IMPROVING THE QUALITY OF PATIENT APPROACH TO CUSTOMER RELATIONSHIP MANAGEMENT IN PUSKESMAS DTP MAJA

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ABSTRACT

Puskesmas DTP Maja is one of the health care center where care in the District of Maja. Puskesmas Maja DTP also has several types of services such as outpatient, inpatient, dental health, maternal health and family planning (FP), Emergency Room (ER), the Essential Newborn Care Obstetrics Association (PONED), and nutrition. Based on the results of interviews have been conducted, with the conditions that exist in the Puskesmas DTP Maja is still less effective in evaluating the determination of the priority level of service that is likely to be increased ministry

Of these problems led to the idea for designing and implementing Customer Relationship Management strategies, which can help officers Quality Team to analyze and recommend suggestions for improvements health center services in accordance with the expectations and needs of the patient.

After going through a testing phase, this information system can help solve problems that occur. Puskesmas DTP Maja can analyze and recommend the service improvement suggestions, so as to maintain or improve the quality of service to patients in Puskesmas DTP Maja ..

Keywords : *Customer Relationship Management*Fuzzy Mamdani, Service Quality, Customer Satisfaction, ServQual, Puskesmas DTP Maja.

1. INTRODUCTION

Puskesmas DTP Maja is one of the health care center where care in the District of Maja. In health care to patients, health care ranging from patient registration, patient treatment until a patient's medical record-keeping. Puskesmas DTP Maja also has several types of services such as outpatient, inpatient, dental health, maternal health and family planning (FP), Emergency Room (ER), Basic Emergency Neonatal Obstetric Care (PONED), and nutrition.

Based on the results of interviews conducted with Ms. drg. Djubaedah Agustini as Head of Quality Team Puskesmas DTP Maja, to determine the quality of care, health centers always listen to criticism and suggestions from relevant patient services received. With the existing conditions in Puskesmas DTP Maja today, are less effective in evaluating the determination of the level of service priority may be improved services, since given the Puskesmas DTP Maja still use strikes and only carry out a satisfaction survey services in the form questionnaire when approaching accreditation course in which there should be evaluated once a month so that efforts peningkata quality of services provided less than optimal.

In addition the results of observations in Puskesmas DTP Maja, according to the report of the survey plans follow-up and implementation of the follow-up of customer satisfaction in Puskesmas DTP Maja during July 2016 - December 2016, in which the value of conversion interval IKM was obtained from the average value of each element service. Conversion interval value of Community Satisfaction Index (HPI) for outpatient services in the amount of 77.21 which is good but there is an element of ease of servicing low-value procedure 2,67. While the value of the conversion interval IKM for inpatient services in the amount of 81.54 which means good in all elements of the service. From these data, the clinic should be to improve the quality of service as priority service element which has the lowest value,

Fuzzy Mamdani is mamdani method is often known as the Max-Min method. This method was introduced by Ebrahim Mamdani in 1975 [1]. That requires a system capable of analyzing the quality of service and to help determine the improvements to the service so that the service quality maintained so as to create a better quality of service in the future. The solution to these needs is by application of fuzzy mamdani in improved quality of care of patients with Customer Relationship Management approach at the Puskesmas Maja DPT.

Based on the background of the problems that have been described previously, the formulation problems in research This is the application of fuzzy mamdani in improved quality of care of patients with Customer Relationship Management approach to be able to maintain the

quality of service by improving the quality of patient care as a patient care quality improvement efforts in Puskesmas DTP Maja

then intent from research This is designing and implementing Customer Relationship Management as quality improvement efforts in the health center service to patients of Puskesmas DTP Maja. The objectives expected to be achieved in this study is Helping Puskesmas DTP Maja Quality Team Health Center in recommending advice and analyze the service should be improved to match the expectations and needs of the patient.

2. CONTENT OF RESEARCH

2.1 Information System

The system is a collection of some of the elements that are connected to achieve a certain goal. While the information is data that is processed into a form that is more useful to those who use it. Thus, the information system is a collection of some of the elements of data that has been processed into a form that is more useful to achieve a certain goal. [3].

2.2 Customer Relationship Management

Buttle asserts that "CRM is a business strategy that uses information technology to produce companies that are competent, credible and integrated with the customer based on the customer's side so that all processes and interactions with customers to help maintaining and improving relationships profitable" [5].

2.2.1 Analytical CRM

analytical CRM is a framework that is used to exploit customer data in order to enhance their value. The system is then developed based on consumer information has been obtained. Data was obtained from each center customer information held by every company, the sales data, financial data, marketing data (consumer response to advertising campaigns, loyalty scale data products), and data services. then the internal data can be supplemented with external data that exist, such as data geodemografis and data on consumer lifestyle provided by organizations [5].

2.2.2 Framework of Dynamic CRM

This framework is useful to define accurately CRM features, as reference to build the information system to be built, the necessary framework as a guideline. According to CH Park & YG Kim framework of dynamic CRM describes a series of stages in the development of a system using the CRM approach. Substantive most important is the information obtained from the customer, in order to obtain results in the form Relationship Commitment as the model shown below. [6] [13]
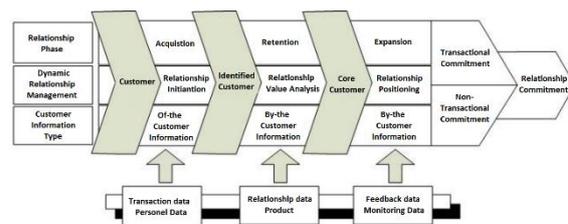
Picture 1. Framework of Dynamic CRM

2.3 Fuzzy Mamdani

Method Mamdani is the first method time introduced by Ebrahim Mamdani in 1975 when building a machine control system steam and boiler. To obtain the output, be required four stages, namely:

1. Formation of the Fuzzy Association (Fuzzyfikasi)
   Theory assemblage Fuzzy is a grouping theory faint objects in the boundary. The set is associated with a function that states the degree of conformity of the elements in his universe with the concept which is the condition Membership of the set. This function is called the membership function and value function called the degree of membership of an element in the set, which selanjutnnya called fuzzy sets. Thus every element in the universe has a degree of membership (membership value) specified in the set. Membership degree is expressed by a number rill at the interval.

2. Implications Function Application (Rules)
   Application of Fuzzy Implications fuzzy rules, rules that used to control the system. Rules This rule is based on human logic and intuition, as well as closely related to the way of thinking and personal experiences that shape it. So it is not wrong to say that these rules are not subjective, depending on the sharpness that make. Predefined rules are used to connect between the variables input variables to output variables. [7]

3. Composition rules
   There are three methods used in performing fuzzy inference systems:
   a) Max method
      Method Max (maximum) is a solution set fuzzy how to take the maximum value rule, and then modify the fuzzy areas, and apply it to the output using OR operator (union).
   b) Method *additive*
      additive method (Sum) is fuzzy set of solutions by conducting bounded sum of all output fuzzy area.
   c) Method Probabilistic OR (probor)
      Probabilistic methods OR (probor) is a solution set fuzzy by means of product against all output fuzzy area.

4. Defuzzyfication

Defuzzyfication a fuzzy scale conversion process that produced results in the form of fuzzy sets of fuzzy membership output to regain its original shape or specifically [8].

2.4 service Quality

Quality of Service Quality of service or is the difference between expectations and reality of patients with the services they receive. Meanwhile, according to Wyekof quality of service can be described as "The level of excellence expected and control over the level of excellence to meet the customer". [7].

Dimensions in method servqual divided into five, namely:

1. Tangibles
The ability of a company to show its presence on external parties that include equipment, personnel, materials communication and physical appearance
2. .Reliability
The company's ability to deliver services as promised accurately and reliably in accordance skill in providing services to what is promised
3.Responsiveness
Willingness to help and provide appropriate and prompt service to the customers, to help users of services and the provision of services as expected.
4.Assurance (Guarantee and certainty)
Knowledge, kesopan compensation, and the ability of the employees of a company's attitude or knowledge of employees and their ability to be able to have the confidence of service users gain confidence of customers to the company.
5.Empathy (Empathy)
Giving attention to the individual or privately provided to the customer or any attitude of caring, individual attention that has been given to the patient

2.5 Problem analysis

From the results of research teleah conducted found a problem that a customer satisfaction survey in Puskesmas DTP Maja has not been able to analyze and emrekomendasikan or measure the quality of service that exists between perceptions and expectations of patients to services, so that the Puskesmas DTP Maja did not know how big the difference between the patient's perception of the service that has been accepted with expectations of patients to services that will be received.

2.6 Framework Analysis of Dynamic CRM

On the system to be built using this type of Analytical CRM. Analytic CRM is a way to exploit customer data in order to enhance customer value and corporate value. Source data is derived from customer data as a whole [10]. CRM type is also used to analyze the patient data collected from various sources and presenting that data in a way that can help the team quality make the right decision.

In the application of CRM as the foundation of making use of Dynamic CRM Framework Framework as a reference implementation of CRM that we can know what are the features that will be applied to CRM in accordance with the background of the problem. The system that was built was an effort to improve the quality of service at the Maja DTP Puskesmas. The following analysis of the Dynamic of CRM framework can be seen in Figure 2.
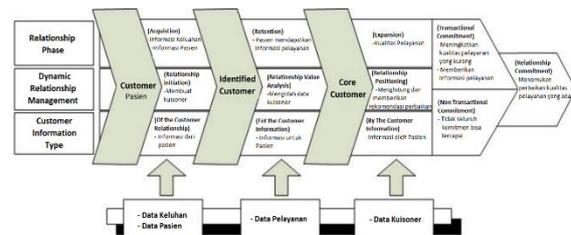
Picture 2. Framework Analysis of Dynamic CRM

2.6.1 Phase Acquistion

This phase is implemented in the process acquire. Acquistion phase is the phase where health centers are trying to get to know or find out more patients in the clinic have to use the facilities and services available at Puskesmas Maja DTP.
a. Getting Complaints Information

At this stage, health centers provide a means for patients to express their grievances.
b. Obtain Patient Information

At this stage, health centers obtain patient information. Such information is obtained when the patient gives the complaint.
c. Make kuisoner

At this stage, make the questionnaire forms for health centers, then the questionnaire will be filled by the patient.
d. Information from Patients

All information and data that is from the patient if Puskesmas DTP Maja.

2.6.2 Phase Retention

This phase is the stage of conveying information to the patient's health clinic. This phase is implemented in enchance process.
a. Patients get Information Health Center Services

At this stage, health centers provide information services in Puskesmas DTP Maja, the service information can be obtained from the information system that will be built or come directly to the clinic.
b. Data processing kuisoner

At this stage, health centers perform data processing which has been obtained from the patient.

c. Information For Patients

From questionnaire data processing has been done, the data will be informed to the patient through the system to be dibagun

2.6.3 Expansion phase

Phase expansion retain implemented at this stage, this phase is the stage where community health centers to get information from patients which can then be used to help create a strategy in the improvement of health center services in accordance with what is complained of service.

a. Service quality

At this stage of the measurement process will be conducted kulaitas services by distributing questionnaires to patients until the calculation phase questionnaire. Data from the last questionnaire, obtained data on the assessment of the quality of existing services at the Puskesmas Maja DTP. The services that were examined are:

1. Outpatient Services
2. Inpatient Services

b. Calculate and provide recommendations for improvement

At this stage, public health questionnaire counting of each service at the health center Maja DTP. Then after that, if the result of a low value then it will be recommendations for improvement based on the priorities that are customized to the dimensions motode attribute Fuzzy Mamdani and servequal.

c. Information by patients

Overall the data questionnaire that is, a contribution made by the patient at Pusekesmas Maja DTP.

2.7 Ananlisis Analysis Database

Database analysis performed in order to obtain a system that is in accordance with what is required, which can be done in stages makes the ERD (Entity Relationship Diagonal). ERD is used to describe relations between tables with the aim of clarifying the relationship between the storage table that can be seen in figure 3
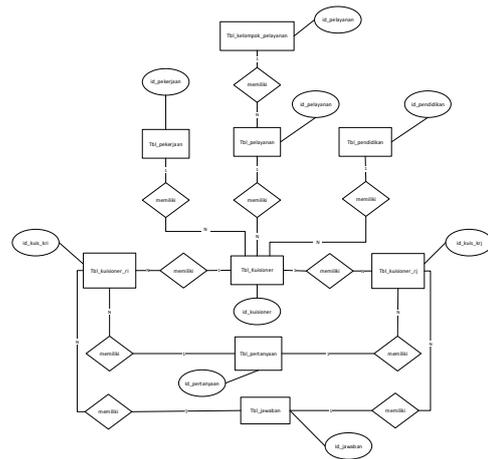
**Picture 3.** ERD CRM Information Systems

2.8 Diagram Context

Context diagram is used to describe the first system in outline. Diagram context is also a data flow diagram (data flow diagram (DFD)) at the top level (top level). Diagram context in Customer Relationship Management application can be seen in Figure 4.
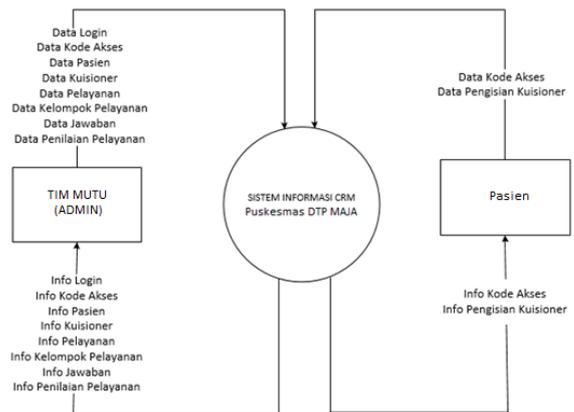
Picture 4. Diagram Context

2.9 *Data Flow Diagrams* (DFD)

Data Flow Diagram (DFD) is a structured modeling system that serves to illustrate the functional networks that connect to one another with the flow of data either manually or computerized which can be seen in Figure 5.
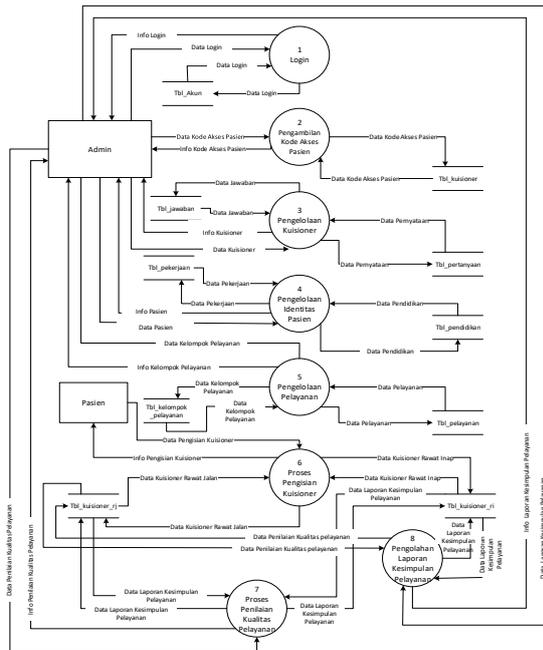
Picture 5. DFD Level 1

2.10 Relation Scheme

Describing connectedness detailed tables in the system or clear, the use of table relationships. Table relation can be seen in Figure 6.
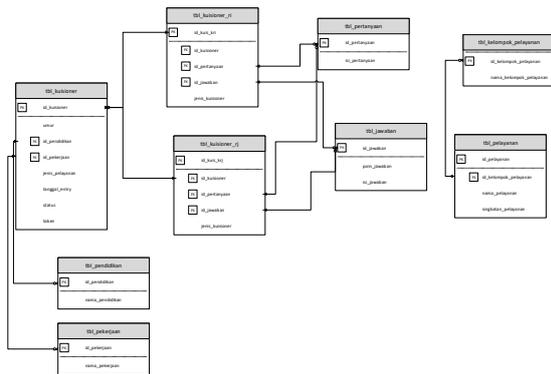
Picture 6. Relation scheme

2.11 Designing Interfaces

The design of the interface is a display for the user apabilala have to login with admin privileges. In addition it features a view of education data and data management which covers the jobs data, the data statement, the response data, group data services, and data services. Examples of the interface can be seen in Figure 7.
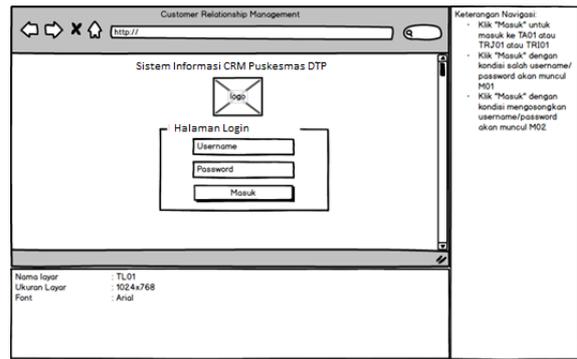
Picture 7. Admin Login Interface Design

2.12 Network Design Semantics

Describe a semantic network design interface design that has been was done or made to show the flow of each interface are interconnected with each other can be seen in Figure 8.
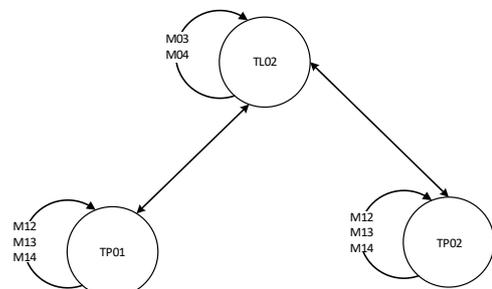
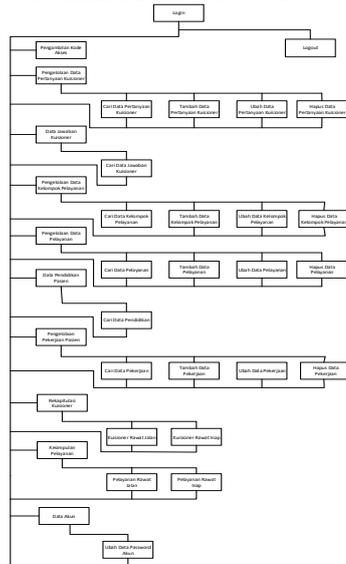**Picture 8.** Patients Semantic Network

2.13 Procedural Design

Designing procedural describes part structural part of an architectural program in a procedural description of the software components.
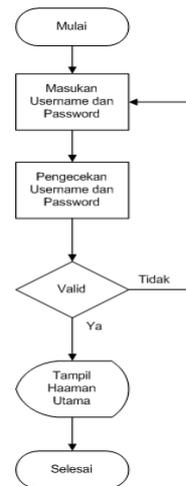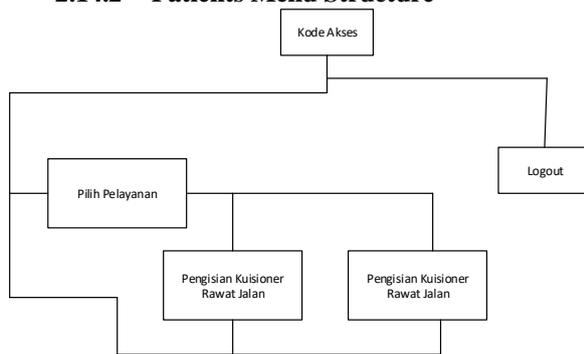

Picture 9. Procedure Log

2.14 Menu Structure Design
2.14.1 Admin Menu Structure

Picture 10. Admin Menu Structure

2.14.2 Patients Menu Structure

Picture 11. Menu Structure

2.15 Testing Systems

At this stage is a continuation of the implementation phase is to do tests on applications built. Testing of information systems Customer Relationship Management two stages of testing, namely alpha and beta testing.

1. Alpha Testing

Functional exposure is to be tested, the test alpha This is a test that uses test data to determine whether there are functions that are in accordance with what is expected

2. Beta Testing

scenario testing betaon application Customer relationship management is done directly communicate with respondents by interviewing the potential users of the system have been built. Interviews were conducted to Quality Team as an admin clerk, outpatients and inpatients

3. CLOSING

In the last part of this will be discussed concerning the conclusion of the discussion that has been described.

3.1 Conclusion

Customer Relationship Management information system Pusekesmas DTP Maja has been built and tested to the system so that it can be concluded that this system can help the Quality Team to analyze and recommend effective service improvement suggestions to the expectations and needs of the patient

3.2 Suggestion

Information Systems Customer Relationship Management Puskesmas DTP Maja there is still a shortage and can be developed further with the development needs of system users which then must be met to achieve better system performance in the future. The advice from the health center, for further development that is expected to enhance the look of the presentation of the data services group conclusions outpatient or inpatient.

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