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A Design and Build a Marketing System UMKM Sumatera Utara With the OOAD Method Approach

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ABSTRACT

Based on the results of the analysis and design that has been carried out regarding the study of electronic-based North Sumatra KUMKM community development analysis (E-Community KUMKM North Sumatra), a conclusion can be drawn as follows, namely the results of the design using the Object Oriented Analysis Design (OOAD) method, all interfaces are designed very interactive so as to facilitate implementation in the system. Using UML as a visualization medium for system design can make the designed model closer to reality. So as to facilitate the development of the system and its application. Based on the results of the analysis using the *Performance*, *information*, *economic*, *control*, *efficiency*, *service* (PIECES) method, the limitations in marketing the results of North Sumatra KUMKM can be solved using information technology, namely the web-based KUMKM E-Community system.

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1. INTRODUCTION

The current government has inherited structural and complex problems from the previous government, so it must be able to overcome and resolve various major problems and issues that can affect the condition of the Indonesian nation in a relatively short time. Poverty alleviation, economic disparity, people's health problems, availability of jobs and development of micro, small and medium enterprises are urgent national issues and require immediate solutions.

Various approaches to solving this problem have been carried out by the government through work programs and activities that focus on empowering KUMKM including Bimtek activities and training to improve human resources for KUMKM actors, promotional activities for MSME production, but limited budgets and SKPD capabilities have not shown significant results in helping to resolve the problems mentioned above, (Renstra of Cooperative and UKM Service, 2013-2018).

The rapid development of information and communication technology (ICT) is a characteristic of the modern era. Various applications of ICT implementation in various sectors of people's lives such as the industrial sector, education, health, manufacturing, tourism, and other services have shown that ICT continues to develop and be adopted by individuals and communities.

Changes and developments in the current era of information technology have made business actors increasingly motivated to use modern technology as a tool or media to survive and win the competition which

is getting tighter and tougher every day. The internet is a medium that is already familiar in various parts of the world that has many functions

Lately the use of the internet as a medium to enter cyberspace has become very widespread in the midst of society and tends to dominate all human activities today and in the future. Globally, the internet will turn into a tool for competition between one business actor and another.

2. RESEARCH METHOD

Research design is all the processes needed in planning and conducting research (Nazir, 2014: 70). According to Hasibuan (2007: 93) in conducting a research one of the important things is to make a research design. Research design is a guide in carrying out the research process including in determining data collection instruments, determining samples, data collection, and data analysis. By choosing the right research design, it is hoped that it will be able to assist researchers in carrying out research correctly. Without the right design, a researcher will not be able to carry out research properly because he does not have clear research guidelines.

The method used in this research is descriptive research method using quantitative and qualitative approaches. This research design is a guideline for the research implementation process to ensure that this research can run according to scientific principles and obtain results that can be used as a strong foundation for thinking in the policy-making process.

In order for the research carried out to achieve the goals set, it should go through a logical and systematic line of thought. The framework for this research can be seen in Figure 3.1 below.

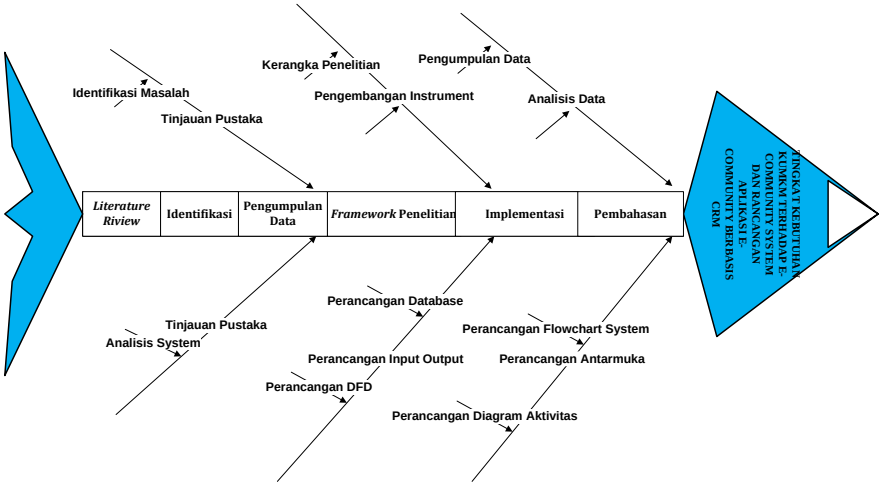

Figure 1. Research Framework

3. RESULTS AND ANALYSIS

Before making a proposal for a system, an analysis of the ongoing business processes of KUMKM actors in North Sumatra or an analysis of the needs of the new system offer is carried out. The results of the analysis in this study have been carried out as presented in Chapter 4. The results of the analysis that has been carried out by studying the problems that occur are then carried out by designing a system using the Object Oriented Analysis Program (OOAD) method as well as visual modeling which helps to capture object structure and behavior.

This visual modeling uses the Unified Modeling Language (UML) which is equipped with the tools and techniques needed in system development, the tool used is Rational Rose as a reference for the design process.

3.1 Analysis of the Running System

One of the economic sectors that can survive during the economic crisis is the MSME sector. This shows that the MSME sector has a competitive advantage and needs attention so that it can continue to be developed. Apart from playing a role in economic growth, employment also plays a role in the distribution of development results.

The KUMKM business actors in North Sumatra basically still run the business individually/separately. This causes business process activities to only rely on the individual abilities of the business owner. In product promotion and marketing, KUMKM actors in North Sumatra rely more on the use of word-of-mouth promotion and use manual catalogs as media for product images. Notification of new products by using the telephone to

be notified to old and new customers. Delivery of goods using company transportation for North Sumatra and its surroundings, while for outside the city use expedition services.

3.2 Identification of Causes of Problems

The causes of problems for KUMKM business actors, especially in North Sumatra, are the absence of a bridge between business actors and consumers in the form of electronic-based groups/communities (e-community KUMKM) which can inform business developments in an up to date/online manner.

3.3 Proposed Problem Solving

By looking at and analyzing the problems that occur in KUMKM business actors in North Sumatra, solutions that can be implemented include:

1. To facilitate business operations and facilitate transactions, it is necessary to create a community-based online marketing and sales system (KUMKM e-community system) that can save time, especially in the delivery or exchange of information (data, product image samples, etc.), ordering products and transactions can be made anywhere at any time without distance and time barriers by customers wherever they are.
2. The design of the KUMKM e-community system is adapted to the needs of KUMKM business actors in North Sumatra and customers, especially with regard to product/service information, orders and other supporting information that can be accessed by KUMKM business actors and customers at any time.
3. Designing the KUMKM e-community system as a means to expand marketing or sales with the aim of increasing transaction volume.

3.4 Design of Proposed System Architecture

The proposed system architecture design will be seen in the image below:

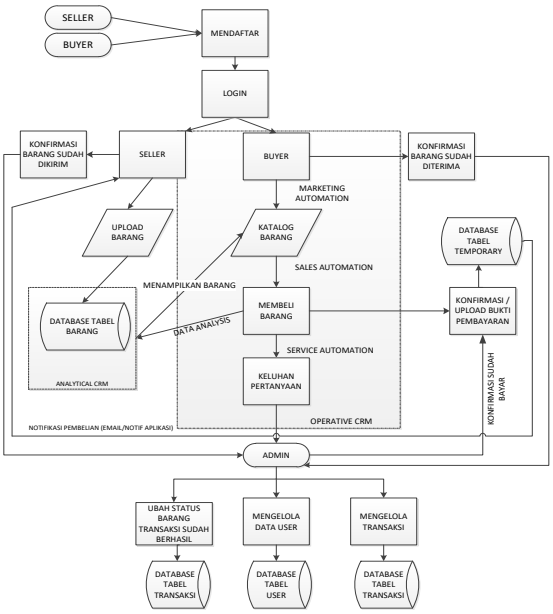

Figure 2. Design of Proposed System Architecture

The following is an explanation of Figure 2:
There are 3 user levels in the system, namely Buyer, Seller and Admin. The following is an explanation of the general architectural parts.

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1. Register
   In this section, Buyers and Sellers register on Web Pages by filling in personal data, such as: Name, address and No. Account to obtain ID and Password.
2. Login
   In this section, buyers and sellers log in with the ID and password that has been received.
3. Seller uploads goods
   In this section, the seller uploads photos in Jpeg format and along with product prices to the goods table database.
4. Buyer Purchases Goods
   In this section the Buyer looks at the item catalog information and presses the buy button which is sold by the Seller.
5. Buying Goods
   In this section the buyer buys goods and uploads proof of payment.
6. Goods table database
   A place to store goods sold by the seller.
7. Confirm Payment Proof
   In this section, scan proof of payment received by the system and forwarded to the seller that the goods have been sold, which is given a notification via email or application notification.
8. Confirm the goods have been sent
   In this section the Seller delivers the goods to the address listed by the buyer.
9. Confirm the goods have been received
   In this section the Buyer logs into the system and provides information in the form of a message that the item has been received.
10. Complaint Inquiry
    In this section the Buyer provides input or something that is not understood which will be answered by the admin.
11. Database temporary tables
    This database is a temporary storage place for purchased items.
12. Buyers
    Buyer is a user who carries out the purchasing process. The buyer will carry out the login process and if successful will enter the goods catalog page. There buyers can buy goods. When the buyer has purchased the item (pressed the buy button) he must send a scan of proof of payment so that the admin can follow up on requests from the buyer. At the same time a notification will be sent to the seller that the item will be purchased. The buyer must confirm to the admin when the item has been received. If the transaction is successful, the buyer will be given points 1. These points can be used to purchase products if the points meet the requirements.
13. Sellers
    Seller is a user who sells goods on the system. The system will provide notifications via email or through the application if someone buys the item. The admin will send and scan proof of payment and buyer information. If the goods have been sent by the seller, the seller is obliged to send confirmation that the goods have been sent. Confirmation is sent in the form of a scan of proof of delivery of goods.
14. Admin
    Admin is a user who processes data. There are several admin tasks, namely:
    a. Process user data.
    b. Changing the transaction status from "In Process" to "Successful Transaction".
    c. Process transaction reports.

3.5 Analysis of System Requirements

The following are the things needed in the development of an E-Community System Customer Relationship Management (CRM) application. Analysis of system requirements is divided into two, namely Non-Functional requirements and Functional requirements.

3.6 Non-Functional Requirements

Non-functional requirements are service or function constraints offered by the system such as time constraints, process development constraints, standardization. The non-functional needs in the development of the KUMKM e-community system in North Sumatra are explained in the table below.

Table 1. Description of Non-Functional Requirements

Parameter	Needs
Availability	This application must be able to operate continuously 7 days per week, 24 hours per day without stopping, because this application will be web-based and will be accessed by users who need it from various places at different times.
Reliability	This application must be built with the highest possible reliability although it does not need to be as high as the reliability of a critical application. Tolerable failure is approximately 10%. With high reliability, it is hoped that this application can be used properly when needed. The reliability of this application will also depend on a number of external factors, such as the reliability of the telecommunication network used for internet access, the reliability of the electric power system used, etc.
Ergonomy	This application must have a high ergonomics / comfort value for the user. The application will be built with a user interface that is easy to understand, beautiful to look at, consistent, easy to operate and not confusing.
Memory	This application must be lightweight and does not require high memory. So that this application can be run on computers with low specifications. This is very important because this application will be accessed via the internet and may be accessed via an internet cafe with low hardware specifications.
Response time	This application must be fast. Because it will run through the internet. In areas where the internet connection is slow, this application must also be accessible quickly.
Communication language	The language used on the web must be communicative and attractive so that it attracts many visitors.

4. CONCLUSION

Based on the results of the analysis and design that has been carried out regarding the study of electronic-based North Sumatra KUMKM community development analysis (E-Community KUMKM North Sumatra), the following conclusions can be drawn:

- The design results use the Object Oriented Analysis Design (OOAD) method, all interfaces are designed to be very interactive, making it easier to implement.
- Using UML as a visualization medium for system design can make the designed model closer to reality. Making it easier to do system development.

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