2017 International Conference on Soft Computing, Intelligent System and Information Technology

Web Based Customer Relationship Management Application for Helping Sales Analysis on Bike Manufacturer

Anita Nathania Purbowo, Yulia, Agustinus Ivan Suryadi
Department of Informatics
Petra Christian University
Surabaya, Indonesia
anitaforpetra@gmail.com, yulia@petra.ac.id, agustinusivanoption@yahoo.co.id

***Abstract*--Using the manual method makes the salespersons' productivity inefficient and late in delivering their report, besides that they cannot manage their loyal customers. This problem is in contradiction with Customer Relationship Management (CRM) concept. With that analysis, a company needs to have CRM to manage its customer relationship and get the right information of its customers so it can manage its loyal customers and help its customers to get the best sales. This application helps the company to monitor its customers in real time and help its customers to analyze the best-selling product on its shop. This application used Pareto's Law, made with Laravel Framework, and incorporated Google Maps and Google API Calendar. The results show that this application can run smoothly and have good user interface. This application can help customers in shopping and help the company manage its customers.**

Keywords—Customer relationship management; CRM; sales force automation; Pareto's law; ABC classification.

I. INTRODUCTION

Customer Relationship Management (CRM) is employed to develop and maintain relationship between producer and customer. In the business, customer satisfaction should be the focus of the company to increase sales. This paper's subject is a company that has opened for business for more than 20 years as a bike manufacturer and produced more than 100 kinds of goods for domestic and international markets. This company has 100 sales agents who are connected to the customers. The sales agents have visit schedules to their customers and help their customers by giving suggestion on goods type to sell on their shops. The suggestion is an added value for this company to expand their customers.

Unfortunately, this company still uses manual method to keep their customer data. This method obstructs the sales agents' productivity because they cannot find the data easily and sometimes they lose the data. This problem makes it difficult for the sales agents to build close relationship with their customers. Besides that, this company gets difficult to expand their market and give suggestion to the customers. Based on our analysis, this company needs a web-based CRM application for maintaining customers, monitoring sales agents, and making sales analysis to give the best suggestion to every customer.

Therefore, to ensure that the customer relationship can be developed and sustained, at least two things need to be taken into consideration [1]:

1. Accomplishing the company's marketing objectives by focusing on achieving a competitive position on the reference market.
2. Attracting and keeping profitable customers for the organization.

II. THEORY FOUNDATION

A. Customer Relationship Management (CRM)

Every company should develop their customer relationship, that's because Customer is a part of the company just as the company needs employee to growing the company. Customer is not an external element of the interaction [3]. It should be internal and important part of the company. This can be done if the company has unique, strong corporate identity based on corporate culture and company's values [3].

The concept of CRM (Customer Relationship Management) and knowledge management have gained wide attention in both business and academia [4]. CRM can be defined as a strategic approach to managing customer relationships in order to create customer and shareholder value through the appropriate use of IT, data and customer knowledge [5]. Customer knowledge is a critical asset, and gathering, managing, and sharing customer knowledge is a valuable competitive activity for organizations [6]. These indicated that relationship is the important part of the company.

Components of CRM [7]:

1. Customer
2. Relationship
3. Management

Reasons for adopting CRM [7]:

1. Competition to get customer is very intense. Economic point of view said, retaining customer is

978-0-7695-6163-9/17 $31.00 © 2017 IEEE
DOI 10.1109/ICSIIT.2017.58

easier than looking for a new one. Under the Pareto principle, it is assumed that 20% of customer gain for 80% will company profit.

2. In selling, industry needs on average 8-10 times meeting to get a new customer, and 2-3 times meeting to retain existing customers.
3. It is proved 5-10 times more expensive to get new customers than to retain existing customers.
4. Increase 5% in retaining existing customers will changes to 25% or more to increase profitability.

The purpose of CRM is to develop close relationship between company and customer. CRM help company to increase customer satisfaction and get more benefits for the company.

B. CRM Phase

CRM consists of this following phases [7] :

1. Get new Customer (Acquire)
   CRM should be able to promote the company's product for a good first impression of the customer. CRM must provide convenience to customer to make an order they need, for example quickly response for their order. The goals of this phase is company can offer a good product with satisfactory service.
2. Increase the customer value (Enhance)
   Company must build customer relationship with listen their complaints and improve company services. Customer relationship can be improved with cross selling and up selling strategy.
3. Maintain existing customer (Retain)
   Company can maintain existing customer with provide time to listen what customer needs, including customer dissatisfaction with company's product or service and company can provide support for the customer with services and helping application.

C. Electronic Customer Relationship Management (e-CRM)

Internet and web services as an information hub facilitate information and data transferring and sharing [8]. Currently, the Internet makes a huge effect to the society and creates a new revolution in the 21st century where everything and everyone are getting online [9].

With the current condition where everything already combine with the technology, CRM has been directed to e-CRM. E-CRM is a collection of concepts, tools, and processes that enable an organization to most out of their e-business investment. It helps companies to improve the effectiveness of their interaction with customers while at the same time making the interaction intimate through individualization [10]. E-CRM is applied electronically using web browsers, internet and other electronic media (such as email, call center, and others).

This CRM application facilitates the coordination of several business functions and also coordinates various communication channels with customers.

D. Sales Force Automation (SFA)

SFA contains several aspects of the sales function, consisting of sales activities, opportunities and flow of management and prediction capabilities. SFAs are often combined with marketing tools to help facilitate sales opportunities. The SFA function can also help predict sales flows.

SFA can also be based on employees and territories. They can compare time by time so sales manager can see and analyze their productivity and sales.

The advantage of using SFA [11]:

1. Personalized Software: Company can use SFA tailored with existing business system.
2. Complete Sales Solutions for Executives and Employees: SFA can assist executives to define and set individual sales goals, stock sales, advertising information, analyze results and reports, and forecast for the future.
3. Sales agent can get convenience to get seated, monitor their customers, and set reminders for schedule and appointments.
4. Swift Launch and Incorporation: Most SFA software can be easily combined with sales program and can be configured for specific need.
5. Provide Control: With using SFA, managers can find out how their sales team is doing at any given time and also take care of any problems that may arise.
6. Data Protection: All SFA System have included security equipment that helps to keep all data, statistic and solutions. Advance technology in security enables complete protections of client and corporate data. Along with this, SFA systems has data encryption and user authentication facilities that help to back up stored data and also prevent unauthorized use of the sales solution.

E. Leads and Opportunity Sales

Lead Sales is the contact information of a person or business that is allowed to buy the company goods. Leads can be referred to "unqualified" sales opportunities. The sales process should be seen as a step to complete closing terms and agreements. Every business has different qualifications to indicate a person's buying desire.

Opportunity Sales is a "qualified" lead sales. It creates an opportunity is an object to increase the result of sale and have certain criteria that indicate a high values for the business. Every business has different criteria to determine how qualified lead and each business will consider qualified prospect at different stages.

F. ABC Classification Method (Pareto Law)

The ABC Classification Method is based on the discovery of Vilfredo Pareto who discovered a law which known as Pareto Law. The ABC classification method helps to know which items of product have the greatest contribution to sales figures. This method states that from the number of product that have been sold in a certain period, 20% are items that contribute about 80% to sales figures or "A" categorized. This composition (20% - 80%) is also known as Pareto Law, meanwhile 40% of the next item is items that contribute about 15% to sales figures or "B" categorized, and the remaining 40% of the items, are items that contribute about 5% to sales figures or "C" categorized.

III. Analysis and Design System

In this chapter describes the design of systems that are using for developing the Customer Relationship Management Application in this research. Basically there are three main features in this Application:

1. Acquire

   To acquire new customer, company need to promote their product with news and event. This application helps company to blast the news and promotion to sales agents in real time, and provide lead and opportunity feature for sales agents to help them to get new customer.
2. Enhance

   Customer relationship can be improved by providing suggestion on what type of goods appropriate to the customer, providing easy purchase system which can track their order, and providing the newest news or promotion from company.
3. Retain

   Customers need to communicate their problem with the company and get the fastest solution. This application has features to collect problems from customers with open cases feature, and some features for sales agents to maintain their existing customer. Sales agents need to maintain schedule visit and do sales analysis to help them give suggestion for their customer.

Company need to analyze their customer to get prospecting customer. For supporting the analysis, there are several stages for determining sales lead and sales opportunity on this company. The stages are shown in Fig 1.

Users for this Application are Customers, Sales Representative, Administrator and Sales Manager. Context Diagram for this application is in Fig 2.

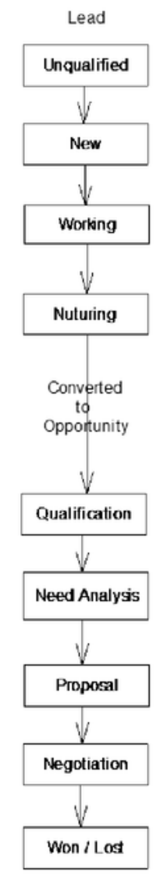

Figure 1. Leads and Opportunity Sales Stages

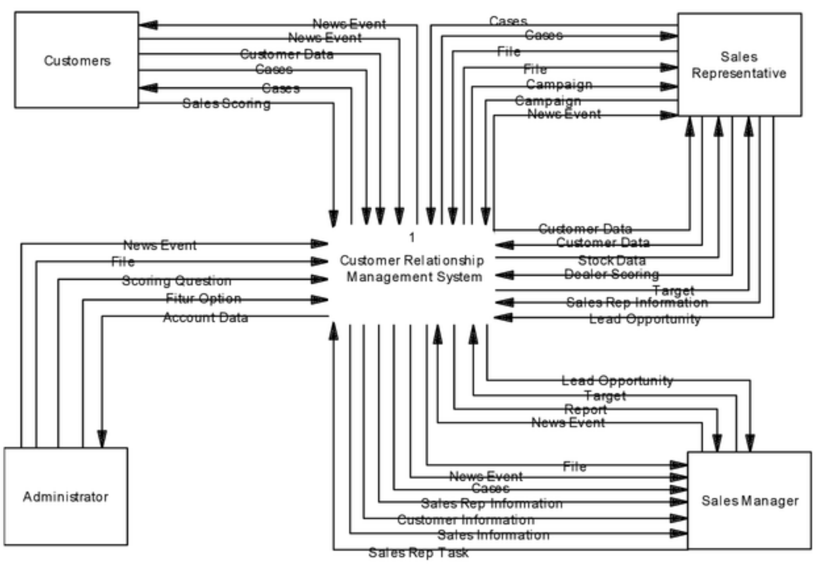

Figure 2. Context Diagram

This application comprises 5 sub-systems:

1. Data setting
   This sub-system manages the spread of news and files to sales representatives, sales managers, and customers.
2. Dealer information settings
   This sub-system collects data for new customer. After collected the customer data, the customer can be sales lead.
3. Leads and opportunity determination
   In this sub-system there are several stages to determine customer position.
4. Sales tasking
   In reaching on their targets, sales representative must do some tasks to manage and this sub-system help sales representative to know and doing their task.
5. Dealer visit
   This sub-system collects date and time dealer visited by sales-representative.

IV. Experiments

In this section, we present an experimental result of Customer Relationship Management application.

A. *Administrator*

There are 3 sections for administration: User Administrators, System Administrators, and Front desk. Administrators manage all permission for user and organizing the list of questions for sales agent to analyze their customer. The questions are different for each criteria customer. To avoid data errors, need front desk user to check data from closed opportunity and news from customer. Administrator page and menus are shown in Fig. 3.

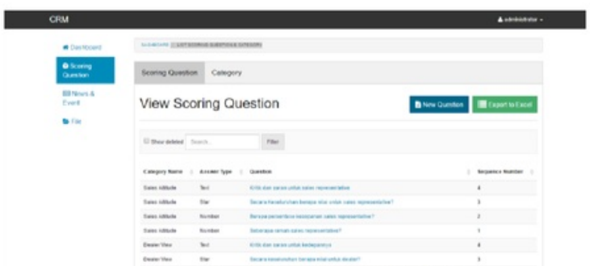

Figure 3. Administrator Page

B. *Sales Agent*

Sales agents are divided into 2, sales manager and sales representative. Sales manager and sales representative have same function on this application but sales manager can see all sales representatives on their line. Every sales representative can get customer on specific stages. Sales agent page is presented in Fig. 4.

C. *Customer*

Customers use this Application to get information about the company and their sales representative. Besides of that, customer can open cases for their problem on customer page. Customer page is presented in Fig. 5.

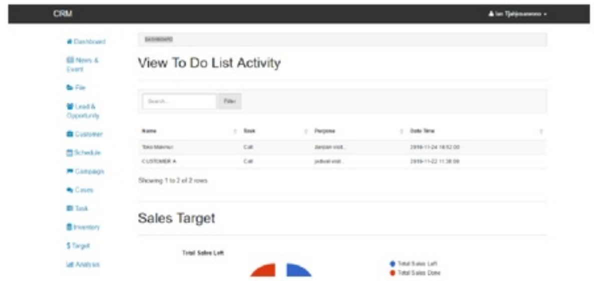

Figure 4. Sales Agent Page

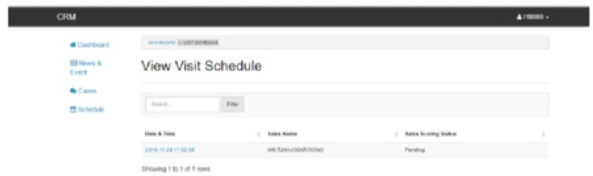

Figure 5. Customer Page

D. *Lead and Opportunity*

Sales representative can make new prospective contact and it can be customer leads or opportunities. To save new contact, sales representatives need to get detailed information about their new prospects. New prospects can be an opportunity by following the stages. Every stage change saved for the customer history. Contact Form in Fig. 6.

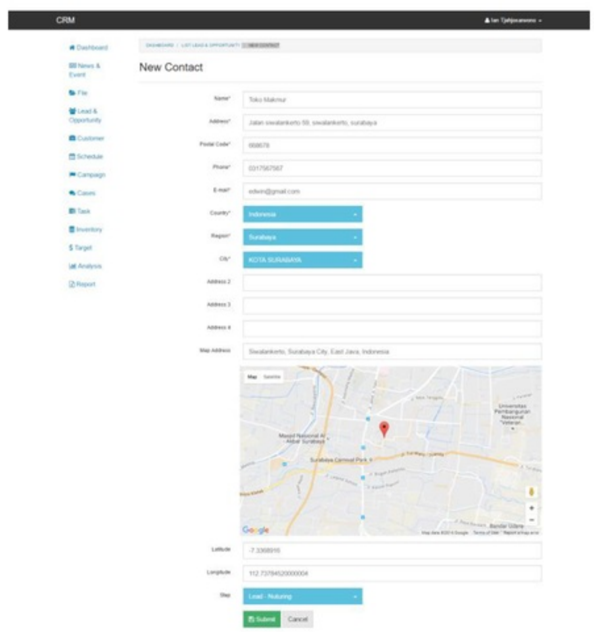

Figure 6. New Customer Form

Every sales representative can have contact and know the step for every customer. Lead Form can be seen in Fig. 7 and Step Change Form in Fig. 8.

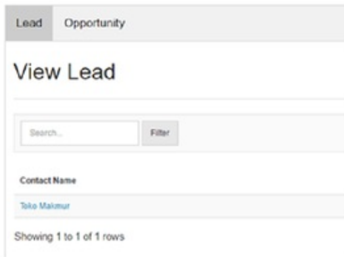

Figure 7. New Customer Form

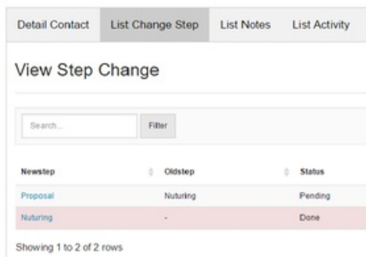

Figure 8. Step Change Form

E. *Visiting Schedule*

Sales agent can schedule their visits for their customer. Each schedule will get customer score and sales representative form. Customer needs to score sales representative on their visit and sales representative needs to provide score for customer to get the next stage. Before giving a score by answering some question, sales agent can see score by their customers. List schedule is in Fig. 9, Detail Schedule in Fig. 10 and scoring form in Fig. 11.

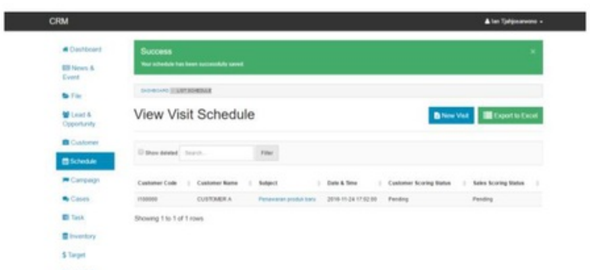

Figure 9. List Schedule

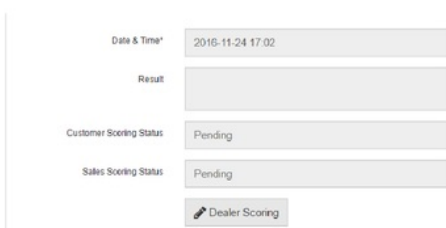

Figure 10. Detail Schedule

Figure 11. Scoring Form

F. *Customer Scoring*

Sales representative needs to provide value for their customer on each visit. This score will help sales manager to see and analyze the customer. Scoring will be able on every schedule by sales representative. Sales manager can view all customers' values for their sales representative. Score Result in Fig. 12.

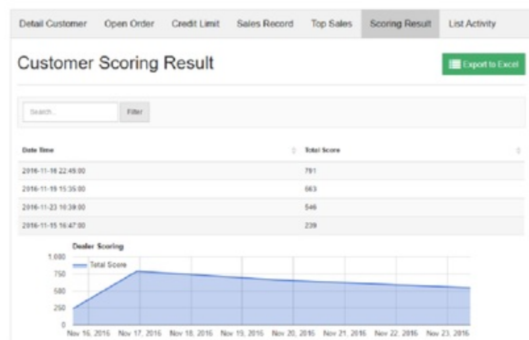

Figure 12. Customer's Score Result

G. *Customer Cases*

Figure 13. Open Case Form

Customer and sales representative can open cases to get solution for their problem. The different on customer and sales representative added the case form is sales representative can choose with whom they share the problem and the customer cannot choose, the customer's issues will be automatically share to their sales representative and sales manager. This application automatically share the case via email when case status changes. Open case form is in Fig 13.

V. Conclusion

Conclusion for the implementation of web based Customer Relationship Management application:

1. This application is able to support the performance of sales representatives to conduct business processes, because the sales representative can maintain relationships with their customers by arranging schedule of visits and conduct regular assessments and can be monitored directly by the sales manager. Sales manager can give assignment to their sales representative with an easier way.
2. Sales representative can store their data safely and regularly so they can get the latest information and accurate report about the customer and company.
3. Based on questionnaire that has been distributed, it can be concluded that the system can help the sales agent for daily process, it is supported by the user's opinion both in the ease of application use, design and suitability needs.

For the next step need to add live chat to help sales representative communicate with their sales manager or their customer.

References

[1] M. Kalamárová, J. Parobek, E. Loučanová, and P. Trebuňa, "Competitiveness Evaluation of the Slovak Forest Industry," Proc. 7th Int. Scientific Conf. of Int. Assoc. for Economics and Management in Wood Processing and Furniture Manufacturing (WoodEMA), Zvolen (Slovakia), May 2014, pp. 58–62.

[2] A.F. Cruceru and D. Moise, "Customer Relationships through Sales Forces and Marketing Events", Proc. 2nd World Conf. on Business, Economics and Management (WCBEM2013), Procedia - Social and Behavioral Sciences, vol. 109, pp. 155–159, Jan. 2014, doi: 10.1016/j.sbspro.2013.12.436.

[3] M. Triznova, H. Mat'ova, J. Dvoracek, and S. Sadek, "Customer Relationship Management Based on Employees and Corporate Culture", Proc. 4th World Conf. on Business, Economics and Management (WCBEM2015), Procedia Economics and Finances, vol. 26, pp. 953–959, 2015, doi: 10.1016/S2212-5671(15)00914-4.

[4] H. Gebert, M. Geib, L. Kolbe, and W. Brenner, "Knowledge-enabled Customer Relationship Management: Integrating Customer Relationship Management and Knowledge Management Concepts," J. Knowledge Management, vol. 7, no. 5, pp. 107–123, 2003, doi: 10.1108/13673270310505421.

[5] A. Payne and P. Frow, "A Strategic Framework for Customer Relationship Management", J. Marketing, vol. 69, no. 4, pp. 167–176, Oct. 2005.

[6] F. Khodakarami and Y.E. Chan, "Exploring the Role of Customer Relationship Management (CRM) Systems in Customer Knowledge Creation", Information & Management, vol. 51, no. 1, pp. 27–42, Jan. 2014, doi: 10.1016/j.im.2013.09.001.

[7] R.S. Hassan, A. Nawaz, M.N. Lashari, and F. Zafar, "Effect of Customer Relationship Management on Customer Satisfaction," Proc. 2nd Global Conf. on Business, Economics, Management and Tourism, Procedia Economics and Finance, vol 23, pp. 563–567, 2015, doi: 10.1016/S2212-5671(15)00513-4.

[8] A. Souri and N.J. Navimipour, "Behavioral Modeling and Formal Verification of a Resource Discovery Approach in Grid Computing," Expert Systems with Applications, vol. 41, no. 8, pp. 3831–3849, Jun. 2014, doi: 10.1016/j.eswa.2013.11.042.

[9] N.J. Navimipour and B. Zareie, "A Model for Assessing the Impact of e-Learning Systems on Employees' Satisfaction," Computers in Human Behavior, vol. 53, pp. 475–485, Dec. 2015, doi: 10.1016/j.chb.2015.07.026.

[10] I. Mahdavi, N. Cho, B. Shirazi, and N. Sahebjamnia, "Designing Evolving User Profile in e-CRM with Dynamic Clustering of Web Documents," Data & Knowledge Engineering, vol. 65, no. 2, pp. 355–372, May 2008, doi: 10.1016/j.datak.2007.12.003.

[11] B.M. Krishna, Customer Relationship Management, Coursebook of Lovely Professional University, New Delhi (India): Excel Books Private Limited, 2013. [Online] Available: http://ebooks.lpude.in/management/bba/term_6/DMGT308_CUSTOMER_RELATIONSHIP_MANAGEMENT.pdf.

Paper_11.pdf

ORIGINALITY REPORT

11%	7%	9%	9%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Soltani, Zeynab, and Nima Jafari Navimipour. "Customer relationship management mechanisms: A systematic review of the state of the art literature and recommendations for future research", Computers in Human Behavior, 2016. Publication	2%
2	Aurora Garrido-Moreno, Nigel Lockett, Victor Garcia-Morales. "Exploring the role of knowledge management practices in fostering customer relationship management as a catalyst of marketing innovation", Baltic Journal of Management, 2015 Publication	2%
3	Triznova, Miroslava, Hana Maťova, Jan Dvoracek, and Sarah Sadek. "Customer Relationship Management Based on Employees and Corporate Culture", Procedia Economics and Finance, 2015. Publication	1%
4	Submitted to Mancosa Student Paper	1%

5	"Table of contents", 2017 International Conference on Soft Computing, Intelligent System and Information Technology (ICSIIT), 2017 Publication	1%
6	Anca Francisca Cruceru, Daniel Moise. "Customer Relationships through Sales Forces and Marketing Events", Procedia - Social and Behavioral Sciences, 2014 Publication	1%
7	Submitted to International College of Law Business Administration & Technology Student Paper	1%
8	Faris Nur Adlin, Ridi Ferdiana, Silmi Fauziati. "Current Trend and Literature on Electronic CRM Adoption Review", Journal of Physics: Conference Series, 2019 Publication	1%
9	tarjomefa.com Internet Source	<1%
10	www.semanticscholar.org Internet Source	<1%
11	enrollment.representative.jobs.com Internet Source	<1%
12	Submitted to Victoria University Student Paper	<1%

13	M. Rollins, A. Halinen. "Customer Knowledge Management Competence: Towards a Theoretical Framework", Proceedings of the 38th Annual Hawaii International Conference on System Sciences, 2005 Publication	<1%
14	Submitted to Massey University Student Paper	<1%

Exclude quotes	On	Exclude matches	< 5 words
Exclude bibliography	On		