

Analysis Effectiveness and Efficiency of the Product Delivery System at PT Muliaglass Safety Glass Division

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ABSTRACT

Information technology is the main thing that is used as a support for work activities so that it can produce fast, precise and accurate information. To achieve this, other supporting resources are needed such as reliable software and human resources who must master the capabilities of information technology itself. This is also based on the value of effectiveness and efficiency in the information systems carried out by each company, one of which is the provision of information systems provided by PT Muliaglass Safety Glass Division.

Management Information System (MIS) is a collection of sub-systems that are interconnected or integrated between one system and another, which aims to assist management in obtaining quality information. So that it can optimize employee work so that it can be completed quickly, in accordance with the objectives of the information system itself, namely increasing task completion, increasing overall effectiveness, including economic effectiveness. Previously we have known that Effectiveness means doing the right thing and Efficiency means doing the right thing or right. This is also related to the role of information systems and information technology in the company where it is effective if the system is good when used and helps management levels in the company and is efficient if this system has replaced the role of humans so that it can facilitate work. In the development of the information system for receiving orders and shipping goods at PT Muliaglass Safety Glass Division, the EDN system can be said to have had its own advantages in its field, but this must also be done in conjunction with optimization in the work of employees, where system functions must be improved again so that in accordance with the functions and objectives of the company but does not harm other parties, where if the system has worked very optimally, of course there will be a reduction in human labor in the company's work.

Keywords: *Information Technology, Management Information System, Effectiveness, Efficiency.*

1. INTRODUCTION

In the current era of globalization, information technology is a very important need for all of us, including in the business sector. Even from the lower level to the upper level business, information technology is still the main thing that is used as a support for work activities so that it can produce fast, precise and accurate information. To achieve this, other supporting resources are needed such as reliable software and human resources who must master the capabilities of information technology itself.

It is also based on the value of effectiveness and efficiency in the information system carried out by each company. Not only that, in addition to the business that forms the basis of competition between companies, the sophistication of the system in each company is

certainly a benchmark for technological developments that every company has followed. With the increasing number of companies, the competition for industrial development is absolutely necessary in order to obtain the progress that is highly desired by every company. For this reason, several efforts are needed so that the company is able to win the competition. One of the efforts that can be taken is to provide effective and efficient information systems based on advanced technology.

One of them is the provision of an information system provided by PT Muliaglass Safety Glass Division. Where PT Muliaglass Safety Glass Division is a subsidiary of PT Mulia Industrindo, Tbk which is a manufacturing industry that produces glass, glass blocks and ceramics. Meanwhile, PT Muliaglass Safety Glass Division itself produces special safety glass for cars in

the domestic market and for several buses in Indonesia. PT Muliaglass Safety Glass Division provides a more modern information system in the field of ordering and shipping goods where the data is partly processed by the system while the rest is processed by humans. The system has automatically ordered goods previously approved by the marketing department and then transferred to the PPIC (production, planning, inventory, control) department to take care of the preparation of goods, checking, packing and shipping until the goods reach the consumer.

The system is named the EDN (Electronic Delivery Note) system whose job is to function as a system that regulates ordering goods after obtaining approval from the marketing department. After that, the delivery staff will check whether the ordered item is still available or not, if the ordered item is available and ready to be packaged, the next action is to send the item to the consumer, but if not, then the process needs to be awaited by the consumer. very long.

From the results of the author's observations during the internship at PT Muli-aglass Safety Glass Division, there is an ineffectiveness and efficiency in carrying out the activities of receiving orders and shipping goods where even though they have used a good information system, there are many shortcomings that are felt to be corrected, namely, After getting approval from the marketing side, the section where the delivery staff is required to print proof of ordering goods and reprint the type of goods ordered there is found problems in paper wastage and lack of efficiency in the system.

Because an effective and efficient information system must of course address all aspects, including reducing costs and also helping human work. In addition, the human resources owned by the company also need to be balanced with skills or expertise that support the system used in order to achieve the company's goals quickly and precisely.

1.1. Management System Information

According to general terms or definitions that are often used and found, Management Information System (Management Information System or often known by its abbreviation SIM (Management Information System)) is the application of information systems within the organization to support information needed by all levels of management. MIS (Management Information System) can be defined as a collection of interacting information systems that are responsible for collecting and processing data to provide useful information for all levels of management in planning and control activities.

Meanwhile, here are some experts who express their opinions about Systems, Information, and Management Information Systems. Among them:

Reference [1] "Analysis of Information Systems", Information systems are a group of elements that are closely related to one another, which function together to achieve certain goals".

Reference [2] "Introduction to Information Systems", the system is a network of related procedures, collected together to perform an activity or for a specific purpose. And Information is data that is processed into a form that is more useful and more meaningful to those who receive it.

Reference [3] "Introduction to Information Systems", Information systems (information systems) are an organized combination of people, hardware, software, communication networks, and data resources that collect, transform, disseminate information in an organization.

Reference [4] "Information systems are a combination of work procedures, information, people, and information technology that are organized to achieve goals within an organization." George M. Scott in [4] "A Management Information System is a collection of interactions between systems information that provides information for both managerial and operating needs."

Reference [5] "Management Information Systems", Management Information Systems is an activity that combines theories of computer science, management science, research operations with a practical orientation to combine system solutions to problems day-to-day operations and manage these sources of information. In addition to supporting decision making, coordination, and supervision, information systems also assist managers and employees in analyzing problems, describing complex issues, and creating new products.

1.2. Effectiveness and Efficiency of Information Systems

Previously we have known that Effectiveness means doing the right thing and Efficiency means doing the right thing or right. Both effectiveness and efficiency require companies and individuals to continuously set targets, analyze work carefully, set priorities, and always focus on something that can provide the greatest impact or value for every time spent.

One of the benefits of management information systems used by companies is to increase operational efficiency where investment in information system technology can help company operations become more efficient. Operational efficiency enables the company to implement a low-cost leadership cost advantage strategy. This is in line with the statement of [6] "Strategic Management", Efficiency is a measure of the level of resource use in a process. The more efficient or less use of resources, the process is said to be more

efficient. An efficient process is characterized by process improvement so that it becomes cheaper and faster.

1.3. Determinants of Information System Effectiveness

There are nine determinants of the effectiveness of information systems that can be used as a framework for measuring and analyzing the effectiveness of information systems, namely: System Quality Is the internal characteristics of the information system itself; Information Quality is the quality of information which is the output of an information system, an information must be a representation of reality; Perceived Usefulness Is the user's view of the usefulness of the information system, if the user has a good view of the information system, it will increase the use and effectiveness of the information system; Computer Self-efficacy Is the user's belief that he is able to play a good role in information system-based organizations, related to the user's ability to use computers; Perceived Ease of Use Is the user's view of how easy the information system is to use; Information System Use Is the level of use of information systems in an organization; Information System Satisfaction Is the level of user satisfaction with the existence of aspects of information systems in their work; Individual Impact Is the influence of the information system on the user individually; Organizational Impact Is the influence of information systems on the organization as a whole.

2. METHODS

The type of research used in this study is descriptive qualitative research, which describes the data as they are and explains the data or events with qualitative explanatory sentences, as expressed by [7] qualitative methods to obtain in-depth data, and a data that contains meaning. which can significantly affect the substance of the research. The data used in this study are qualitative and quantitative data.

Data collection is a very decisive stage on the process and results of the research to be carried out. The data collection used in this research is the method of documentation. The documentation method is a way of collecting data obtained from existing documents or stored records. To obtain the data, the researcher used primary data, where the data were obtained from documentation sources.

The method of analysis begins with the calculation of the level of effectiveness and efficiency level. To be able to find out and measure the level of effectiveness of the implementation, the formula used is [8]:

$$Effectiveness = \frac{R}{T} \frac{A}{A} \frac{B}{B} \times 100\%$$

Figure 1. Formula Level of Effectiveness

Table 1. Ratio Effectiveness

Effectivity Ratio (%)	Criteria
> 100	Very Effective
90 -100	Effective
80 – 90	Effective enough
60 – 80	Less effective
< 60	Ineffective

3. RESULTS AND DISCUSSION

Assessing whether the system used by the PPIC delivery department of PT Muliaglass Safety Glass Division has been effective and efficient, it can be seen from the performance carried out by the system has achieved the company's goals or not. The author sees the delivery system in the Delivery section using the Electronic Delivery Note (EDN) system which has been used for almost 4 years since 2014. Based on observations, the authors found the advantages and disadvantages of the system that the company felt had to be addressed again so that the value was effective and more optimally efficient.

Such as in the process of receiving a note for ordering goods or a Delivery Note where the note must be printed on paper for further processing, even though the note is printed as needed without the need for printing other information which will take up a lot of paper. In addition, the crosscheck process carried out by staff employees who spend a lot of time and energy may not be in line with the results issued by the system (output). Because before doing crosscheck, staff employees are required to download EDN, labels and kanban which go through a fairly long process even though they have used the system, besides that many system settings are still manual, so the process is done repeatedly. Where if we look at the functions and objectives of information systems that are helpful in human work and minimize the use of time and energy.

The following is a flowchart of part of an order through the EDN system:

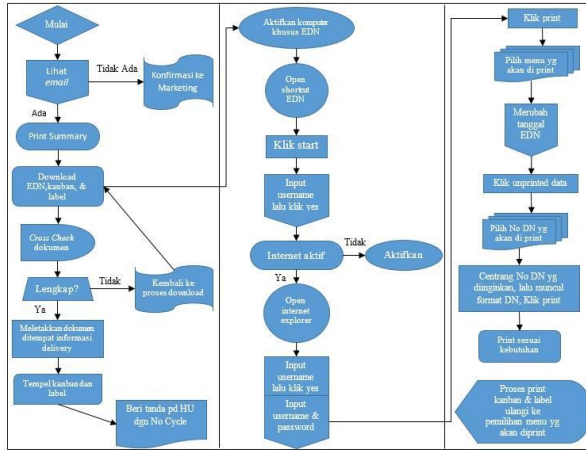


Figure 2. Order flowchart via EDN system

The implementation is as follows:

- a. View emails from consumers who have placed orders. Booking can only be done at a predetermined time, which is around 11.00-15.00 WIB with the provisions of the standard operating system;
- b. If there is no email, then immediately confirm it to the marketing department immediately so that the ordering process for goods is immediately processed, while if there is, it can be continued with the printing of the Summary Order Delivery. After that, we can directly enter the download process using the EDN system, first make sure to use a special EDN computer, this computer has been modified by the company in such a way before to optimize the delivery system.
- c. Open the EDN shortcut, then click start which is on the left of the visible glass screen. We can input the username that we have previously or can use the provided company username, then click yes.
- d. The most important thing in the process of downloading the EDN system is to make sure the computer used is connected to the internet connection, if it is not connected it is immediately activated, while if it is, it can be continued to the next process.
- e. Open Internet Explorer, then re-enter your username and click yes then you will see an internet explorer account security request, you only need to input your username and password.
- f. Then the next step is to click print on the display that appears, then select the menu that will be printed and change the EDN date in the ordering process and the desired delivery. Select unprinted data and choose No Delivery Note (DN) to be printed, don't forget to put a check mark on the

No Delivery Note (DN) to be printed. After that, the Delivery Note (DN) format will appear then click print.

- g. Print only as needed. The above process is an example of an EDN printing procedure, the process of printing kanban and labels can be repeated selecting the menu to be printed in the g process.
- h. The next step is to cross check the previously printed document whether it is complete or incomplete, if it is not complete, you can return to the download process, if it is, then you can put the document in the delivery information area which is specially made for delivery documents. However, before placing the delivery information in place, first cross check the summary DN with the DN downloaded from the EDN web.
- i. After that, paste the kanban and label on the product that is ready to be packaged, then return to the manual process to mark the handling unit (HU) number with the cycle number.

4. CONCLUSIONS

Based on the analysis table, it can be concluded as follows: The delivery system at PT Muliaglass Safety Glass Division can be said to be effective because consumers can get the same goods as what was sent by the company, if taken by themselves. Likewise with the delivery system which can be said to be efficient because with the development of technology, consumers do not need to send sales from the company to offer purchases of goods but can already be via email.

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