

Design of E-Commerce Information Systems for Houseplants: the Case of Yasyifa Nursery Plantation

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Abstract

The demand for commodities of houseplant in the world are indeed enormous, especially the kind *aglonema*, *bromille*, *anthorium*. The relatively large volume of national production and harvest area -- compared with other crops -- has placed the *aglonema*, *bromille*, *anthorium* a main houseplant in Indonesia, especially in West Java. But, unfortunately, the marketing system of houseplant needs some improvement. The IT aids for marketing development is inevitable. The aim of this study is to design e-commerce information systems for the houseplant, by taking the case of Yasifa Nursery Plantation in West Java. The system is useful to introduce the houseplant commodities especially *aglonema*, *bromille*, *anthorium* in the online store; to increase sales performance and to minimize the risk of management error of sale transaction. The system development used Rapid Application Development (RAD) method based on Object Oriented with tool of Unified Modeling Language (UML). The system could exactly introduce several kinds of houseplants, and manage the data of product, customer and sales.

Keywords: systems, e-commerce, customer, houseplants, online shop.

A. INTRODUCTION

The commodity of horticulture, especially houseplants have had a good prospect in agribusiness. It is based on the fact that the demand for the houseplants has had a tendency to increase. The world of houseplant trade in 2010 was about US\$ 90 billion, but Indonesian export in the same period was only US\$ 9,042 million [9]. The development of agribusiness management and agro-industry pattern to take care of the agri-products marketing -- which in this case is the houseplant commodities -- is brightly needed. Abate and Peterson [1] emphasized, there is not merely an increasing demand for varieties, qualities and convenience, but also for more information about how the goods were produced, processed, and marketed.

However, optimistically, the potential of natural resources in the country has constantly presented an opportunity to increase the production of various types of ornamental plants. Therefore, the development of horticultural commodities, especially houseplant could be probably designed as one of the new sources of growth of the national economy. In addition, the ornamental plants agribusiness development will bring out the value added for the both of producers (farmers) and industrial users.

The houseplants producers in Indonesia -- as well as the other agricultural commodities -- are commonly "a people farmer" which is small holder, small size of land, which they conduct a business in a household business scale [3; 6; 5; 15].

The development of ornamental plants potential in Indonesia is supported by many factors. Indonesia has agro-ecological conditions suitable to produce almost all kinds of ornamental plant, including the kind *aglonema*, *bromille*, and *anthorium*. Despite the subtropical fruits could probably cultivated and grown in Indonesia [10].

The huge number of houseplants farmer need an institution to collect, to control the quality, to manage, and to market the products. The institution should be equipped by the information system to let the consumers completely know about how the good processed, marketed, and displayed [1].

The Yasyifa Nursery Plantation could be a pilot project to design e-commerce information system specialized for houseplant development. Yasyifa is a plantation company specializing to farm houseplant, mainly for the kind of *bromille*, *aglonema*, and *anthorium*. But, unfortunately, the sale activity of the company has not been maximized because the people or the market is still unfamiliar with the ornamental plants specifically produced by the company. The sale promotion is off course still ineffective. The Yasyifa still processes the sales data of products in manual way, in which the staff makes a record of product sale in a bill and general ledger manually.

The competition among houseplant businessman is growing from day to day. Various kinds of innovations and breakthroughs have been conducted by the houseplant business actors to increase their products sales. In the light

of observation and analysis, in so far Yasyifa Nursery has been experiencing to get difficulties in products marketing.

The potential market of houseplant in Indonesia is actually quite large. But, the business actors of the products are also plentiful. Therefore, currently Yasyifa plantation still has difficulties to expand the market, especially to get consumers outside the city, due to the plantation does not have branches outside the city. This could hamper the sales process of Yasyifa Plantation.

In globalization era, free trade and privatization recently, the information technology – in which it included email, multimedia, electronic banking, internet, world wide web and so forth -- plays an important role to escalate the product competitiveness within the global market. It should be emphasized that IT has a huge influence in human life, include agribusiness management. The agribusiness in Indonesia is one of the main contributors to GDP. The agribusiness product has developed on huge number; but the marketing condition is still unsatisfactory. There are issues related to the marketing system that needs to be addressed. In this case, the improvement of IT system to intensify the product sales is inevitable. [18; 2].

Before further discussion about the application in the field of agribusiness, it must be clearly known what will be achieved by the application of IT in the agribusiness process. Technically, the application can be defined as any form of business transaction in which the various parts interact electronically from the exchange of communication directly or indirectly, based on the assumption that the effective communication is key to get succeed in business. Internet is a communication tool that is growing rapidly in the world today. The internet could also be applied to handle a business trade for agribusiness products online.

The development of e-commerce application in the field of agribusiness or design of IT-based agribusiness system will induce a project to unite all aspects of the agribusiness sector and then will unite the community in the areas of agribusiness to make them more solid in determining the prices in the domestic as well as international markets [18].

Demand for commodities of houseplant is relatively large, especially the kind *aglonema*, *bromille*, and *anthorium*. The fact indeed suggest that *aglonema*, *bromille*, and *anthorium* are a high quality commodities that should not be ignored. The relatively large volume of national production and harvested area of ornamental plant – especially *aglonema*, *bromille*, and *anthorium* compared with other ornamental crops -- places the three kinds of houseplants as major commodities of Indonesian ornamental plant. The commodity has both domestic market and also exported to various countries.

The commodity of *aglonema*, *bromille*, and *anthorium* are commonly owned and managed by medium

and smallholder of businessmen. Consequently, the development in large scale of “small garden” will open opportunities for the upstream agribusiness, such as the seed industry and agricultural mechanization equipment industry, which would open up business opportunities and employment.

The demand for ornamental plants of *aglonema* has increased significantly in recent years, especially in urban areas. The market demand of course has led the local farmer to get a special interest to cultivate *aglonema*. The buyers as the major distributors have actively been looking for ways to increase the supply of various production areas. By the fact, the company needs to consolidate the supply of ornamental plants. The above mentioned condition could probably increase significantly the agribusiness *aglonema*, *bromille*, and *anthorium* for domestic and overseas market [11].

The online shop of *aglonema*, *bromille*, and *anthorium* as a sale agent is strongly needed to escalate the market in which it has the special impact for the development small farmer. The need of online shop is based on the experience of Yasifa Nursery Plantation. The daily transaction is strongly crowded, but the sales process is still conducted in manual way. Evidence of sales transactions is often lost. The company gets difficulty to store, manage and calculate the sales transactions quickly, accurately and efficiently.

Based on the above condition, as the pilot project of e-commerce of information system for ornamental plants, the paper aims to design e-commerce system of agribusiness *aglonema*, *bromille*, and *anthorium* that can help online store owners of ornamental plant to introduce the products, to sale, and to manage the transaction, and to minimize the risk of errors in the management of the sales transaction data.

B. BASIC THEORY

B.1. Web-based Information Systems and Components

Web-Based Information System is a set of related components which serves to collect, process, store, and distribute information to support decision-making and oversight within the organization. Web or WWW (Word Wide Web) is a new method that runs in the Internet world, and it is expanding rapidly. By this media, it could be created dozens or even hundreds of applications running under the web. PHP is one of the applications programs that are commonly used in today's Internet media. Its database is MySQL, a database server that can run in the online media so that the database is easily managed by the user [13; 4].

MySQL is the RDBMS (Relational Data Base Management System). MySQL is distributed as open source and free of charge starting in 1996, but has a history of development since 1979.

B.2. Basic Concepts of E-commerce

E-commerce is a process of buying and selling electronically for goods or services and information [16]. Broadly speaking, e-commerce is defined as a way to sell and buy goods (and services) via the Internet [8]. Advantages of E-Commerce are following:

Benefits for the company:

1. Shorten the distance
Companies can get closer to the consumer.
2. Market expansion
Reach the company to be unlimited by geographic area where the company is located.
3. Expansion of the network of business partners.
Avoiding lack information problem because of the geographical position of a company partner.

4. Efficient

Saving of the operational cost such as papers for transactions, advertising and recording.

Benefits for consumers:

1. Effective
Consumers get the information they want more quickly.
2. Safe physically
Consumers do not have to go to the store or a company with cash.
3. Flexible
Consumers can make an offer wherever he is.

The advantage for the general public:

1. Reduce pollution and environmental pollution
Consumers do not need to travel to a store or company that will reduce pollution.
2. Opening of new job opportunities
Electronic trading will create new jobs such as computer programmers, web designers, database specialist, expert networks and so on.
3. Profitable academic world
With the development of e-commerce, the academic world will join e-commerce, and the work that goes on evolving science.
4. Improving the quality of human resources
With the increasing number of electronic trading, everyone will learn computer technology for their own purposes.
In addition to having various advantages, electronic commerce also has some disadvantages [7] which are:

1. Increasing individualism

In electronic trading, one does not need to meet with traders to make transactions so that the buyer used to make transactions from any place it resides. This can increase a person's individualism so that people become lazy to move

2. Sometimes lead to disappointment

At any given time the consumer gets the product purchased does not match that shown on the web. This is certainly cause frustration for consumers.

3. Inhuman

Electronic commerce support their transactions without a direct meeting between the seller and the buyer, it does not make a feel of the hospitality between the sellers and buyers.

B.3. Systems Development Method

The system development process is an activity, methods, best practices and automated tools used by stakeholders to get continuously improving of the information systems and software [17]. System development method used in this research is the method RAD with Object Oriented.

B.4. Unified Modeling Language

UML (Unified Modeling Language) is a language for visualizing, specifying, constructing, and documenting the artifacts of a software system. UML is defined as a family of graphical notation supported by meta single model, which enables the description and design of software systems, especially systems built using object-oriented programming. UML object-oriented, not rely on the development process and also does not depend on the programming language and technology [14]. UML is a modeling language that should be used in conjunction with software development methodologies. Without methodology, UML diagrams are just in the form of a series of meaningless. Software development methodology is a step by step guide in the development of software applications. Software development methodology is intended to be an application development more efficient and organized. The methodology used in this study is the Unified Software Development Process (USDP).

C. RESEARCH METHODOLOGY

The method used in the design of e-commerce system *aglonema*, *bromille*, *anthorium* this is the measure used is observation, interviews, and literature, while the system development method used is the model RAD consisting of requirements planning, workshop design and implementation. More detailed step is data collection. Methods of data collection [12] were used in this study are as follows:

a. Observation

Direct observation of the work process in the online store of *aglonema*, *bromille*, and *anthorium* determined the extent of e-commerce system. Online Store can help the commodities to market the sold products. The results obtained are the Online Store of *aglonema*, *bromille*, *anthorium* getting requests from customers to see the products online without having to meet in person.

b. Interviews into initial activities undertaken to obtain information on the Online Store of *aglonema*, *bromille*,

and *anthorium*. Researchers held a question and answer process directly with the shop owners and employees of stores online store. The result obtained is information about how the store to market the product, and e-commerce system design is desired by the store.

- c. Documentation which collects data by tracking and recording of data, documents, archives, as well as relevant references with the online store of *aglonema*, *bromille*, and *anthorium*.

D. RESULT AND DISCUSSION

D.1. Use Case Diagram

The e-commerce information system of *aglaonema*, *bromille*, and *anthorium* has 16 use cases such as found in Figure 1. Use case diagrams.

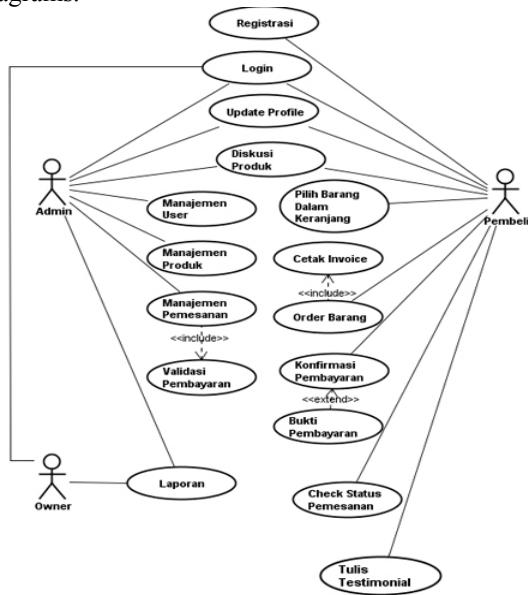


Figure 1. Usecase Diagram

D.2. User Interface

This stage featured some user interface display system of e-business on-line store of *aglonema*, *bromille*, and *anthorium*.

1. View Products

This is the current view consisted a list of products available for order.



Figure 2. The view products

2. Page order

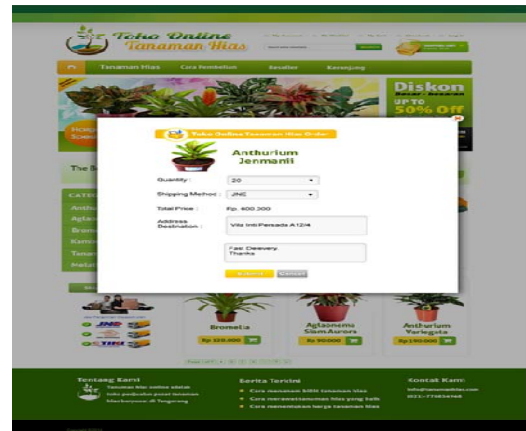


Figure 3. Page order

3. Page Admin

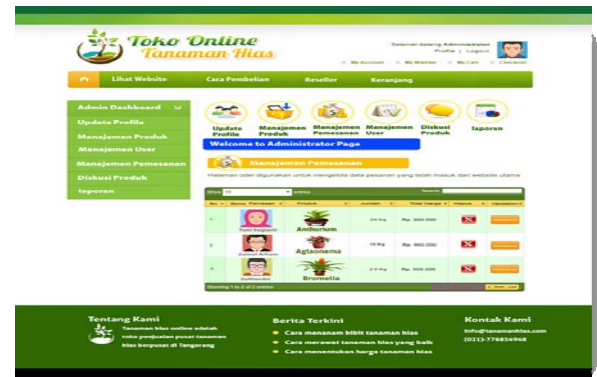


Figure 4. Page Admin

4. Product Message

Here is a look to the list of products already in the message member or members referred to the shopping cart.

E. Conclusions and Recommendations

1. Conclusions

E-commerce system built to help Yasifa Nursery stores to sell *aglonema*, *bromille*, and *anthorium* with online marketing are prepared to sell to all customers. The system also can manage data *aglonema*, *bromille*, and *anthorium*, customer data and order data. Based on the results of testing black box, e-commerce system built, has been as expected and can function properly.

2. Suggestions

E-commerce prototype of the online shop systems of Yasyifa Nursery, in its implementing broader field needs to do trials and studies in greater depth. Through testing and the assessment is expected to get the e-commerce more accurate and effective.

The e-commerce online systems of Yasyifa Nursery store built are still far from perfect. This system does not have a good level of security, so it still needs to develop to make it much better.

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