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# APPLICATION OF RAPID APPLICATION DEVELOPMENT METHOD IN DESIGNING CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS FOR NATIONAL INSURANCE COMPANIES

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#### **ABSTRACT**

This research aims to meet the needs of insurance agents in managing prospects, setting targets, and monitoring the performance of agents in the team. The research method used is qualitative, with a case study approach as the most suitable approach. Purposive sampling was the sample strategy employed, and observation and interviews served as the methods for gathering data. Rapid Application Development, a four-stage process that includes requirement planning, user design, construction, and cutover, will be the system development methodology employed. Based on the research results, the website being built can help insurance agents manage prospect data more efficiently. They can monitor the development of prospect activity, so that the prospecting process is more monitored and runs faster compared to using WhatsApp groups. The target management feature designed can also help agents manage their personal targets and see progress in achieving personal targets and company targets. Apart from that, agent performance features that can be seen by leaders also help leaders monitor agent activities and sales. By knowing agents' sales activities and results, leaders can evaluate the performance of agents in their team.

Keywords: Insurance, Customer Relationship Management, Rapid Application Development, Performance

#### 1. INTRODUCTION

In this modern world, technological developments continue to increase rapidly. This is also supported by the level of human dependence on technology, which is increasing day by day [1]. Technology has played a big role in daily activities such as studying, working, communicating, shopping, and many more. Apart from everyday life, technology has also become an important element in the industrial world through the digitalization process [2].

The application of digital technology to transform a business model and offer new chances for revenue generation and value creation is known as digitalization. In other words, digitalization is a process that can transform a business into a digital business [2]. Through the implementation of digitalization, companies will, of course, experience various changes both in the company's internal workflow and in the way they interact with customers. The changes expected through the digitalization process are so that companies can work more efficiently, increase customer satisfaction, and, of course, create new income streams digitally [3].

In the face of digitalization, the information owned by the company must be well integrated, so an information system such as ERP is needed. Enterprise resource planning (ERP) functions as the core software used by companies to coordinate information across various business areas, manage all company business processes, use common databases, and facilitate various management reporting tools [4]. By implementing an ERP system, companies will certainly increase employee work efficiency, customer satisfaction, and, of course, operational costs. The ERP system consists of several modules that can be implemented, some of which are finance, human resources, point of sales, and customer relationship management modules [5].

The main activities that must be carried out by companies to increase their income are marketing and sales. Nowadays, marketing can no longer only be done by placing advertisements on the street, newspapers, television,

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and radio en masse, but companies must also pay attention to the target market they want to reach [4]. The more a company knows about the target market that matches the product or service it sells, the greater the influence that marketing activities can have. Apart from knowing the target market, marketers must also be able to get to know each individual and treat them according to what they want in order to improve good interaction relationships with customers [5].

A good interaction relationship with customers certainly has many positive impacts that can be received by the company. Customers who feel that they are cared for by the company and given the best service will certainly feel very satisfied and will continue to be loyal customers [6]. What a company can do to analyze its target market, identify it, and help marketers improve good interaction relationships with each customer is to implement a customer relationship management system. Customer relationship management, or CRM, is a strategic process for selecting the most profitable customers for the company and forming interactions between the company and these customers [7].

In the business world, competition is something that we will often encounter, especially when the market for the business increases. The tighter the competition, the more effort it will take to retain customers [7]. It is also recorded that there are 60 life insurance companies registered in Indonesia. In facing this competition, to win the hearts of customers, it is not only the product that must be considered, but the service must also be optimal [8].

A life insurance company is a company that operates in the service sector by providing risk management related to the life and death of someone insured. This is different from other industries where the services and products sold can be directly seen or enjoyed by customers. The services provided by life insurance companies generally cannot be felt by customers until a risk occurs in accordance with the insurance contract. Therefore, one of the biggest challenges that insurance companies and agents must face is gaining the trust of their potential customers [8]. As time goes by, life insurance companies are finally starting to carry out the digitalization process so that insurance agents can carry out sales activities digitally. One of the life insurance companies in Indonesia, whose name will be disguised in this thesis, has carried out a digitalization process to simplify policy application activities by insurance agents. However, currently, the CRM system has not yet been implemented in the company's information system [9].

The use of CRM can essentially have a positive impact on insurance agent sales activities. CRM can help insurance agents manage all customer data, making it easier to analyze customer needs. The data that has been collected can also be used for future studies, especially for new agents. By documenting the customer's circumstances and needs, as well as the responses given, it will be easier for insurance agents to offer other products at a later date [10]. CRM can be used not only to manage prospects but also to increase sales. In CRM, there is also a process called the cross-functional CRM process. This process consists of several processes, and one of them is the performance assessment process. The function of this performance assessment process is to measure the performance of the company's employees. In this research, performance assessment can be used to assess and evaluate agent performance in carrying out sales activities [11].

One of the life insurance companies used as the object of this research has thousands of insurance agents spread throughout Indonesia. Therefore, this research presents a web-based CRM system that can be used by all of the company's insurance agents [11]. The main reason for choosing this web-based system is that it can be accessed via various electronic devices, such as smartphones, tablets, computers, and laptops. Jobs with a high level of mobility, such as insurance agents, will certainly be much easier using a web-based system compared to mobile applications, which can only be accessed via smartphone or tablet [12].

In the life insurance company used in this research, the marketing and sales process carried out by insurance agents consists of four main stages: call, meet, presentation, and closing [10]. Apart from personal recording to manage prospects, these four stages are also used to report activities to each leader. In current conditions, prospect management and activity reporting are still carried out conventionally, namely using WhatsApp groups created by each leader [13]. In this group, each agent is required to report how many prospects they contacted, met,

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presented, and successfully closed each day. Apart from marketing and sales, insurance agents also have personal targets as well as targets given by the company [14]. In achieving company targets, the progress of each agent is sent manually to each branch via email every month, so it is not possible to see the progress of the company targets in real time [15].

#### 2. LITERATURE REVIEW

Customer relationship management (CRM) is a strategic process used to select customers who can be served by the company, of course using the most profitable method. Through a CRM system, companies can also form interactions with these customers so that they can optimize the value of existing customers and also customers who will come in the future [12]. In its application, CRM is divided into two categories, namely operational CRM and analytical CRM. Operational CRM is a system aimed at integrating all business processes, such as marketing, sales, and service automation. In contrast to operational CRM, analytical CRM is a system aimed at analyzing customers and markets in accordance with sales targets, such as customer behavior [13]. The system that will be designed in this research is aimed more at integrating business processes within the company, so the system that will be designed is more directed towards operational CRM than analytical CRM [15].

Customer satisfaction is one of the things you want to achieve when using a CRM system [16]. Customer satisfaction can be achieved when customers have felt the benefits of the products and services provided by the company. Businesses need to focus on a few CRM process phases in order to offer the finest service, crossfunctional CRM, customer-facing level CRM, customer-oriented CRM, and macro-level procedures [17]. Performance assessment is part of the cross-functional CRM process, which is fully customer-oriented. The purpose of performance assessment is to monitor CRM activities carried out and then evaluate them. Performance monitoring can be done using performance metrics, which assess the performance results achieved with improvements [18].

#### 3. METHOD

#### 3.1. Data Collection

In conducting research, generally, the research methods used are divided into three categories: quantitative, qualitative, and mixed research methods. In this research, the method that will be used is a qualitative research method. This method can be used to gain an understanding of the issues raised. Research using qualitative methods is carried out in a natural setting so that the information obtained is not the result of manipulation or engineering [14]. In its application, qualitative research has several approaches that can be taken, namely phenomenology, ethnography, hermeneutics, grounded theory, narrative, and case studies. Based on all the approaches above, the most suitable approach to be applied in this research is the case study approach. By using a case study approach, the information obtained is more detailed and in-depth because this approach is carried out intensively. The case study approach is also suitable for developing programs, events, and activities [18].

In qualitative research, one of the data collection techniques that is often used is observation and interview methods. Observations are carried out to collect data regarding user behavior and interactions with existing systems, so that they can gain an in-depth understanding of user needs [19]. The purpose of conducting interview activities is to be able to explore user requirements for designing a CRM system that suits needs in the field and can be used effectively by the company. Interview activities can also produce more accurate and in-depth information.

The sampling technique used in this research is purposive sampling, where the sample selection is carried out by the researcher in a non-random manner. Sample selection can be done by considering and determining which sources are considered suitable or representative of a population to respond to research cases [20]. By using this technique, sampling becomes of higher quality and, of course, will have an impact on the results obtained through interview activities.

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### 3.2. System Development Methods

In developing a system, the development method used must be determined first so that the development process can run in a structured manner and in accordance with user needs. There are many system development methods that are commonly used by developers, but in this research, there are three choices of system development methods that are considered, namely the SDLC Waterfall, Prototype, and Rapid Application Development (RAD) methods.

The Rapid Application Development approach will be utilized for system development. The RAD approach is better suited for this research's implementation than the other two ways since it calls for a quick and flexible development process that can adjust to changing user needs. Another reason the RAD approach was selected is because it works well when creating systems with explicit user requirements. Four phases make up the RAD method: requirement planning, user design, construction, and cutover.

**Table 1:** Comparison of System Development Methods

Method Name	•	Excess	Lack
SDLC	Each stage must be carried	The development stages are fixed,	The work process is slower
Waterfall	out in sequence and cannot	easy to apply, and suitable for	because you have to complete
	proceed to the next stage if	developing systems whose needs	each stage sequentially.
	the previous stage has not	are clear. Development documents	
	been completed.	are more organized.	
Prototyping	This method is used to	The development results are in	Lack of flexibility in dealing
	produce a representation of	accordance with user needs;	with changes, not paying much
	the application model to be	determining needs is easier; and	attention to quality and long-
	designed in mockup form.	the time required for system	term maintenance.
	After the mockup has been	development is shorter because the	
	evaluated and approved by	mockup already meets needs.	
	the user, it will proceed to		
	the software development		
	stage.		
RAD	This software development	The development results are in	It requires developers and
	model with high-speed	accordance with user needs and	users to work together at every
	adaptation allows	suitable for system development in	stage of development and is
	development to take place	a short time (30–90 days).	only suitable for developing
	more quickly because it uses		systems that can be
	a component-based		modularized, not for systems
	construction approach.		with high technical risks.

#### 4. RESULT AND ANALYSIS

Based on the results of the interview, there are a series of activities carried out by insurance agents to make sales to their customers. Each activity is described as a series of activities as follows First is the "call" stage, where the insurance agent starts the sales process by making a first approach. This approach aims to get to know customers, establish good relationships, and build trust so that they get appointments that can simplify the sales process. Second is the "meet" stage, where the insurance agent explores the customer's needs by finding out the customer's personal information, such as financial and family conditions. This is done to obtain information that helps agents recommend products according to customer needs.

Third is the "presentation" stage, where the insurance agent provides recommended product offers to customers according to their needs. The goal is for customers to understand the benefits of the products offered. Fourth, there is the "handling objection" stage, where the insurance agent handles customer objections to the purchase,

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such as objections to premium costs or inappropriate benefits. The goal is that offers can be adjusted to customer objections and allow sales to occur. Fifth, the "pending" stage, where the sale has not occurred after the presentation or handling of objections because the customer decided not to buy at that time. Sales may occur in the next offering.

Sixth, the "follow up" stage, where the agent recalls the previous offer to make the prospect reconsider the offer given. Seventh is the "closing" stage, where the agent successfully makes a sale to the customer. The first thing to do is ensure that all policy requirements can be met and that the policy can be approved by the company. Lastly, there is the "after-sales service" stage, where the insurance agent provides services after the policy is declared active, such as helping with the insurance claim process or helping customers who are hospitalized.

System development using the RAD (Rapid Application Development) method begins with identifying system requirements. This stage is very important because, to achieve system development goals, details of the functions required are needed. In this research, there are two users who are directly involved with the system, namely administrators from the company's IT division and agents who work at the company. Each user has different features. By using an access protection system, users with the agent role can only access features intended for agents, while users with the administrator role can only access features intended for administrators.

The system design in this research begins by modeling the system using the Unified Modeling Language (UML) concept. The purpose of modeling using UML is to make it easier for developers to visualize system designs. There are three modeling methods used in UML, namely, use case diagrams, class diagrams, and activity diagrams. The use case diagram shows the main needs of each actor or user, namely agent and admin. The two actors have access rights to different features, so the agent cannot access admin features and vice versa. Features that agent can access include lead management, policy submissions, personal target management, and viewing performance. Meanwhile, the features that can be accessed by admins include account management, policy submission, policy management, product management, company target management, and viewing performance.

In companies, managing agent accounts is not entirely carried out by the agents themselves but requires an admin role to create agent accounts. Activities that admins can carry out in managing agent accounts include viewing accounts, creating new accounts, and updating accounts. As an agent, managing prospect data is an activity that occurs more often than managing customers. Agents can see the list of prospects owned by each agent and can also add new prospect data by entering the required information. Additionally, agents can also change or delete unwanted lead data.

Apart from managing prospect data, agents can also mark prospects with prospecting statuses such as call, meet, presentation, follow-up, and closing. This can be done via the lead details page. In managing lead statuses, agents can add new statuses or change existing statuses if an error occurs. However, agents cannot delete previously created statuses. In managing incoming policy application submissions, the admin can provide feedback such as pending if there are documents required from the customer, declined if the policy application cannot be accepted, and issued if the policy is accepted. The activity of managing policy applications can be accessed via the policy application details page. Admins can enter feedback for each application submitted so that the information can be seen by agents.

After the policy application is received, the admin can create a customer policy document using the data that has been collected from the submitted policy application. The process of creating a policy document involves the administrator's task of checking the document and approving it if it is appropriate. If there is data that does not match, the admin can cancel the policy creation before the policy document is created, and the application will be returned to the policy application details page.

Agents can carry out policy application activities, which can be accessed via the prospect details page. When an agent wants to make a policy application, he must first select the product he wants to apply for before he can apply for a policy. All insurance products in the company are managed by the admin. Product management

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activities that can be carried out by admins include adding new products, changing existing product data, and deactivating products. Products that you no longer wish to sell cannot be deleted; they can only be deactivated. When a product is deactivated, the product will not appear when the agent submits a policy application.

One of the insurance companies' strategies for motivating their agents is to provide prizes in the form of achieving targets. These prizes can take the form of bonuses, including the opportunity to travel abroad. Admins can manage these targets. In the activity of managing company targets, admins can view a list of existing targets, create new targets, and change targets that have been created. Targets that have been created cannot be deleted, but they have a status that will change to expired when completed.

Apart from company targets, agents can also set personal annual targets as motivation to increase sales. The activity of managing personal targets begins by accessing personal target data, which is initially set automatically at 0. Agents can change their personal targets according to what they want to achieve in that year. Personal targets are flexible, so agents can adjust them if necessary. The activity of viewing agent performance can be carried out by both roles, namely admin and agent. Both can access agent performance via different pages. Agents can see the performance of agents in their team via the team performance page. Meanwhile, admins can access agent performance via the branch performance page.

The class diagram for this system consists of 12 classes that are connected to each other, forming relationships between them. These classes are: users, admin, agent, branch, personal target, prospect, status result, application, app feedback, product, policy, and target. Each class has its own function and will be used to assist in the process of creating a database that will be used in designing the CRM website in this research. The relationships contained in this class diagram consist of aggregation and association. Aggregation occurs between the agent and personal target classes, as well as between the policy and application classes. Meanwhile, for other classes, all of them use association relations.

Database design is carried out by creating specifications for each table in the database using class diagrams as the main reference. After all the tables are created, the next step is to connect all the tables using SQL queries in phpMyAdmin so that you can produce a relational table. Based on all database tables that have been previously designed with the help of phpMyAdmin software. All lines connecting tables are created automatically when connecting foreign key fields in each table with the primary key in the table in question.

The third phase of the RAD system development methodology, which was applied in this study, is called building. Versions 4 and 5 of the CodeIgniter framework and Bootstrap were used in system development. The system developed was connected to a local database that had been created in phpMyAdmin using XAMPP. The following are the results of developing a web-based CRM system for life insurance companies, which have been grouped based on existing roles, namely admin and agent.

The next stage in the RAD development method is to carry out system testing to ensure that the system that has been developed can run as expected. The User Acceptance Testing (UAT) approach, which is based on black box testing for users, will be used to conduct the system testing procedure. In this testing process, there were 3 test respondents from the agent side and 1 test respondent from the admin side. The results of testing this system obtained maximum results, namely 100%. All users have stated that the features implemented in this system can be used well and help solve existing problems within the company.

According to the results carried out by 3 agents, it shows that all the features that can be accessed and used by insurance agents have worked according to the expected results. According to the results carried out by the company admin, it shows that all the features that can be accessed and used by the company admin have worked according to the expected results.

Based on the User Acceptance Testing (UAT) results obtained, it can be concluded that the website is designed according to user needs. Thus, the website can proceed to the implementation stage. Implementation planning for a web-based CRM system at this life insurance company will use a pilot implementation. This implementation is

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carried out by selecting a group of users to undergo testing first. The implementation plan that will be implemented is as follows: Selecting 20 insurance agents from 4 different agencies to be involved in the pilot implementation.

Conduct training and outreach to insurance agents regarding how to use the system and the benefits that can be obtained through using a web-based CRM system. Implement a CRM system for insurance agents involved in this pilot implementation. Monitoring the use of the CRM system by insurance agents for 2 weeks. Evaluate the CRM system based on the results of feedback received from insurance agents involved in this pilot implementation.

When implementing a web-based CRM system, there are several technical things that need to be considered before implementation. The following are the specifications that need to be prepared: This web-based CRM system can use an SSL-certified server. SSL certification is a digital certification that verifies the identity of a website and secures information sent to the server with SSL technology. Several hosting services that provide SSL security protocols include Niagahoster, Hostinger, SiteGround, Qwords, and DewaWeb.

In the design process of this web-based CRM system, a MySQL database was used. So, to facilitate the implementation process in the company, the MySQL database that has been created can be used. The contents of the database that has been created can be adjusted to suit the company's needs. In the design process of this web-based CRM system, the CodeIgniter framework was used.

#### 5. CONCLUSION

The following are things that can be concluded from this research, the website that was built can help insurance agents manage all the prospect data that each agent has. Apart from that, insurance agents can also monitor the progress of prospecting activities for each prospect so they can see which prospects need to be followed up. With this developed feature, the prospecting process will be more closely monitored and run faster than using WhatsApp groups. The target management feature designed can help agents manage their personal targets and see progress in achieving personal targets and company targets. Agent performance features that can be seen by leaders can help leaders monitor agent activity and sales. By knowing the activities and sales results of agents on their team, leaders can also evaluate the performance of agents on their team.

To improve website performance so that it can function more optimally in the future, several suggestions that can be made include: Integrating the website with the company's Point of Sale (POS) and Human Resources (HR) systems so that all data is well integrated. Integrating the website with the Office 360 system used by the company so that the login system can be done via the agent's Microsoft account. Create a mobile application version of the website to add reminder features that appear as notifications on agent smartphones, such as reminders for customer and team birthdays, target deadlines, due dates, and others.

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