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The Integration of Business Process Reengineering and Snell X's Enterprise Resource Planning For Efficiency and Effectiveness: A Case Study of Cosmetics and Household Sub Sector Companies

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Abstract

This research discusses about the system improvement using Business Process Reengineering (BPR) framework integrated with Enterprise Resource Planning. The object of this study is the business process of cosmetics and household goods Sub-sector Company. This study carries the problem of supplier lead time when shipping raw materials supply which results delays in production. Furthermore, the Business Process Reengineering method used for this study aimed to reduce the sub-process time with support of IDEF0. Process mapping was carried out by doing interviews and Focus Group Discussions (FGD) with three experts. This study results the process of As-Is and To-Be that reduced the business process time up to 36%. By the improvement of time efficiency, the cosmetics and household goods sub-sector company experiences rapid changes in working hours. In addition, with the ERP implementation of Snell X's, it helped the workers to carry out their job only by one integrated business management application.

Index Terms: Business Process Reengineering, Enterprise Resource Planning, IDEF0, As-Is, To-Be, ERP

Introduction

The business world is developing so fast. The presence of technology accelerates these developments massively. Therefore, this is a challenge for entrepreneurs to be more alert and not be careless with the changes that occur. The sophistication of technology brings many changes to the business world. With this technology, the spread of information becomes faster and more widespread. Thus, it cannot be denied that technology is an opportunity, but also a threat for every business actor. If they are not quick to adopt technology within the company, then this will be a big threat. Because technology makes it easy for companies to carry out company operations, even to cut operational costs and increase profits.

One of the information system technologies that is currently trending is the ERP system.

Since the 1990s, organizations have introduced ERP systems to increase efficiency and achieve seamless integration of information flow across departments and functions (Osnes et al., 2018). ERP application is software that integrates important business functions into one information system through sharing an integrated database (Gangwar et al., 2014). Through the use of this Enterprise Resource Planning (ERP) system, the Company can utilize software to integrate between departments and perform cloud-based online data storage, as well as perform very accurate real-time data analysis, so that decision making can be more precise than before.

In addition, ERP systems can also reduce costs by increasing efficiency through computerization and improving the quality of information. In the end, the implementation of Enterprise Resource Planning (ERP) in modern business continues to increase due to its ability to integrate material, financial, and information flows and support business functions.

The cosmetics and household subsector company in the Depok area are SMEs that are experiencing problems with company data integration. In managing its business processes, especially in inventory which experiences many problems, there are many mistakes that often occur in managing the stock of goods, one of which is the difference in stock. This problem occurs when there is a discrepancy between physical checking and computer data. If it happens continuously, the company's operational activities will be disrupted and possibly create an impact on many things. Actually, this problem can be solved easily if the reason of problem is discovered, one of things needed to solve is goods stock management which are still manual, there are still some companies that use conventional methods to manage their goods. Manually managing goods is not efficient and can cause many problems due to human error so that, it can cause differences in the stock of goods in the warehouse. For this reason, companies need to implement digital management to be more efficient and maximal (Hanum et al., 2020). Therefore, the company wants to implement an ERP system so that the company can update and check stock data in real time.

In conclusion, it is necessary to carry out business process reengineering (BPR) which aims to find out how big the percentage of failures that occur in the cosmetic and household sub-sector company. According to Hammer & Champy (2006), the goal of process reengineering lies in the dramatic improvement of the efficiency of business processes, in order to achieve it, company needs to have the creation and implementation of original ideas. In addition, proponents of reengineering also consider increasing competitiveness, however their focus is actually on improving the efficiency of business processes. Competitiveness is mainly based on the unique competitive advantages of industrial enterprises' products and services. It is this achievement of certain competitive advantages that underlies the strategy of industrial companies.

Against this background, Snell X (ERP Implementation Company) presents to assist companies in creating efficiency and effectiveness of business processes through an ERP system with business process reengineering. By utilizing an open-source basis ERP software, Odoo, Snell X can reduce the cosmetic and household sub-sector company operational time.

Business Process Reengineering method is needed in this research. Through the stages of Prepare for Engineering, Map & analyze As-Is, Design To-Be, Implement Reengineered Processes, and Improve Continuously. At the Prepare For Engineering stage, identification and problem formulation are carried out using the Process Visualization Map & Analyze As-Is approach, all activities and processes that occur are mapped and analyzed. To design a new, better process at the Design To-Be Process stage, Benchmarking Technique is used. The type of benchmarking that is carried out is Internal Benchmarking. The implementation of the new

system at the Implement Reengineered Process stage is carried out using Change Management Techniques. This approach is more focused on people and the application of system change. The last step, Improve Continuously, serves to maintain the state of the system to continue to make continuous improvements.

Methods

This research is conducted with a quantitative and qualitative approach, added with some data obtained from the results of observations of Business Process data that yet to be reengineered in Cosmetics and Household Sub-Sector Companies. Authors try to learn and understand more deeply about the Business Process used in the Company. Therefore, to carry it out, authors make observations and extracts information on several sources that have been confirmed to know the information needed.

The methods used in collecting data are literature studies (library research) and field research (in field research, there are two techniques required: observation & interview).

The data obtained in this study, both primary data and secondary data will then be analyzed quantitatively and qualitatively. This processing entails a fundamental rethink and radical redesign of business processes to achieve a dramatic and contemporary performance improvement measures such as cost, quality, service, and speed. This method emphasizes on reordering / designing / re-mapping processes that aim to get significant performance improvements. The analysis methods that will be used in this research are:

1) Fundamental: asking the most basic questions about their companies and how they operate. The rationale for implementing reengineering should be in line with the strategy and create added value for the company.
2) Radical: redesign starting from the root of the problem, by setting aside all existing structures and procedures and creating entirely new ways of getting work done.
3) Dramatic: In reengineering, it is not only making fundamental changes but also changes that result in a very good improvement in company performance.
4) Process: the process is a set of activities consisting of one or more inputs and produces outputs of high value for consumers.

To identify processes that affect the time of procurement and supply of goods, authors conduct a focus group discussion (FGD). It was attended by experts who have strategic positions, which consequently, their decisions can affect the process.

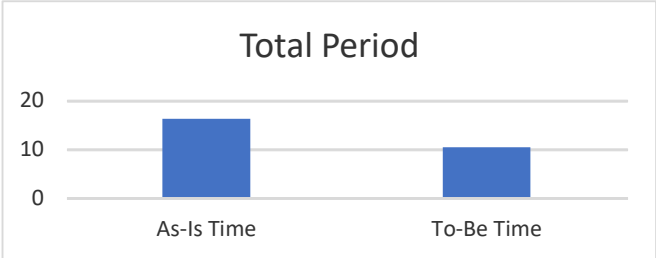
Results and Discussion

Based on the research, it is discovered that the total time for each main process is 11 days and 374 minutes with a total of 16,214 minutes (As-Is). And the total time of each main process that has been re-engineered is 7 days 234 minutes with a total of 10,314 minutes (To-Be). From these calculations obtained a reduction in time of 36%. These results were obtained by comparing the process before (As-Is) and after re-engineering (To-Be) in the company's conventional activities after Snell X facilitate the company with Odoo ERP implementation software. By cutting every main process, it greatly simplifies the work and cuts time, thus, there were no delays in the delivery of goods from vendors. Therefore, with an increase in time efficiency, the Cosmetics and Househol Sub-Sector Companies experience rapid changes in working time.

Table I *The comparison of total period of as-Is and To-Be*

As-Is		To-Be
Total Period	11 days 374 minutes	7 days 234 minutes
Total in Minutes	16.214 minutes	10.314 minutes
Time Reduction	36%	

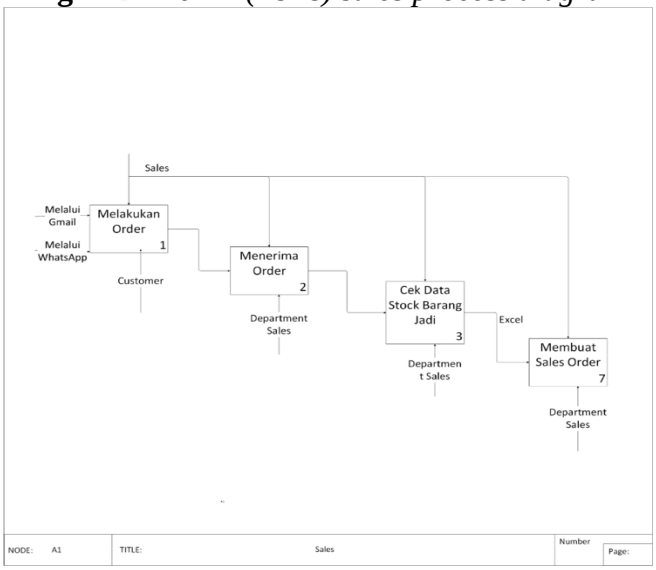
Fig 1 *the comparison of total period of as-Is and To-Be*



Based on the results of observations using BPR and the implementation of the ERP system by Snell X, it was found that in the Business Process To-Be there was a change in the sub-process in the Sales department, namely confirmation back to the Customer. That is, whether the customer will order again if he finds the finished product is empty. If the customer agrees, the next process will be carried out, namely sending the available finished goods stock and making a quotation which will be continued as a sales order. It should be noted that the implementation of the Odoo ERP only focuses on the Cosmetics and Household Sub-Sector Companies and the customers and Vendors not included.

In the IDEF0 A1 (As-Is) sales process diagram, the process flow through IDEF0 (Identification Language0) is described. Obtained in the sub-process of Checking Finished Goods Stock Data, it is still done conventionally, namely by aligning existing stock data in excel with the availability of finished goods in the warehouse.

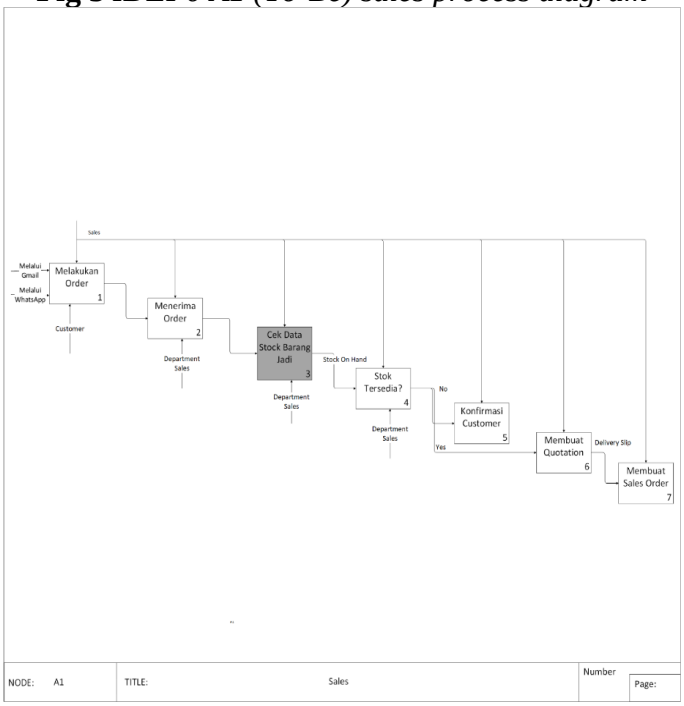
Fig 2 *IDEF0 A1 (As-Is) sales process diagram*



From the results on the IDEF0 A1 (To-Be) Sales Process Diagram, the process flow through IDEF0 (Identification Language0) is described. It was found that the activity that will be improved is sales. The change lies in checking on hand stock data which was previously

done by observing the company's excel file and looking directly at the Finished Goods Inventory after implementing Odoo ERP. it is very efficient, the process id just by looking at Inventory Module and then menu of product on hand quantity. The change in the Sales department is that now workers are easier to carry out the flow of each sub-process that is integrated in this Odoo ERP. Furthermore, it also easier to show a report which can be seen from each sub-process. With this, every activity in Sales department can be carried out directly in real time.

Fig 3 *IDEF0 A1 (To-Be) sales process diagram*



Conclusion

This business process modeling will help to understand the ongoing process. The results of the business analysis will be used as a benchmark in the design of a To-Be system that has better performance when implementing Odoo ERP in Cosmetics and Household Sub-Sector Companies. Snell X in this case provides system facilities to companies for efficiency and effectiveness of business processes and optimally implements software. Process mapping and process time analysis using a flow map in the As-Is process, found that there were several things that caused the length of time for delivery of goods from vendors and the process had the potential to cause delays in the supply of raw materials. This research also produces a complete model with the IDEF0 method which describes information about a systematic and sequential description of system changes so that it is easy to understand from the Sales process. Process map analysis identifies the total time showing that business process improvements reduce processing time from the customer making an order until the delivery of goods takes 7 Days 234 Minutes. The comparison of the total time of as-Is and To-Be got a shortened time of 36%. With these results, the efficiency and effectiveness carried out by Snell X in the cosmetics and household sub-sector company was successful.

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