

Customer Relationship Management System Customization in a Heavy Equipment Company

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Abstract - Every company have a various problem in carrying out their business processes, such as heavy equipment companies which are the object of research in this study. The business problem in this heavy equipment company is in business operation; the company still utilizes traditional methods, such as electronic mail, Microsoft Excel, and digital records on their smartphones, that methods make a variety of business problem faced, such as the duration of transaction data management. This study proposes the implementation of a CRM system customization in a heavy equipment company that has a business problem in managing customer transaction data. Measurements in this study were conducted to determine the effectiveness of management data transactions by using a CRM system customization that had been designed previously. Several previous studies have proposed the use of CRM systems in an organization. As an independent variable, the measurement of the duration of data management before and after the implementation of CRM system customization will be proposed. The final result of this research is to be able to help the actors involved in carrying out business activities by using the CRM system that has been built.

Keywords — Business process improvement, Customer relationship management, Customization system, Heavy equipment company, Microsoft Dynamics CRM

I. INTRODUCTION

(In the past decade, the Customer Relationship Management (CRM) system is a product that has a fairly strong market growth and attracts many organizations to create systems according to their individual needs [1], [2]. One of the CRM system solutions currently provided by the solution provider is a product from Microsoft, namely Dynamics CRM that can manage business processes efficiently through several modules, such as the quick campaign module that can allow monitoring of campaign progress and measurement results and service modules scheduling that can allow centralized customer management requests, so it can increase resource allocation to complete requests as well as accountability and fulfillment of control of existing tasks [3].

The existence of a CRM system in an organization can help an evaluation of how the organization can achieve targets

which can only be achieved by controlling the process and with the existence of an information infrastructure to provide support in making decisions based on accurate information obtained from real-time data, not only using intuition [4], [5]. In this study, the problem faced by heavy equipment companies in their business operations, in storing customer data, the company still utilizes traditional methods such as electronic mail, Microsoft Excel, and digital records on smartphones. This makes a variety of business problems faced such as the duration of transaction data management, which takes 2 hours, the data management process that is currently being carried out also makes the process of closing entries at the end of each month requiring quite a long time which is around 7 working days. As a result of these business constraints, making revenue data projections and staff performance calculation processes are hampered because the work is done serially so that they have to wait until the whole process is completed first.

For business processes that have a direct relationship with customers, companies need to consider the existence of a CRM system that can automate and streamline business processes [4], [5]. This can be done by making a specific system customization design so that it can support data management in business processes and can minimize the obstacles faced by the company. Customization in a CRM system will provide the opportunity for automation of repetitive tasks, and this can increase multi-productivity for the organizations that implement this system.

Implementation of a CRM system in the sales process is also very important so that management gets regular, measurable, and predictable performance [4], [5]. This study seeks to overcome problems in a heavy equipment company in managing transaction data and is an illustration for other companies in considering the use of CRM systems in their business.

II. RELATED WORK

A. Customer Relation Management

The CRM system will collect customer data from various channels or sources, and the data can be in the form of a company website, customer contact numbers, direct chat with customers, direct mail, social media, and other parading materials. CRM systems will also be able to provide detailed information to system users who are meet with customers



regarding the information contained in customers, purchase history, preferences, or even concerns that are being faced by customers [6]. Customer Relationship Management (CRM) is a combination of practices, strategies, and technologies utilized by an organization to manage and analyze customer interactions and data throughout the entire customer life cycle. CRM has a goal to improve customer service relationships and help maintain customers and drive sales growth. Microsoft Dynamics CRM is one platform that can meet business needs regarding CRM systems, where this platform can be a data integration solution to improve the way they interact and do business with customers in an organization [3].

CRM systems can help manage and maintain customer relationships, track sales leads, marketing and pipelines and deliver actionable data [3]. This Microsoft Dynamics-based CRM solution can improve organizational profitability by streamlining administration in the sales, marketing, and service divisions. A strong CRM solution is a platform that has various important aspects of developing, improving, and maintaining customer relationships in an organization. Without the support of a CRM system, it allows miss growth opportunities and loss of revenue due to the lack of optimization of the operating process in utilizing customer relationships [3]. CRM is seen as a technology by some researchers as well as data storage by its users. A study considers CRM based on the technology used [7]. There is also research investigating the effect of CRM implementation on company performance, such as small and medium businesses, so that small and medium company can develop new performance models to improve CRM strategies. The model proposed in the study integrates several factors such as organizational and process technology. The results of this research are the support of top management, knowledge by organizational resources, costs, customer pressure, and competitive pressure will be a very important driver for the implementation of a CRM [8], [9].

B. Design Success Factor Customer Relationship Management (CRM)

The ineffectiveness of the application of customer relationship management in many organizations has led to the failure of implementing CRM that only focuses on technology, markets, and online systems. The CRM initiative is to increase sales, provide more efficient integration services so that it can support business growth. Some previous research explains that organizations must focus on operations management, such as providing value to customers through communication, delivery, products, and services that can be personalized. Many studies discuss the failure in implementing CRM from various perspectives [10]. The failure to implement CRM can be overcome by identifying and emphasizing key success factors in CRM implementation [11]. CRM must be understood as a strategy, based on Critical Success Factors (CFSs) and how

companies implement and determine CRM strategies resulting in 13 CFS factors out of 55 appropriate metrics, in which 3 main aspects of each strategy are human, business process, and technology [12].

Analytical Hierarchy Process (AHP) is used to calculate the weight between the criteria and priorities of the CRM system to be run. The results of this study are the success factors of the implementation of CRM systems in an organization, especially regarding the business of renting and selling heavy equipment; the highest priority is the commitment of senior management [13], this research requires assessment in accordance with business objectives and is expected to be a bridge between the organization and customers to maintain customer relationships to be sustainable [14]. The literature that the authors found adopting a more comprehensive CRM display by covering four dimensions in it, this study also shows a paradigm shift that has occurred during the last decade, where many companies have a goal for production efficiency that serves to reduce operational costs so as to produce the ability to sell products and services at lower prices [15].

C. Customer Relationship Management in Organization

Regarding the Customer Relationship Management (CRM) system in an organization, the research has explained that in the last decade, the CRM system was a product with strong market growth and attracted many organizations to create their own CRM system solutions. The research also outlines that customization in a CRM system will provide opportunities for repetitive task automation, and this can increase multi-productivity for organizations that implement it. The existence of a CRM system in an organization can help an evaluation of how the organization can achieve targets which of course can only be achieved by controlling the process and with the existence of an information infrastructure to provide support in decision making [1].

CRM is one way that organizations can use to understand customer behavior so that it can affect the customer according to his behavior. The existence of a CRM system in an organization can develop long-term relationships so that it can increase customer loyalty, make acquisitions, profitability, and be profitable for the organization [16]. CRM offers long-term changes and business benefits for organizations that implement them, and this can make organizations interact with customers very well in the long run so that there will be seen a lot of progress for the organization [17]. One of the reasons when an organization has not implemented a CRM system is there are obstacles in tracking customer purchases, so there is no good data management of existing data [18].

Because of the complexity of developing and implementing solutions to control, organizations can attract consultants who have the experience and skills needed to develop customer relationship management solutions. Consulting companies have an advantage in practical

experience in implementing solutions and access to the latest knowledge in business techniques and information technology [1].

Customization in a CRM system will provide an opportunity for organizations to automate tasks that are routine or repetitive. It is possible to increase multi-productivity for organizations that successfully implement them [4]. CRM can assist organizations in evaluating how organizations can achieve targets by controlling existing processes to be able to support the judgement process in the organization. As known the complexity in developing CRM systems, organizations can collaborate with experienced consulting companies so that organizational needs can be met in the development of systems that are made, and it is based because the consulting firm has advantages in practical experience in developing and implementing a solution that is needed and there is broad access to knowledge related to technical and human resources [4].

This study discusses organizational references in determining which CRM system to use. The study was conducted at the realsec organization located in Madrid, Spain. Evaluation is based on organizational mapping needs and CRM system characteristics, using a pragmatic approach, and using several research method designs such as qualitative interviews and questionnaires. The results of this study show a widespread in terms of performance from 19.44% to 86.42%, and the best performance obtained is from the Salesforce.com CRM solution with a 5.55% margin while in the second position is SugarCRM [19].

III. PROPOSED METHOD

In this section, we prepare a structured model for solving problems that exist in the business process of selling and renting heavy equipment. The framework for this research is the schematic mindset that the author does in solving research problems. Based on a case study on the business process of selling and renting heavy equipment at the company, identification was made of the problems that exist in the business process. Currently, there are some problems in carrying out business activities that are considered inefficient because a business consultant still relies upon electronic mail media and standard tools such as Microsoft Excel or other digital records in storing and reporting data for managing customer data.

In addition, there is a gap in the occurrence of miscommunication by business consultants related to customer data management to administrators in terms of managing customer data to be executed. Apart from that, in the closing period, currently still collecting data manually, the process takes at least 7 working days. Furthermore, there is a problem regarding revenue projection data that has not

been obtained in real-time because to get the data projection, it still to wait until the closing entries process has been completed; this process needs at least 2 working days to get the revenue data projection when closing entries has been done.

The last problem identified is related to the performance calculation of the business consultant, which is still done manually and requires at least 2 working days. We consider the process to be very ineffective and has a high enough opportunity to be manipulated. Therefore we need a solution to overcome the problems faced, namely by designing and implementing CRM system customization in accordance with business processes at the company. So that if the solution design is implemented, it is expected to be able to solve the problems that have been presented before by evaluating the results of the implementation of the solution. Figure 1 shows the steps method in this study:

Figure 1 shows that in the heavy equipment company in this study, we will identify problems with the business process of selling and renting heavy equipment. After we identified the problem, it was found that there were 4 main business problems at this company, namely: a. inefficient management of customer transaction data, b. the closing entries process is done manually, c. projection of company revenue data that is not obtained in real-time, thus hampering performance analysis performed by the division manager, d. the staff performance calculation process is still done manually.

Based on the problem identification results obtained, we propose to the company to design and implement a Microsoft dynamics-based CRM system that will be customized according to the company's business needs. After the implementation, we will conduct an evaluation by comparing the duration of the process in each of the business problems that have been mentioned. The measurement of the duration will be done before and after the implementation is carried out in each business process. It is hoped that the results of the evaluation will be able to solve the company's business problems.

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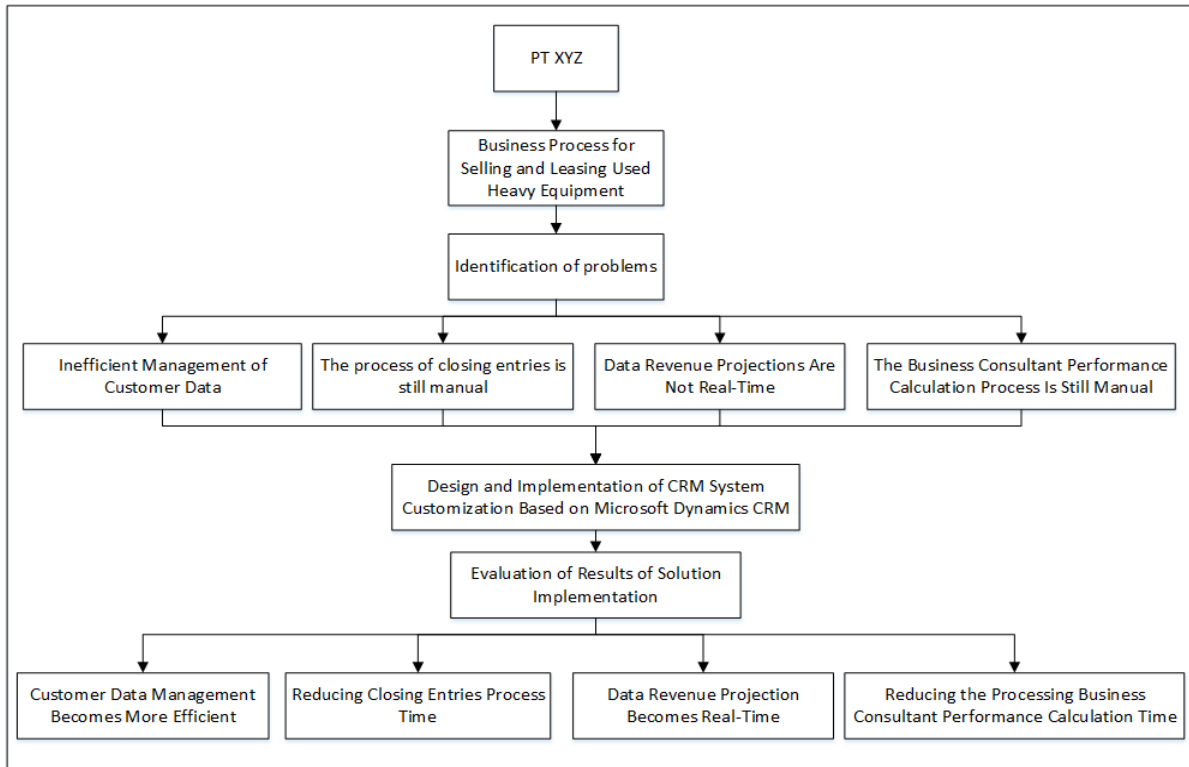


Fig. 1. Research Steps

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IV. ANALYSIS RESULTS

This section explains the design of each business process into a business process modeling. That design will be described the existing business processes and target business processes that will be implemented. In addition, in this section, we will also explain the use case diagram of the design that has been

made; after that, we will display the results of the implementation and measurements that have been made.

A. Business Process Design

In this section, we will describe the existing business processes currently running at the company and the design of the target business processes that will be proposed related to customer transaction management. Figure 2 shows the business process design of managing customer transactions. It shows the overview of existing business processes in the company in managing transaction data. Currently, the business consultant is still collecting customer data manually and will process the transaction data when the business consultant wants to make a contract with the customer. During the process of making the contract, the business consultant does not get an update from the administrator, and the results of making the contract will only be known when the administrator has finished the execution process.

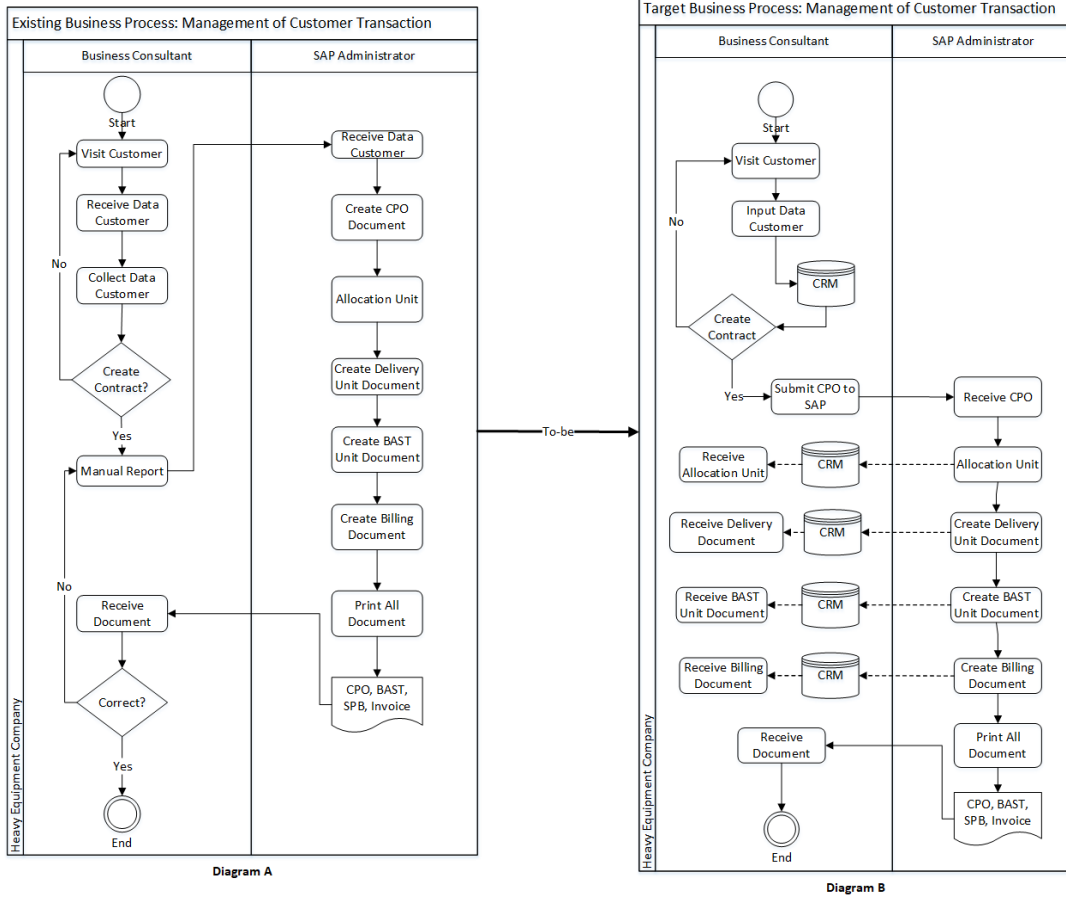


Fig. 2. Business Process Design of Management of Customer Transaction

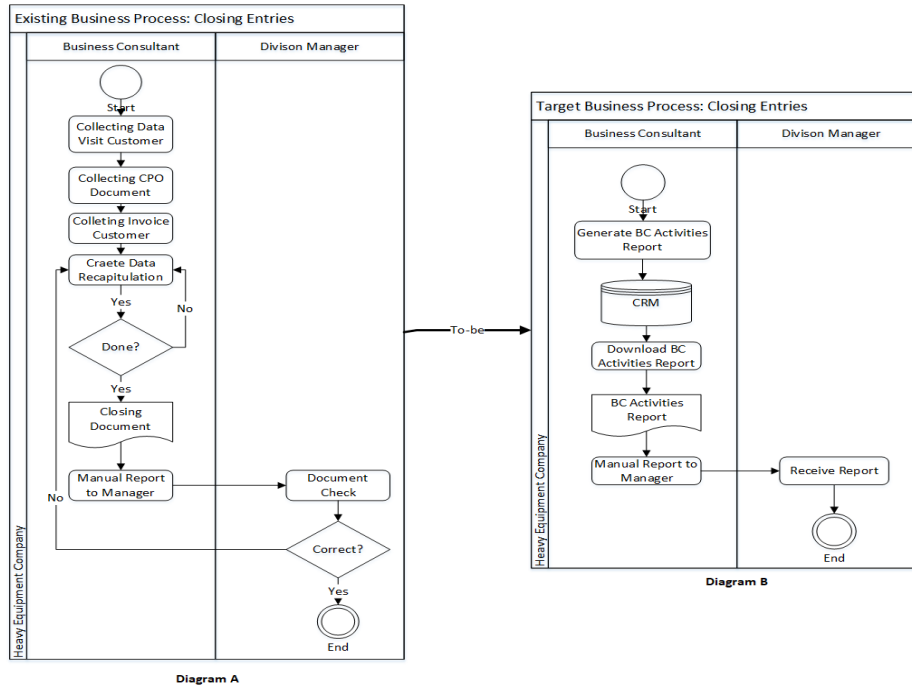


Fig. 3. Business Process Design of Closing Entries

Therefore, there is often a mismatch of data performed by administrators with the data expected by the business consultant, such as inappropriate quantities or incorrect input unit models.

Figure 3 diagram A shows the overview of existing business processes in the company in closing entries. The closing entries process is currently still done manually at the company, such as collecting customer visit data that has been done, collecting contract data and invoices to recapitulation data. Because the process is still manual, the workers routinely carry out the process of closing entries in the last 7 working days at the end of the current month. When the recapitulation data has been made, the supervisor also still needs to check the data provided so that this process is considered ineffective and inefficient. From the existing business processes will be proposed target business processes if using a customized CRM system. Figure 3 diagram B shows the overview of the target business process, which the process of closing entries by using a CRM system will be easier by utilizing the report feature the system; the report will use data in accordance with the transaction data available in the system so that business consultants only need to generate reports that are designed to display summary data activities that have been done.

Figure 4 diagram A shows the overview of existing business

existing business processes will be proposed target business processes if using a customized CRM system. Figure 4 diagram B shows the overview of the target business process, which the projection of revenue data using the CRM system will become easier by utilizing the report feature on the system, the report will use data in accordance with transaction data available in the system, so management needs to generate reports that are designed to display summary data billing plans vs. billing that are updated.

Figure 5 diagram A shows the overview of existing business processes in the company in closing entries. The current performance calculation process is also done manually, the document that becomes the target in the performance calculation is the data contained in the closing entries report, where the manager will check the recapitulation data related to customer visits that have been carried out by the business consultant, after the data obtained, the manager will do the calculation using Microsoft Excel standard tools. From the existing business processes will be proposed target business processes if using a customized CRM system. Figure 5 diagram B shows the overview of the target business process, which the calculation of business consultant performance using CRM system will be easier by utilizing report features on the

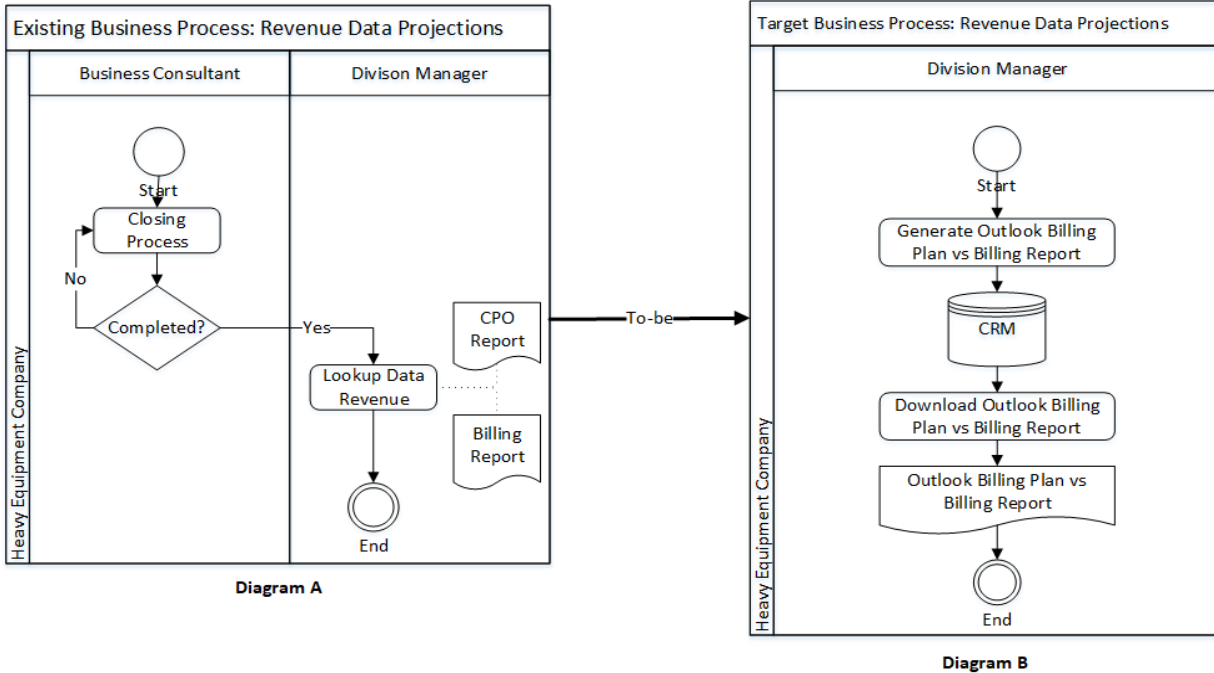


Fig. 4. Business Process Design of Revenue Data Projections

processes in the company is closing entries. Revenue data projections will only be known when the closing entries process has been completed, if completed, the new manager will get a company's revenue data projection by comparing the billing report data and contract data. The comparison process is still done manually by the manager. From the

system; the report will use data in accordance with transaction data in the system, so managers only need to generate reports that are designed to display summary calculations that have been calculated. Input by a business consultant on the CRM system.

A. Implementation Results

In this section, we will present the results of the CRM system customization design that has been created by the author, in which there are several transaction modules that will support the management of transaction data slowly, which will help the business consultant in carrying out his

Figure 6 shows the transaction module that consists of surveys, prospects, quotations, contract purchase orders, work orders, customer visits, and the voice of customers that can be used by business consultants.

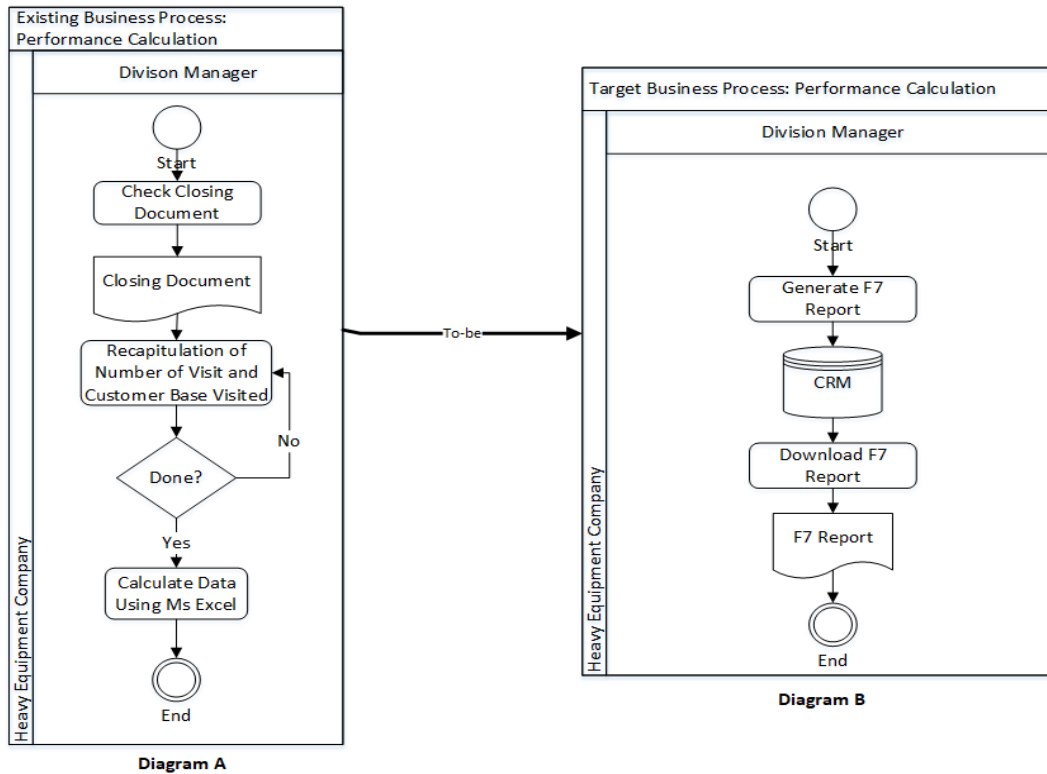


Fig. 5. Business Process Design of Revenue Data Projections

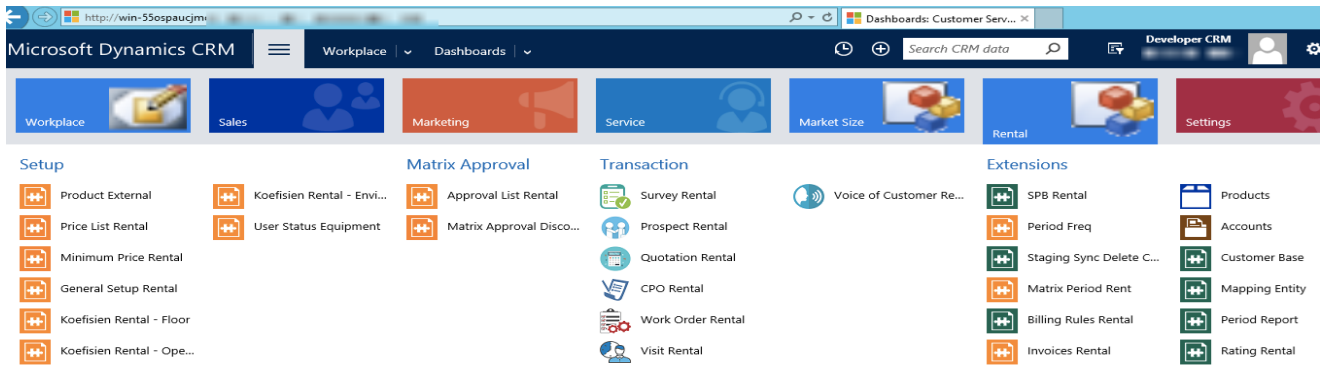


Fig. 6. Transaction Module

business activities. Transaction data that is registered by a business consultant will be a source of data that supports several business activities, such as when a business consultant wants to close entries, when the manager wants to see the company's revenue projections, and when the manager wants to pull the business consultant's performance calculation data in the form of reporting.

It shows the transaction module that can support business consultants save all transaction data from business activities carried out, such as when business consultants conduct surveys or visit customers, make offers to customers, make bidding offers to customers, execute data if the transaction is a contract. All transaction data that has been entered into the

system will be stored and can be accessed, processed, and executed again if this is required by a business consultant. In addition, business consultants can also store data related to customer complaints about company services.

Figure 7 shows the BC activities report for the purposes of closing entries by business consultants. It shows the result of a generate that will collect all transaction data in the visit, prospect, and quotation modules that have been entered into the CRM system so that the system automatically calculates the accumulation of all these transactions for use as data closing entries by the business consultant at the end of every month.

manager in the process can pull the required data such as revenue projection data and business consultant performance calculation data. Table 2-4 shows the result of measuring the duration of each business process before and after implementing the CRM system. Table 2 shows the result of measuring the duration of each activity carried out by the actor before implementing the CRM system. The results of these measurements indicate the ineffectiveness and inefficiency of the business processes that are currently running, which can be seen at the time required in each business process that ranges between 2-56 hours.

BC Activities Report																					
Periode : 01 Nop 2019 to 30 Nop 2019																					
Jumlah Hari Kerja : 22 Hari																					
Achievement										Performance Indicator											
Business Unit	Dept	BC	Grade	Visit	Days of Visit	Customer Visited	Prospect	Quota	Deal	Sales (idr)	Sales (qty)	Lost (qty)	Visit Per Day	Visit Per Day Effective	Visit Freq	Inquiry Rate	RFQ Ratio	Win Ra			
Long Term 01	Rental	[Blurred]	Account Executive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
			BC Trainee	48	17	39	0	0	0	0	0	2,18	2,82	1,23	0%	0%	0%	0%	0%		
			BC Junior	50	17	15	0	0	0	0	0	0	0	0	2,27	2,94	3,33	0%	0%	0%	
			BC Trainee	48	14	25	0	0	0	0	0	0	0	0	2,18	3,43	1,92	0%	0%	0%	
			BC Executive	50	4	12	0	0	0	0	0	0	0	0	2,27	12,5	4,17	0%	0%	0%	
			Account Executive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%
			BC Trainee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%
			BC Trainee	46	4	24	0	0	0	0	0	0	0	0	0	2,09	11,5	1,92	0%	0%	0%
			BC Junior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%
			BC Trainee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%
			BC Trainee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%
			BC Junior	47	15	23	0	0	0	0	0	0	0	0	0	2,14	3,13	2,04	0%	0%	0%
			BC Senior	48	1	25	0	0	0	0	0	0	0	0	0	2,18	48	1,92	0%	0%	0%
Total		13		337	72	163	0	0	0	0	0	0	1,18	4,68	2,07	0%	0%	0%			
Short Term 01	Rental	[Blurred]	BC Senior	80	21	41	0	0	0	0	0	0	0	3,64	3,81	1,95	0%	0%	0%		
			BC Senior	81	20	42	0	0	0	0	0	0	0	0	3,68	4,05	1,93	0%	0%	0%	
			BC Trainee	54	12	31	0	0	0	0	0	0	0	0	2,45	4,5	1,74	0%	0%	0%	
			BC Junior	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	
Total		4		215	53	114	0	0	0	0	0	0	2,44	4,06	1,89	0%	0%	0%			
Traknus	MFG	Admin CRM	Developer CRM	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%		
			Account Executive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	
Total		2		0	0	0	0	0	0	0	0	0	0,00	0,00	0,00	0%	0%	0%			
Total				552	125	277	0	0	0	0	0	0	25,08	96,68	22,15	0	0	0			

Fig. 7. BC Activities Report

B. Measurement Results

Measurement will be carried out by observing in the field when all actors carry out all activities contained in the company by recording the time from the start of processing a transaction until the transaction is completed. Based on measurements that researchers have done, produced measurements before implementation and after implementation. Measurement data before the implementation of the CRM system is converted into units of hours, assuming one working day has 8 working hours in it.

After implementing a CRM system in this company, the authors test the system that has been developed. Table 1 shows the test results on the CRM system. Based on the table above, it was found that all processes that have been designed on the CRM system have passed the test and can be used properly by all actors involved in it. A business consultant can manage customer data well; in addition to that business, the consultant can also pull data on activities that have been carried out in the form of reporting. Then the

TABLE 1. UNIT TESTING RESULTS

Actor	Business Event	Results
Business Consultant	Manage Customer Data	Pass
	Get BC Activities Report	Pass
Manager	Get Billing Plan vs. Billing Report	Pass
	Get F7 Report	Pass

TABLE 2. MEASUREMENTS BEFORE IMPLEMENTATION

Actor	Activity	Duration
Business Consultant	Management of Customer Transaction	2 hours
	Closing Entries	56 hours
Manager	Revenue Data Projections	16 hours
	Business Consultant Performance Calculation	16 hours

TABLE3. MEASUREMENTS AFTER IMPLEMENTATION

Actor	Activity	Duration
Business Consultant	Management of Customer Transaction	52 minutes
	Closing Entries	1 minute
Manager	Revenue Data Projections	1 minute
	Business Consultant Performance Calculation	1,5 minutes

TABLE4. RESEARCH RESULTS

Actor	Business Event	Duration Before Implementation (Hours)	Duration After Implementation (Hours)
Business Consultant	Management of Customer Transaction	2	0,86
	Closing Entries	56	0,016
Manager	Revenue Data Projections	16	0,016

	Business Consultant Performance Calculation	16	0,025
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The time is certainly very long and makes the productivity of the company does not increase because the time will be taken up enough to complete the entire process.

Table 3 shows the result of measuring the duration of each activity carried out by the actor after implementing the CRM system. Based on the measurement results obtained, shows the processing time required in each business process is very significantly reduced. This is certainly very beneficial for the company because the remaining time spent so far can be allocated to a variety of activities that are more productive, such as conducting many customer visits so that the quantity of offers distributed to customers is more so that it has the potential to increase profits to be gained by the company.

Based on measurements before and after the implementation of the CRM system, the authors do a recapitulation to make comparisons of the measurement results before and after the implementation of the CRM system and their implications for each measurement result.

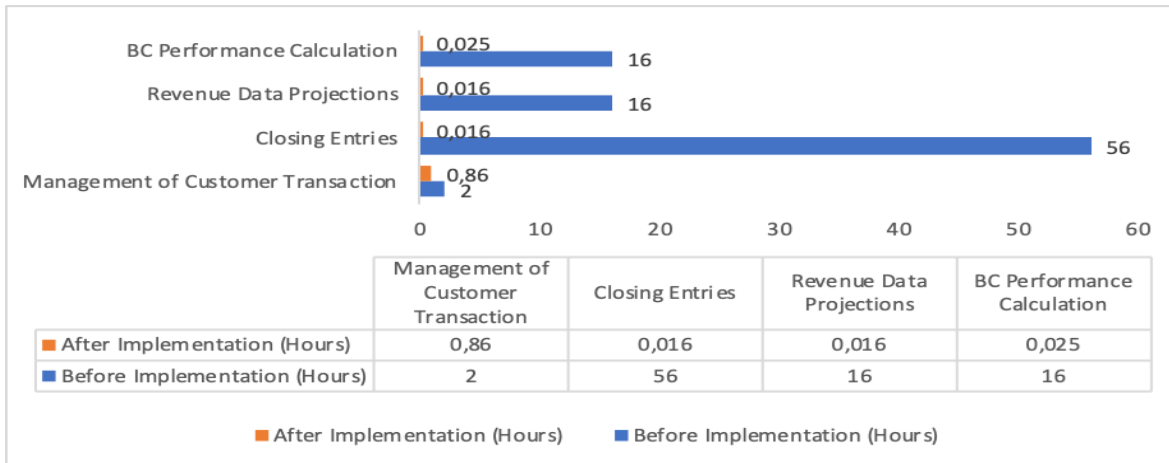


Fig. 8. Comparison Chart Of Research Measurement Results

Table 4 shows the recapitulation of the measurements we have done. To get an appropriate comparison, we convert the measurement results obtained after implementing the CRM system into hours. Based on the results of the study in Table 4, we convert the data into a comparison chart to make it easier to analyze the results of the implementation of the CRM system, and Figure 8 shows the visualization of the comparison of results before the implementation of the CRM system customization and after the implementation of CRM system customization. It shows the results of comparisons, and it appears that the use of a CRM system that has been

customized according to the company's business needs can reduce processing time for each of its business activities. This is because it can occur because, in its use, all transaction data has been stored in the system, so this makes it easier for users if they want to get the results of processing every transaction data that has been stored.

V. CONCLUSIONS

These results indicate that customizing the CRM system using Microsoft Dynamics CRM can solve business problems faced by this company. Some business activities

that require a very long time, such as closing entries, can be reduced significantly, and the remaining time can be utilized by the company to carry out activities that allow it to increase company productivity. Overall, all existing business activities become more effective and efficient with the support of a CRM system that has been customized according to the company's business needs. This is in line with some related literature which states that CRM can optimize operations in the organizations that implement it, and Customization of the CRM system will also provide opportunities for organizations to automate various routine tasks so as to increase the productivity of organizations that have successfully implemented it.

This research focuses on the business problems faced by the company, which is the object of research, which is a heavy equipment company. It is therefore recommended that further research also focus on other industry fields, in order to deepen knowledge about the application and use of a CRM system for other industry fields, for example, in the fields of Education, health, or government. The most important part of this research is to propose, design, and implement a CRM system that is customized according to company needs and make comparisons with duration measurement variables needed to carry out activities that exist in the company.

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