Improving Sales by Object-Oriented System Approach: E-Commerce Utilization Analysis

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Abstract - *The development of Micro, Small, and Medium enterprises from year to year is influenced by the use of Information Technology and Information Systems. E-commerce is a technology that supports the development of Micro, Small, and Medium enterprises today. DM Khasanashop is a boutique company that sells a wide variety of clothes and pants from the lowest prices to the highest prices. Based on the results of the analysis carried out at DM Khasanashop Tangerang, the researcher can conclude that the problem that occurs in the sales system at DM Khasanashop is that sales have not been web-based or e-commerce and the data management system has not been computerized because the data processing process is still conventional and promotional media, still use brochures, banners, and business cards. The research objective was to determine the sales system using conceptual analysis and to determine the supporting and inhibiting factors in Khasanashop DM. The research method used is descriptive qualitative. Data collection techniques were carried out utilizing observation, interviews, and literature study. The results of this research show that management can be seen in several processes, namely making details of product prices, managing order data, employees packing products to sending products to consumers.*

Keywords: *E-commerce, Design, Sales, Object Oriented, UML*

I. INTRODUCTION

The use of information technology must be balanced with the implementation of information systems. Information technology and information systems are two side by side in the delivery of information for an organization. The use of information technology and information systems in an organization can help the organization to achieve its goals maximally. This is evidenced by the growing and easy role of information technology and information systems among organizations.

This study describes the use of e-commerce to increase sales at DM Khasanashop in Tangerang Regency with a very big opportunity. However, user perceptions of the constraints of e-commerce are also very high. These constraints arise because DM Khasanashop has not been able to completely replace the traditional way of utilizing information technology in making sales. The use of e-commerce technology by business people can provide positive and negative values. The results of this study explain that research on risk perspective variables and customer trust in e-commerce shows that there is a process of mutual influence between these two variables. This is indicated by the variable consumer perception of the risks posed by e-commerce is quite high. Meanwhile, consumer confidence in e-commerce tends to below. One of the factors of this influence is that it still depends on the traditional way of selling. The problem that is still felt by the DM Khasanashop in Tangerang Regency is the lack of media used to market or sell a product. Traditional marketing methods are still the mainstay of boutique businessmen. The trade center on Jalan Raya Serang Km.24, Tangerang Regency, is one of the locations most visited by customers. Apart from selling the boutiques in every shop. This traditional marketing method is very limited in delivering boutique information. So that boutique marketing that has been widely known by the public or consumers is very lacking. The sales system at DM Khasanashop has not yet referred to the theory of the management function expert, therefore it is necessary to do a deeper study. The formulation of the problems of this research are: 1) How is the use of e-commerce in increasing sales in terms of the functions of planning, organizing, actuating, and controlling at DM Khasanashop? 2) What are the supporting factors and inhibiting factors in the sales system at DM Khasanashop ?. The purpose of this study was to determine the system of using e-commerce in increasing sales including planning, organizing, actuating, and controlling to improve services at DM Khasanashop and to determine the supporting factors and factors. the barrier in the application of e-commerce in increasing sales at DM Khasanashop. This research can run optimally, so in this case, the researcher creates problem boundaries, which is focused on the application of e-

commerce in increasing sales at DM Khasanashop. and this research is guided by the management theory of George R. Terry (Principles of management) in Malay SP Hasibuan which consists of Planning, Organizing, Actuating (Implementation / Movement), and Controlling (Supervision) on the work of members in achieving the predetermined performance.

II. BASIS OF THEORY

A. E-commerce

According to Primary (2015: 2). The term e-commerce began to appear in the 1990s through an initiative to change the paradigm of buying and selling and paying transactions from conventional methods into digital electronic forms based on computers and internet networks.
According to Primary, (2015: 10). E-commerce is divided into seven types based on whom the actors (sellers and buyers) are involved, how the interaction between buyers and sellers, and the processes that occur therein.

B. Sales

According to Nurul Huda, Khamin Hudori, Rizal Fahlevi, Badrussa'diah, Dea Mazaya, Dian Sugiarti (2017: 1) stated that "Marketing or sales is one of the most important aspects in the business world. In today's business conditions, marketing is a driving force to increase sales so that the company's goals can be achieved, so sales is an activity that offers, sells products provided by the company to increase turnover in the business.
According to Abdullah & Tantri, (2016: 3) states that "sales are an integrated effort to develop strategic plans aimed at satisfying the needs and desires of buyers, to get sales that generate profits. Sales are part of the whole marketing system.

C. UML (Unified Modeling Language)

According to Rosa A.S and M. Salahuddin (2015: 133), the Unified Modeling Language (UML) is a standard language that is widely used in the industrial world to define requirements, make analysis & design, and describe architecture in object-oriented programming. According to Nunu Nurdiana (2018: 29) states that Unified Modeling Language (UML) is a standard language that is widely used in the industrial world to define requirements, make analysis and design, and describe architecture in object-oriented programming. UML is a visual language for modeling and communicating a system by describing diagrams and supporting texts.

D. Basic Concepts of Object-Oriented Analysis and Design

According to Dennis, system analysis describes what the system must do to meet users' information needs. System analysis will answer the question of who will use the system, what the system will do, and where and when the system will be used. Meanwhile, system design determines how the system will meet these objectives, in this case: hardware, software, network infrastructure; user interface, forms, and reports; as well as special programs, databases, and files that will be needed. ([Dennis 2009], 4)
The object-oriented concept focuses on creating classes that are the blueprints of an object. This concept can divide the software into several objects that are interconnected and interact with each other. Several definitions related to the concept of object-oriented are: [Pressman 2012]
1. Class and Object. The class can be defined as a general description (template, pattern, or blueprint) that describes a set of similar objects. Physical objects such as tables or customers or conceptual objects such as text input areas or files.
2. Attributes, Methods, and Message. An attribute is something that is attached to an object that describes the properties of the class or object. An object encapsulates data (represented as a collection of attributes) and an algorithm that processes that data. This algorithm is called an operation, method, or service. Each operation encapsulated by an object provides a representation of one of the object's behaviors.
3. An object interacts with other objects via messages. An object is requested to perform one of its operations by sending it a message. The receiving object responds to the message by selecting an operation that implements the message name, executes the operation, and returns the control function to the called object.
4. Encapsulation. A class encapsulates data and the operations that process that data. The data (attribute) that describes the class is closed by the operations that manipulate that data. To access the class attribute values must go through an operation. This encapsulation concept supports information hiding. Internal implementation details of data and procedures are hidden from the outside world. This minimizes the effect when there is a change in the class.

5. Inheritance. Inheritance is the inheritance of properties from a class to a new class. Subclass Y is the inheritor of superclass X, so subclass Y inherits all the attributes and operations that are owned by superclass X. This supports the concept of reuse. At each level of the class hierarchy, new attributes and operations can be added to classes that have been inherited from higher levels in the hierarchy. On inheritance

III.   METHOD

Research design is all the processes required in planning and implementing research. The method used by the writer in conducting research is the descriptive qualitative method. The descriptive qualitative method aims to create a systematic, factual, and accurate description of the facts and characteristics of a particular research object. The descriptive method in researching a reference for research design and is a description of the initial planning until the research objectives are achieved. Researchers researched DM Khasanashop has several stages as follows:

a. Data collection
   The research begins by determining data needs and collecting data by direct observation in the field and conducting interviews with the owner to find out which system is running. This data is in the form of observations, interviews, and literature studies.

b. Modeling Software
   This stage is carried out to build software with a waterfall model which consists of analysis, design, code, and tests. At the analysis stage, it is used to describe functional and non-functional requirements. Functional needs are the core of the activities carried out, such as processing sales data at DM Khasanashop while non-functional requirements are activities that support functional needs such as software specifications. At the design stage, namely designing data structures, software structures, software interface displays, at the coding stage translating the software design into a programming language, this stage the data processing application design is translated into code.

c. System Testing
   After translating the software design into a programming language, the system function testing is carried out on the results of the test analysis using Black Box Testing.

d. Result
   At this stage, the system that has been designed is ready to be used as an e-commerce application to increase sales at DM Khasanashop. Before doing this step, the researcher observes the problems that occur, after that in determining the title to be discussed following the background and problem formulation.

A. Data Analysis Methods

To analyze the sales process at DM Khasanashop at this time will be carried out in the following stages:

a. Collecting data from the research results, at this stage the researcher conducted interviews with the DM Khasanashop, namely the owner of DM Khasanashop named Neng Wati. Asking what problems are being faced and collecting data relating to processes in inputting and processing sales data.

b. Analysis of the data collected, at this stage the researcher studies and analyzes the data obtained and the process that is currently running to find out the overall picture of the pre-existing system.

c. Identifying the user's need for information, at this stage the researcher analyzes system requirements and proposes a system concerning the process that is already running. Based on the sequence of the previous stages in DM Khasanashop.

d. Identify the requirements for the sales data processing system application that will be built along with the required hardware specifications.

B. System Testing Methods

According to Ehmer Khan in Karuniawati, et al (2015: 6476) states that Blackbox Testing is a testing technique without the need to know the internal structure of software to be tested because this test only focuses on input and output to a software.

According to Simanjuntak in Harahap, et al (2016: 3-4) states that Blackbox Testing is a way of testing done by simply running or executing a unit or module then observing whether the results of the unit are as desired. The method of testing the device is by identifying errors related to software functionality errors that appear in the output error.

The technique used in testing the proposed application system is the black-box testing method, functional without testing the appearance and coding of the system. The purpose of testing is to determine the functions,

input, output of the software by the required specifications. This test is carried out with the stages contained in the black box testing method with the aim that the system created can meet user needs.

IV.   RESULTS AND DISCUSSION

A. *System Analysis*

To analyze the system running in this study using Unified Modeling Language (UML) to describe the procedures and processes the current system is running is to increase sales at DM Khasanashop, then buyers place orders at DM Khasanashop and then make payment transactions to DM Khasanashop, then admin DM Khasanashop then records the name of the buyer, the name of the product chosen and the date of delivery then the admin confirms the payment transaction to the buyer, then the admin DM Khasanashop enters the shipping number so the buyer can track the product delivery process.

The system analysis process is to explain what the system must do to meet the information needs of users. System analysis will answer the question of what will be done, who will use it, where and when the system will be used. Current system analysis activities are carried out with an object-oriented analysis approach for the designed system, which can focus on the functionality of the current system. Furthermore, the results of the analysis will be visualized and documented with the Unified Modeling Language (UML) through Use Case Diagrams, Activity Diagrams, Class Diagrams, and Sequence Diagrams with the consideration that these diagrams are considered to represent the entire running system that can be understood by users.
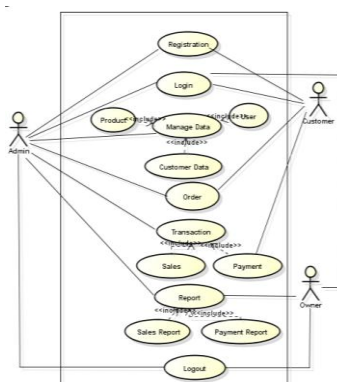
B. *Use Case Diagram*

Figure 1. Use Case Diagram
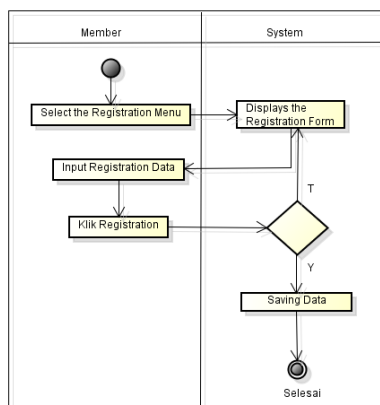
C. *Activity Diagram*

Figure 2 Registration Activity Diagram
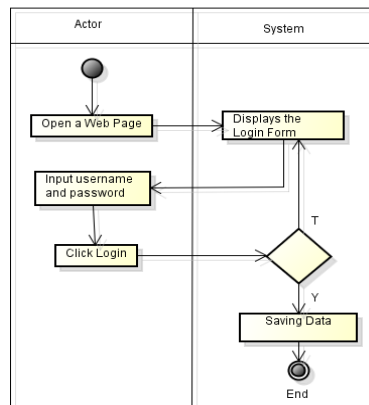
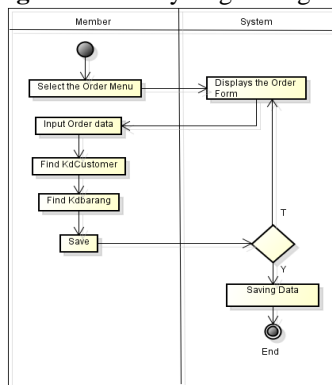**Figure 3** Activity Login Diagram

Figure 4 Activity Diagram of the Order
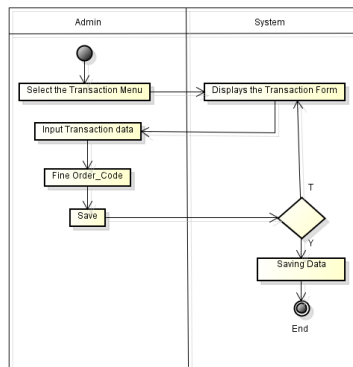

Figure 5 Transaction Activity Diagram

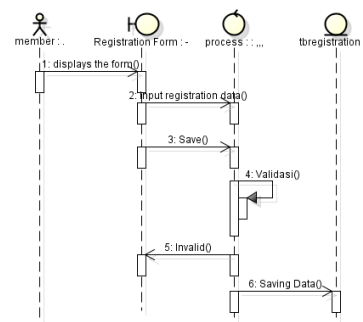*D. Sequence Diagram*

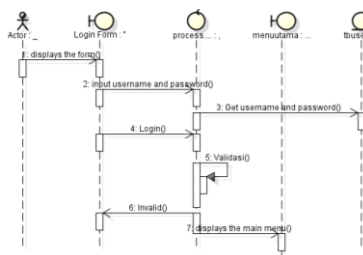**Figure 6** Registration sequence diagram

Figure 7 Login sequence diagram
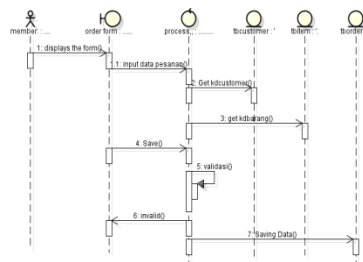

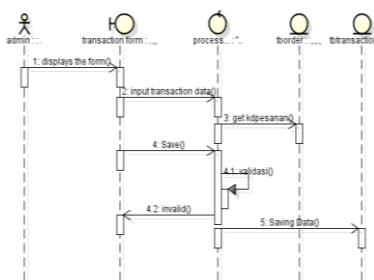**Figure 8** Sequence diagram of the Order

Figure 9 Transaction sequence diagram

E. Class Diagram

The class diagram displays several classes that exist in this system and provides an overview of the system and the relationships therein. There is a sub-set of classes, namely the attributes and operations in a class. The

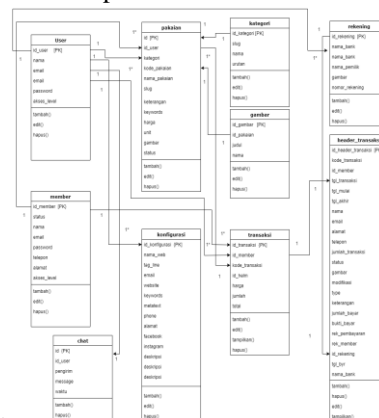following is a class diagram for a sales system application that is **designed.**

Figure 10 Class diagram

F. Input Design

Figure 11 Registration Form

Figure 12 Login Form

Figure 13 Order Form

Figure 14 Transaction Form

G. Output Design

Figure 15 Sales Transaction

V. CONCLUSION

A. Conclusion

Based on the results of the discussion of research and testing in the use of e-commerce to increase sales at DM Khasanashop, the researchers gave the following conclusions:

1) The implementation of the Planning Function in increasing sales at DM Khasanashop is quite good and the implementation of this planning starts from making detailed price lists according to the client's budget, making product descriptions, organizing employees based on job desk, implementing before sending goods to completion of payment transactions, monitoring work product delivery team.

2) For the implementation of the Organizing Function, the sales system at DM Khasanashop is not good. After all, at the stage of receiving orders, they do not pay attention to notes from consumers on an item because their duties are concurrently in handling orders. After all, the time of delivery of ordered goods from consumers lacks members so that they do not work optimally.

3) The implementation of the sales actuating function at DM Khasanashop is still not optimal in the implementation of recording product orders because the employees who are moved do not understand the instructions or orders from the leader, especially in the product ordering section, there is an error and there is still a lack of coordination between superiors and employees.

4) The implementation of the sales control function at DM Khasanashop is minimal supervision between superiors and employees so that it is constrained in the field when packing the product to be sent, often the wrong product description and wrong address because the employee does not have a written item checklist system.

5) The supporting factors for the sales system at DM Khasanashop are strategic location, good promotional management that has used social media, and complete product availability and the inhibiting factors of the sales system in Khasanashop DM are limited human resources, lack of communication, and lack of supervision due to labor. inaccurate work makes the goods a lot of wrong product descriptions and wrong addresses.

B. Suggestions

a. We recommend that there should be additional employees by their fields to handle work, each product order handled can be done more optimally so that it can run smoothly. For the operational part, it must mutually coordinate or communicate between superiors and subordinates so that the achievement of goals is well realized.

b. Paying attention to efforts to implement the management functions of the organization involved in it so that the planning, organizing, actually, and controlling functions can have clear objectives to improve sales service standards.

c. Given the increasing number of product purchases, you must list the stages of work to be made. Prioritizing better quality than quantity.

d. The importance of communicating or coordinating between superiors and subordinates so that factors that become obstacles or problems that often occur can be properly minimized.

e. The system is expected to be an e-commerce application to improve the web-based online sales system.

f. Payment is still manual, which is only paid after the buyer comes directly to the store, which can later be developed into a deposit system.

REFERENCES

[1] Aman. M. and Suroso."Wedding Organizer Information System using Object Oriented System Approach in CV Pesta". Jurnal Janitra Informatika dan Sistem Informasi. Vol. 1, No. 1. pp. 47-60. April 2021.

[2] Bairagi, A. K. (2011). "Utilization of E-commerce can Change the Auction Culture of Bangladesh Specially in Public Sector". IJCIT, Vol. 2(1), pp. 55-61.

[3] Bhowmik, R. (2012). "The Present E-commerce Situation In Bangladesh For B2c E-commerce". International Journal of Economic Research, Vol. 3(5), pp.77-91.

[4] Denny Slamet Septian. (2017). Perancangan Sistem Notifikasi dan Reminder Pemesanan Barang Konsinyasi Berbasis SMS Gateway pada PT. PAN GRAFIK INDONESIA. Tangerang: STMIK Raharja.

[5] Elisabeth Yunaeti Anggraeni dan Rita Irviani. (2017). Pengantar Sistem Informasi. Yogyakarta: Andi Offset.

[6] F. Kurniawan, F. R. . Shidiq, and E. Sutoyo, "WeCare Project: Development of Web-based Platform for Online Psychological Consultation using Scrum Framework", Bulletin of Comp. Sci. Electr. Eng., vol. 1, no. 1, pp. 33–41, Jun. 2020.

[7] Hidayatullah, Priyanto, dan Jauhari Khairul Kawistara. (2017). Pemrograman WEB Edisi Revisi. Bandung: INFORMATIKA.

[8] Jeperson Hutahaean. (2015). Konsep Sistem Informasi. Yogyakarta:Deepublish.

[9] Karuniawati, Sari, Sri Widowati & Iman Lukmanul Hakim. (2015). Implementasi Case Effect Graphing (CEG) Dalam Pengujian Requirement Perangkat Lunak (Studi Kasus : Aplikasi G-Colleger). E-Proceeding Of Engineering. Vol. 2 No. 2 Agustus 2-15.

[10] Khan. A. G." Electronic Commerce: A Study on Benefits and Challenges in an Emerging Economy., Vol. 16. Issue 1 Version 1.0, pp. 19-22. 2016.

[11] Madcoms Madiun. (2016). Pemrograman PHP dan MySQL untuk pemula. Yogyakarta: ANDI.

[12] Madcoms. (2016). Sukses Membangun Toko Online Dengan PHP & MsyQL. Yogyakarta: CV.Andi Offset.

[13] Mulyadi. (2016). Sistem Akuntansi Edisi 4. Jakarta: Salemba Empat.

[14] Nanehkaran, Y. A. (2013). "An Introduction to Electronic Commerce". International Journal of Scientific & Technology Research, Vol. 2(4), pp.190-193

[15] Ohidujjaman, et al (2013). "E-commerce Challenges, Solutions, and Effectiveness Perspective Bangladesh". International Journal of Computer Applications, Vol. 70(9). pp. 9-17.

[16] Pasaribu, J. S. (2017) 'Penerapan Framework YII Pada Pembangunan', jurnal ilmiah teknologi informasi terapan,III(2), pp. 154–163.

[17] Pattianakotta, Ade, Alicia A.E Sinsuw & Arie S.M. Lumenta. Sistem Informasi Arsip Dokumen Kantor Pelayanan Kekayaan Negara dan Leleang Manado. E-Journal Teknik Elektro dan Komputer. Vol.4 No. 7.

[18] Robi Yanto. (2016). Manajemen Basis Data Menggunakan MySQL. Deepublish

[19] Rosa, A.S dan Shalahuddin, M. (2015). Kolaborasi Rekayasa Perangkat Lunak Terstruktur dan Berorientasi Obyek. Bandung : Informatika.

[20] Rosa, A.S dan Shalahuddin, M. (2016). Rekayasa Perangkat Lunak Terstruktur dan Berorientasi Obyek. Cetakan Keempat. Bandung : Informatika

[21] Sarwindah. (2016). Sistem Informasi Manajemen Pemesanan Buku Pada Toko Buku NURIS. Bangka Belitung: STMIK Atma Luhur.

[22] Simarmata, Janner. "Rekayasa Perangkat Lunak". ANDI, Yogyakarta: 2010.

[23] Sri Mulyani. (2016). Metode Analisis Dan Perancangan Sistem. Bandung: Abdi Sistematika.

[24] Sugiyono. "Metode Penelitian Bisnis (Pendekatan Kuantitatif, Kualitatif, dan R&D)". Alfabeta, Bandung: 2010.

[25] Sutopo, Priyo, Dedi Cahyadi & Zainal Arifin. (2016). Sistem Informasi Eksekutif Sebaran Penjualan Kendaraan Bermotor Roda 2 Di Kalimantan Timur Berbasis Web. Jurnal Informatika Mulawarman. Vol.11 No.1 Februari 2016.