

Figure 47. Validation Process

**Order SO003 Confirmed**

Thank you for your order.  
Your transaction is waiting confirmation.

Please use the following transfer details

Bank Account  
Communication  
Please use the order name as communication reference.

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English Bahasa Indonesia

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Figure 48. Confirmation Process

**Quotations / SO003**

[Send by Email](#) [Print](#) [Cancel Quotation](#) [Draft Quotation](#) [Quotation Draft](#) [Sales Order](#) [Done](#)

**Quotation SO003**

Customer: Andi Albarry Renaldi  
Date: 10/09/2016 20:06:52  
Reference/Description: Warehouse  
Quote Template: Building Hospital  
Contract / Analytic:   
Expiry Date:   
Order Lines:   
Suggested Products:   
Other Information:   
Product: [364] MAGNUM MRE  
Description: [364] MAGNUM MRE  
Quantity: 1.000  
Unit of Measure: Pieces  
Unit Price: 7,000.00  
Taxes: PPN 10.00%  
Subtotal: 7,000.00  
JNE  
JNE (KDE)  
1.000  
Unit(s)  
8,000.00  
PPN 10.00%  
8,000.00  
Unrecovered Amount: Rp 15,000.00  
Taxes: Rp 1,500.00

Figure 49. Checking Quotation

**Quotations / SO003 / WHOUT00001**

[Check Availability](#) [Force Availability](#) [Cancel Transfer](#) [Draft](#) [Force Availability](#) [Partially Available](#) [Ready to Transfer](#) [Transferred](#)

**WHOUT00001**

Partner: Andi Albarry Renaldi  
Creation Date: 10/09/2016 20:37:05  
Scheduled Date: 10/09/2016 20:06:52  
Source Document: SO003  
Owner:   
Products:   
Additional Info:   
Product: [364] MAGNUM MRE  
Quantity: 1.000  
Unit of Measure: Pieces  
Destination Location: Partner Locations/Customer  
Availability: 1.0  
Status: Waiting Availability  
JNE  
JNE (KDE)  
1.000  
Unit(s)  
Partner Locations/Customer  
0.0  
Waiting Availability

Figure 50. Quotation Confirmation

- g. The next part of the sale confirms the quotation (Figure 50) so that the quotation becomes a sales order and checks the availability of the product in the warehouse.
- h. Furthermore, if the goods are available, the system will automatically send SMS and e-mail to the customer to provide information on the availability of goods and details to transfer, if the goods are not available then the system will automatically send a message to the customer that the goods ordered is not available.

## **5. Conclusion**

Based on research conducted on the Website and E-commerce on KKPS, can be concluded several things:

- a. Website on KKPS will make it easier for the Members of KKPS in searching for info on KKPS.
- b. Forum on KKPS will be very useful for Members and also the board because it can be open in giving opinion.
- c. Blog on KKPS will help the KKPS in conveying information on KKPS.
- d. E-commerce on KKPS will facilitate Members KKPS in the process of purchasing products/services available on KKPS because it can be done online.

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