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978-1-7281-5423-7/19/\$31.00 ©2019 IEEE Customer Relationship Management by Using Objective Matrix Method to Survey Customer Satisfaction Humuntal Rumapea, Mikha Prakqusa, Yolanda Yulianti Pratiwi Rumapea, Fati Gratianus Nafiri Larosa, Margaretha Yohanna Universitas Methodist Indonesia, Medan, Indonesia hrumapea1608@gmail.com, mikhaelbarus@gmail.com, rumapeayolanda@gmail.com, fatignlarosa@gmail.com, yohanna.na2@gmail.com

Abÿstrayct— Manual recording of transactions extended the calculation process in a transaction, and also requires a long time in the data management.

The manual entry of transactions can also affect relationships with customers, where customers at the center of a transaction are. Customer Relationship Management (CRM) is constructed in the form of promotions in the form of Short Messages Service (SMS), are provided with the customer information for rate maturity, information on new saving products, information on the remaining operating results (SHU) and information on sales results.

To evaluate the performance of the created CRM, the Objective Matrix method determines how much customer satisfaction is. The Objective Matrix method measures the value of customer satisfaction in the form of a score for each criterion. Each criterion consists of questions that are different from one another, and each question has its score that can be filled out by the customer.

With the Objective, Matrix method can be seen that the customer satisfaction is 80%. Keywords—CRM, Objective Matrix, Customer Satisfaction.

I. I NTRODUCTION Rapid technological developments are affecting all areas of life, not only to increase productivity but also to increase sales and purchase transactions. But not all business

units can quickly track the evolution of technology.

There are many other business units that make record purchasing transactions manually and less able to maintain loyalty with customers, so that, customers can easily switch to another. Customer Relationship Management (CRM) is a business strategy that is centered on the customer so that the customer does not easily turn to other locations and with CRM customers can expect the company to be loyal. Customer satisfaction is a goal that must be achieved.

The objective matrix method can be used to increase the company's productivity and to divide the work according to their respective tasks. By using the Objective Matrix method the company's productivity by 20% and maintenance of the building by 16% can be increased [1]. Through the use of the Objective Matrix method, productivity can be increased so that the company's sales increased [2][3][4][5].

Objective Matrix methods are used to determine the level of productivity at PT ABC on the area of injection, so, it can be formulated in which improvements should be made. The analysis shows that the total production value in the engine injection area is 355. This value is generally pretty good, although there are some circumstances that are still low.

It must, therefore, be improved to achieve the desired productivity standards [6]. The Objective Matrix method is used not only to increase business productivity but can also be used to measure the company's performance. The results of calculations with the objective matrix method can be used as an evaluation material to improve the company's performance. [7][8][9].

The purpose of this study is to establish a CRM system and then measure the level of customer satisfaction using the Objective Matrix. How to measure the level of customer satisfaction through the distribution of questionnaires that can be filled by each customer. Each customer answers the questions in the questionnaire based on specific criteria, with different questions and evaluations for each criterion.

After all the questions have been answered by the customer, the data is processed using the Objective Matrix method to achieve the percentage of customer satisfaction. II. DATA AND METHOD This research was carried out at the Bandar Padang Cooperative. The Bandar Padang Cooperative is located in the village of Bandar Padang, Seberida District, Inhu Regency, Riau Province.

The Bandar Padang Cooperative operates in several business areas. The cooperative was

founded to improve the lives of people, especially people around the village of Bandar Padang, Seberida District, Inhu Regency, Riau Province. The hardware used in this study that Lenovo G40, Hard Drive 500 GB, 2 GB of memory and mouse.

The software used in this study windows 7 operating system, Google Chrome to display web-based systems and Eclipse Juno for developing software that was created so that it can run on all platforms. The study began by distributing questionnaires filled out by the customer Bandar Padang Cooperative. The issues raised in the questionnaire are taken from questionnaires that have been distributed by the Bandar Padang Cooperative.

The results of the questionnaire obtained are then processed manually using the Objective Matrix method to ensure that the results of the manual calculation match the results of the calculations from the system. After a manual calculation is complete, we carry out the design process. The design process is performed to design what kind of system will be built.

Afterward, CRM will be implemented, and the Objective Matrix method will be used to measure customer satisfaction. If the implementation is complete, can be analyzed, how satisfied the customer with the cooperative Bandar Padang. Further, the details of the steps taken are shown in Fig 1. Authorized licensed use limited to: University of Exeter.

Downloaded on July 17,2020 at 02:04:14 UTC from IEEE Xplore. Restrictions apply. 2019 International Conference of Computer Science and Information Technology (ICoSNIKOM) Fig 1. Research Stages III. RESULT AND DISCUSION Bandar Padang Cooperative is a rural economic forum composed of people or a legal person of the cooperative society, which aims to promote the welfare of the community in the village of Bandar Padang, Seberida District, Inhu Regency, Riau Province.

It is hoped that the community can achieve a greater benefit from this cooperation, especially when it is the need for daily life. Some companies managed by Bandar Padang Cooperative are: a. Implementation of a business Tender / Auction Palm Oil Production. b. Savings and Loans Business. c. PLN Counters Business. d. Farmer Procurement Business Needs. So far, the existing system in the Bandar Padang Cooperative is still manually.

Cooperative management must collect the data of farmers, savings and loan transactions, income, income and residual trade (SHU) of cooperatives in the general ledger and copy it to Microsoft Excel for storage. This causes the length of the calculation process for each transaction in the cooperative and requires a relatively long time for the management of data in the cooperative.

The customer relationships are an important focus of the competence **development of small and medium enterprises (SMEs)**. With good customer management, the cooperative is expected **to know more about the** customer's needs from a customer perspective. This facilitates cooperation in the strategy of service development, promote customer loyalty level of services provided.

In the end, it will improve the long-term growth and profitability of the cooperative. [10] The study aims were to analyze and build information systems that integrate data from both cooperative business units. In this study, the existing CRM **in the form of** an action that serves customers from the Bandar Padang Cooperative **information for rate maturity, information on new** deposits, information becomes the value of operating income (SHU) and **information on the results of the** oil palm income by Short Messages Service (SMS).

The CRM function, the Bandar Padang Cooperative able to effectively deliver customer information from their areas and to serve existing customers through the services offered. To determine **customer satisfaction in the** Bandar Padang Cooperative, **the Objective Matrix method** is used. CRM is able to achieve a technology related to data and a strategy that allows companies to big profits.

CRM is a customer-centered business strategy of products and services as using what the customer wants [11]. The use of CRM **is expected that customers** will the company is to be faithful and do not shift to another location. **The Objective Matrix method** is a partial productivity measurement system designed to monitor productivity in business or in any section of productivity criteria that are **consistent with the existence of** this section.

The objective matrix method is basically a combination of several criteria that are weighted according **to the degree of** importance of each criterion [12]. The structure of **the Objective Matrix method** is as follows: 1. The Productivity Criteria provide standards for effectiveness, quantity, and quality of results, efficiency and usefulness of the results, coherence of operations and specific measures or any other factors that relate indirectly to the measured level of productivity. 2.

Performance is the performance value that is obtained based on each criterion. 3. The score is a productivity measurement. 4. Weights indicate the degree of importance (in units of %), showing the relative influence of these criteria on the productivity of the measuring unit of work. 5. Value is the multiplication of each score with their weight. The structure of **the Objective Matrix method** for more details is shown in Fig 2.

[12] Authorized licensed use limited to: University of Exeter. Downloaded on July 17, 2020 at 02:04:14 UTC from IEEE Xplore. Restrictions apply. 2019 International Conference of Computer Science and Information Technology (ICoSNIKOM) Fig 2. Structure of the Objective Matrix Method In this study, the goal Objective Matrix method is divided into four criteria, namely: Joint Profit, Commitment, Member Loyalty and Services.

Each criterion consists of several questions that customers must answer with the provisions "Not At All (STS), Reject (TS), Agree (S), Vote Full (SS)." Criterion 1 "Joint Profit" consists of 6 questions. Questions are asked here to find out if customers want to work with the Bandar Padang Cooperative due to the good reputation of Cooperative Bandar Padang.

In addition to questions also asked how the performance, which belongs to the Bandar Padang Cooperative, whether the promises abide by the services, they offer. Criterion 2 "Commitment" consists of 4 questions. Where questions are asked to determine how the customer for the Bandar Padang Cooperative is committed. Do customers prefer to work with the Bandar Padang Cooperative? You will also be asked whether the customer continues to partner with the cooperative Bandar Padang and not switch to other similar cooperatives would. Criterion 3 "Member Loyalty" consists of 3 questions.

Where the questions asked to ask the extent of customer loyalty Bandar Padang Cooperative. In addition, the question arises whether the customer is willing to recommend the Bandar Padang Cooperative. The issues raised should also be made sure that customers do not switch to other service companies that offer similar services.

Criterion 4 "Services" consists of 5 questions. Questions to find out how satisfied the customer with the Bandar Padang Cooperative. The questions should also ensure that customers receive satisfactory services and that the services offered by the Bandar Padang Cooperative customer needs. Each of these criteria is given a weight which can be seen in TABLE I. TABLE I. Criteria Weight No Criteria Weight 1. Joint Profit 25% 2. Commitment 25% 3.

Member Loyalty 25% 4. Services 25% Based on the results of the questionnaire, the value of each criterion is shown in TABLE II. TABLE II. Questionnaire Results No Criteria Questionnaire Results 1. Joint Profit 78 2. Commitment 90 3. Member Loyalty 84 4. Services 77 Performance value on TABLE III is the value obtained from the results of the questionnaire.

Criterion 1 has a performance value of 78, so that when averaged located on Level 8 with a value of 80. Criterion 2 has a performance value of 90, so that when averaged located in Level 9 with a value of 90. The performance criterion 3 has a value of 84, so that when averaged located in Level 8 with a value of 80.

Criteria 4 has a performance value of 77, so that when averaged located in Level 7 with a value of 70. The average value of performance can be seen in TABLE III. The score is the value of measuring productivity. Criterion 1, the average performance is 80, so the score obtained is 8. Criterion 2, the average performance is 90, so the score obtained is 9. Criterion 3, the average performance is 80, so the score obtained is 8.

Criterion 4, the average performance is 70, so the score obtained is 7. The score obtained can be seen in TABLE III. Weights according to TABLE III, obtained from the weights are putting to TABLE II. The value in each criterion is the score multiplied by the weight. The multiplication results show total customer satisfaction with the Bandar Padang Cooperative of 800 with a percentage of 80%, this value being in good performance indicators. TABLE III.

Processing of Questionnaire Results Using the Objective Matrix Method

Criterion	1	2	3	4
Performance	78	90	84	77
Level	10	100	100	100
Level 9	90	90	90	90
Level 8	80	80	80	80
Level 7	70	70	70	70
Level 6	60	60	60	60
Level 5	50	50	50	50
Level 4	40	40	40	40
Level 3	30	30	30	30
Level 2	20	20	20	20

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2019 International Conference of Computer Science and Information Technology (ICoSNIKOM) Level 1 10 10 10 10 Level 0 0 0 0 0 Score 8 9 8 7 Weight 25 25 25 25 Value 200 225 200 175 Total 800 IV. CONCLUSION Customer Relationship Management (CRM) is an effective way to collect, analyze, and translate valuable customer information into management actions.

In this study, the existing CRM in the form of an action that serves customers from the Bandar Padang Cooperative information for rate maturity, information on new deposits, information becomes the value of operating income (SHU) and information on the results of the oil palm income by Short Messages Service (SMS). In the presence of CRM and by measuring the value of customer satisfaction with the Bandar Padang Cooperative using the Objective Matrix method is obtained a customer satisfaction value is 80%. REFERENCES [1] I. R. B. Yosan, I. M. Kholil, and W.

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