

# Customer relationship management (CRM) plan analysis for private education to increase institutional services (CASE STUDY: STT PAGARALAM)

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**Abstract:** The Customer Relationship Management (CRM) method, is an electronic business strategy that is able to manage relationships with its customers. The electronic business (e-business) trend has changed from being affiliated with a product to a service and customer need. Private Universities (Perguruan Tinggi Swasta, PTS) increasingly realize the need for change when interacting with all consumers. In this research, a CRM system plan is produced that is able to provide convenience to customers when obtaining the desired information and identified a suitable CRM system initiated by PTS. The CRM system initiation planning that is carried out is Transactional-Decentralized, which is a transactional activity managed autonomously by the study program. Consumers involved consist of students, lecturers & officers from the Academic and Student Administration Bureau (Biro Administrasi Akademik dan Mahasiswa, BAAK). Integrate the system that is utilized, namely the academic information system that is done online using the PTS website. A more personal relationship with customers utilizes the SMS gateway. With this recommendation system, all academic activity transactions will be able to run smoothly, effectively and efficiently as expected.

**Keywords:** CRM, business, systems, academic information systems & SMS Gateway

## 1. Introduction

There are many methods that can be applied by business institutions or institutions, Customer Relationship Management (CRM) is one of the strategies that exist in e-business where this system has been proven able to organize good relations intansi / institutions with its customers. Customer Relationship Management (CRM) arises because of the rapid application of e-commerce and e-business [12] in various companies, especially institutions (world) of commercial businesses. E-business trends have changed which initially emphasized the quality and quantity of its products, now it has changed in service quality and all customer needs [13]. Companies in this case not only sell quality products, only quality, but also have sold satisfaction to consumers as an advantage. Because consumers in addition to the need for quality products are also easy to get information from those products, satisfying service and a good after-sales guarantee. The purpose of this Customer Relationship Management (CRM) system is not only to offer quality products & services, but also to maintain and improve quality customers [1].

Customer Relationship Management (CRM) system will identify, obtain, serve and maintain quality customers using all means [4]. Likewise, Private Universities (PTS) have realized the need for changes in interacting with all customers (Stakeholders) it serves [5], as growth in the number of PT (PTN (public) / PTS (private)). The very high level of competition between Universities (PT) makes managers think of ways to win competencies. One way is to do it by creating an effective and efficient system, so that it can save time and cut operational costs. Some universities try ERP system applications. But this ERP system is not able to reach the tertiary domain of consumers [3] [6]. ERP system integration can only reach the internal side of Higher Education while being a factor to be able to compete, Higher Education is able to increase prestige or good impression on all its customers [7]. Which all customers currently need attention and the best service system. Consumers of Higher Education institutions or stakeholders consist of actual and potential students (students), parents / guardians of students, lecturers, researchers, employees and

leadership staff, board of trustees, similar Universities, accreditation bodies, suppliers, business organizations, public, foundations, alumni and the public. This research intends to make a Customer Relationship Management (CRM) system plan in the university's academic system, specifically for Transactional-Decentralized activities. The stakeholders who are concerned as consumers of research are actors in academic activities, namely students, lecturers & officers of the Academic and Student Administration Bureau (BAAK). So a plan was made to provide information services related to academic activities so that the activities could run smoothly, effectively and efficiently [8] [9] [10] [11].

Pagaralam College of Technology (Sekolah Tinggi Teknologi Pagaralam) is a private tertiary institution (PTS) which must do its best in serving all stakeholders (students), on this awareness the leadership of the Pagaralam College of Technology (STTP) tries to try various systems / methods / methods that are good in the service system, for that service must be integrated and easy. So that service recipients feel served, comfortable, and satisfied it is believed that the leadership element will increase the value for the development of the Pagaralam College of Technology (STTP).

## 2. Customer Relationship Management (CRM).

This Customer Relationship Management (CRM) method is a comprehensive business strategy in the company's system, which enables companies to more effectively manage good relationships with consumers [2] [14] [15]. Customer Relationship Management (CRM) stores various information about customers and records all contacts that have occurred between customers, companies and creates customer profiles for company staff (STTP) who want information on customer data, Customer Relationship Management (CRM) has made it easy for the business world (companies) improve services for its customers in a fast (real time) way by establishing relationships, with each customer through the use of information systems about customers. Based on what customers know, companies can vary offerings, services, programs, messages & media [1]. Through this system Customer Relationship Management (CRM), the business world forms a very close relationship with its customers, companies in this case Pagaralam College of Technology are able to understand user needs & provide choices of products or services according to the demands of

the user (consumers) or according to market needs that are again hits.

### 2.1 CRM system architecture

The Customer Relationship Management (CRM) system applied according to the Kalakota [2] aims, for:

- Having a good relationship with customers is an effort to increase profits for the company, in this case the Pagaralam College of Technology (STTP).
- Applying a good information system is used to provide satisfying services for customers to make it easier and more impressed.
- Able to support repetitive sales processes.

When the Customer Relationship Management (CSR) application system is applied to the company (STTP), this application has encouraged increased marketing or sales and services that are more effective than usual, customer service, providing good experience for customers so that it will foster loyalty and pride on the Pagaralam College of Technology (STTP). The three phases of Customer Relationship Management (CRM) of the Pagaralam College of Technology (STTP) that make up the cycle, must be repeated, namely:

- New consumers, obtained by providing convenience when accessing information, new innovations & interesting services available at the Pagaralam College of Technology (STTP).
- Increase profits from consumers. The company seeks to establish relationships with consumers through good service (customer service, call centers). The application of cross selling or up selling in the second stage can increase revenue and reduce financing to obtain new customers who are expected to be loyal customers at the Pagaralam College of Technology.
- Maintain a profitable user. This stage the business world (STTP) gets loyal customers because the system and service are impressive, good and satisfying by listening to customers and trying to meet the desires of old customers.

### 2.2 Types of Customer Relationship Management (CRM).

The Customer Relationship Management (CRM) system consists of several types, namely: strategic, operational, analytical & collaborative Customer Relationship Management. Where Strategic Customer Relationship Management (CRM) has a focus on customers, the target is to win the competition and retain loyal customers. A good customer-based business culture can only be achieved by creating & providing better value when

compared to other competitors, operational Customer Relationship Management (CSR) focuses on automating customer-facing processes such as promotions, sales or more tactical needs. Which is Analytical Customer Relationship Management (CRM) is more focused on intelligent mining of data closely with customers for more strategic or tactical needs. This Customer Relationship Management (CRM) analysis is based on information about customers. Collaborative Customer Relationship Management (CRM) runs technology in all parts of the organization whose aim is to maximize the values of the company, partners & customers. Which technology or communication media that they use can vary, for example email, telephone, fax, website or SMS gateway. In order for the Customer Relationship Management (CRM) infrastructure to be more effective and efficient, there are a number of things that must be properly integrated, viz:

- a. Integrate Customer Content  
The ability of the company (STT Pagaralam) to access and manage the process in accordance with customer content. That is their customer service unit must be able to access all data of consumers and must also understand correctly about information on all products produced by the education sector, they are also given excellent facilities to be able to communicate with customers (stakeholders), for example telephone, facsimile, online communication applications and others.
- b. Integrating Customer Contact Information  
At present the business world (STT Pagaralam) pays more attention to this, especially in the section that takes care of all the questions of customers or stakeholders. Customers also must be informed that in the company there is a unit that can answer all the questions that customers need.
- c. End-to-end Business Processes Integration.  
The company (STT Pagaralam) must be able to integrate all business processes carried out. Examples of marketing and customer service units that serve after sales activities (job vacancies for alumni), do not let these two units give different information to customers.
- d. The Extended Enterprise Integration.  
Partners or extended enterprise is a party that has an influence on the activities of the company (STT Pagaralam) therefore companies need to share information with them, for example about the price (promotion) carried.
- e. Integrate all existing systems.  
various things that exist must be integrated in

one business system, such as legacy systems, computer telephony integration, data warehousing and decision support technology.

The things that are trending in Customer Relationship Management (CRM) now include the following:

- a. Application system with Multichannel technical (website, fax, telephone, banner, billboard, pamphlet and others) this is to increase user satisfaction & attract new users (consumers) because of the many choices of means that can be used.
- b. Call Center service system application, as an information center for consumers. Customers can ask, on the other hand the call center can inform all product information to the user including company promotion (STTP).
- c. Applying Websites and e-mails have the facility to listen to the voice of customers, such as to give advice and criticism.
- d. This multimedsos system application (Twitter, Facebook, Instagram, etc.) is to support millennial customers, because there are almost no young prospective students (stakeholders) who do not have accounts on social media.

### 2.3 Customer Relationship Management (CRM) in Higher Education (Perguruan Tinggi, PT).

Educational institutions in this case Higher Education Institutions (STTP) are organizations that are service based on students, starting with teaching, guidance, guardianship, to job search after students graduate, the application of Customer Relationship Management (CRM) in Higher Education (PT) in predictions will be able to improve including the student-facing process, personalized communication with students, sharing information between departments / bureaus / units / sections and the convenience and of course for the satisfaction of students being served. Referring to the consumer phase in the Customer Relationship Management (CRM) system in general [12], students as the main consumers of educational institutions, so that the phase is divided according to the following phases:

- Suspect are high school / MA / SMK students who have the potential to become candidates as new students of the Pagaralam College of Technology (STTP).
- Prospect: prospective students who are looking for information and already have a certain opinion, of course a positive opinion about the Pagaralam College of Technology (STTP).
- Applicants are high school / MA / vocational students who decide to join one particular

- university (Pagaralam College of Technology).
- Admitted: Students have been selected at the University (STTP).
- Enrollee: Where students have been accepted and undergo an education process at a tertiary institution (PT).
- Alumni: Are students who have completed their education in Higher Education (PT), this phase is formed alma mater loyalty when getting satisfaction when becoming part of Higher Education (STTP).

In the view of researchers from research activities Customer Relationship Management (CRM) in Higher Education (PT), focused mainly on student management activities that changes the student phase from Suspect students to Admitted students, it represents a component of marketing in Customer Relationship Management (CRM). While in the process of changing the phase of Admitted student to Enrollee student, it is said to represent sales activities & changing the phase of Enrollee student to Alumni students will be loyal to represent the retention phase in Customer Relationship Management (CRM), however this student's life cycle needs a very complex form of interaction and long, especially during the student phase, in this case when he was a student at the Pagaralam College of Technology (STTP).

### 3. Identifying the system in higher education (PT).

The object or place of research carried out by researchers at the Pagaralam College of Technology (STT) or Sekolah Tinggi Teknologi Pagaralam (STTP). STTP manages 2 (two) undergraduate study programs. The division of roles between top management consists of the Chairperson, Puket (Assistant Chairperson) and Study Program (at the department level) in terms of student management can be divided according to Table 1. STTP is a private tertiary institution (PTS) managed by the Pagar Alam Foundation (Yayasan Pagar Alam), established since 2004 and conducting Operational in 2005 consisted of Civil Engineering and Informatics Engineering study programs, STT Pagaralam has an integrated online system for Transactional-Centralized and Transactional-Decentralized activities.

This research has made a Customer Relationship Management (CRM) system planning only for transactional-decentralized activities, especially in the Pagaralam College of Technology Information Study Program (STTP), this was done to limit the observations made, later the Customer Relationship

Management system CRM) will be made for the High School level (Institution).

Table 1. Activities in Higher Education (PT)

Authority	Information
Strategic-Centralized	Strategic activities are handled directly by the Pagaralam College of Technology, such as the New Student Admission policy (PMB), Graduation, and others.
Strategic-Decentralized	This strategic activity is handled by study programs (study programs), such as the determination of academic calendars, courses, and others.
Transactional-Centralized	This activity is usually managed by the Pagaralam College of Technology, such as New Student Admissions (PMB), student selection, student registration, finance, graduation, and others.
Transactional-Decentralized	Activities are usually managed by study programs, such as filling in study plans, guardianship, scheduling, academic assessments, lecture attendance, and others.

The following is an existing process (carried out) at a Pagaralam College of Technology or University where the implementation of service activities to students is conducted within one (1) semester, activities at the tertiary institution are called tri dharma, namely education / teaching , research and community service, where the description of the activity / research is only for teaching, can be seen in the business use case in Figure 2, namely:

1. Fill in the Study Plan Card (Kartu Rencana Studi, KRS) which is done online at the beginning of each semester. In addition to charging students, they can also make changes to the KRS that must be approved by a PA lecturer (Academic Advisor/ Pembimbing Akademik/ PA) a week before the lecture.
2. Printing a Study Plan Card (KRS), if the process of filling in or changing the KRS has been carried out next, students can print the KRS whose filling has been consulted with an academic supervisor (PA), the academic supervisor is appointed by the study program coordinator.
3. Approval of Study Plan Cards (KRS) by academic supervisors (PA) can be done online.
4. Assessment, conducted at the end of the semester 2 (two) weeks after the Final Semester Examination (Ujian Akhir Semester, UAS) period by the supporting lecturer, where the grading is done after the teaching and learning process is finished, where for one course the number of meetings is 16 meetings.
5. Study Result Card (Kartu Hasil Studi, KHS),

after an assessment is made, finally the Study Result Card will be made, at the Pagaralam College of Technology the requirements for obtaining a KHS student / student must complete the administration and finance of the semester tuition fees already passed.

6. Lecture / learning schedule, at the beginning of each semester the study program (Prodi) makes a class schedule that will later be shared to the Website / accounts of students and lecturers, the civitas in the learning process must follow this predetermined schedule, changes can be made by report to the study program coordinator at the beginning of the semester.
7. Lecture Presence, the teaching part of the study program does attendance input after each lecture on each day / hour of lecture that has been carried out. Students receive a percentage of attendance at the end of each semester as a condition of attending UAS (minimum 85% attendance in class), students who do not reach this percentage are not allowed exams unless there are special reasons that can be accepted, and even then the number of presentations is not too much.

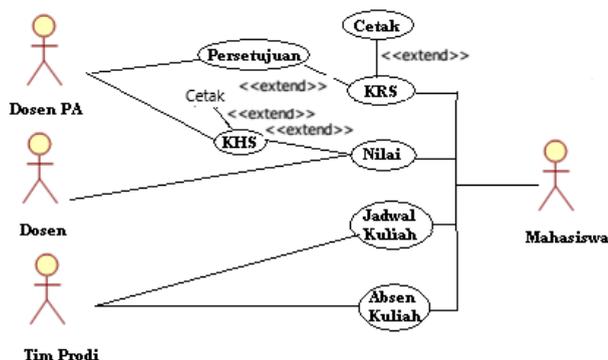


Figure 2. Use case

In Figure 2 above, students are more parties that must be served in the Customer relationship management (CRM) system at the Pagaralam College of Technology (STTP), because students are parties who become products that in turn will become alumni, so that all efforts with all the existing capabilities will be done to change the character of students into the characters needed by the job market (the business world). So for that matter, students must first of all accept the teaching system of the Pagaralam College of Technology.

PA Lecturer (Academic Advisor) is a lecturer assigned specifically by the study program to serve students when students consult or discuss all problems, especially those related to academic or learning problems. Next Lecturers are teaching

staff who provide material to students in the classroom when the learning system is implemented. Finally, the study program team is the coordinator of the study program which is responsible for carrying out the administration that runs in the study program he leads, during the term of office he holds.

#### 4. Customer Relationship Management (CRM) planning in higher education (PT).

##### 4.1 System Analysis

When observing the research method, it was found several obstacles that occurred in the implementation of the Transactional-Decentralized Pagaralam College of Technology, namely:

1. Students are sometimes late in completing this Study Plan Card (KRS) because they do not know the schedule or because they are outside the City of Pagar Alam.
2. The lecturer sometimes also forgets to approve the Study Plan Card (KRS) filled out by the student he is mentoring. This happens because the student fills out his Study Plan Card at the end of the Study Plan Card (KRS) end and cannot do offline guidance. As a result, the student was absent in the course but did not enter the list of grades for certain lecturers.
3. The Semester Credit System (SKS) taken is limited by the value of the previous Semester Achievement Index (IPS), in the following semester students may take a maximum of 24 SKS if they obtain an IPS of at least 3.0.
4. There are students who do not confirm to the guardian lecturer (Academic Supervisor, PA) when they have filled out the Study Plan Card (KRS) at the beginning of the semester.
5. Supporting lecturers (Dosen Pengampu) who teach certain subjects must always be reminded by the study program coordinator about the deadline for entering grades into the institutional system (database / website). After the assessment period ends at the end of each semester, the portal is closed so that grades cannot be entered into the system this will be a complicated problem, because the Academic Section must open the system allegedly when the system is open the party is not responsible for damaging the system.
6. The process of making the schedule is very complicated and complex, because the Study Program team (study program) must pay attention to the day, hour and room used. Where every existing classroom is used with the

principle of resource sharing, because it is considered shared property so that it can be used by all existing study programs at the Pagaralam College of Technology.

- Some other matters relating to the absence of lectures must be considered, namely the minimum number of face-to-face meetings in one semester and the number of attendance of students in learning classes, how many national holidays in one (1) semester must be researched and planned properly.

#### 4.2 Customer Relationship Management (CRM) System Identification

Identifying functional requirements for a Customer Relationship Management (CRM) system based on system analysis can be seen in Table 2, by paying attention to the integration of End-to-end Business Processes, all activities that occur are stored in a well-structured database. Some functions can utilize the Short Message System (SMS) channel, to emphasize more on the level of importance and personal aspects. Therefore system users (lecturers and students) must complete personal data including mobile numbers, e-mails that are active. Non-functional requirements:

- Reliable server system;
- SMS gateway.

Table 2. Identification of Customer Relationship Management (CRM) System Requirements.

Process	Functional	The user	Form
KRS/ KPRS	At the beginning of each semester students will receive a reminder to do KRS / KPRS	College student	Online Website, SMS
	Course information that must be taken is adjusted to the current semester, and those that are eligible to be taken.	College student	Website
	Course information that must be taken is adjusted to the current semester, and those that are eligible to be taken.	College student	Website
	The system suggests taking courses that should have been taken again because of the D / E grades in the previous semester	College student	Website
KRS/ KPRS approval	The system gives notification regarding the presence of KRS / KPRS entering the queue for approval	Guardian lecturer	Website, SMS
	The system gives notification that KRS / KPRS has been approved	College student	Website, SMS

	Information on guardian students who have not yet done KRS, guardian lecturers can follow up by sending messages or reminders	Lecturer	Website
Assessment	The system provides reminders for the deadline for entering values	Supporting lecturer	Website, SMS
	The system provides a reminder about the value of a new subject that has just come out	College student	Website
	The system displays grades in descending order for one class / subject	College student	Website
	The system automatically recapitulates the grade (percentage of each grade) for each subject	Supporting lecturer	Website
KHS	KHS for all semesters passed	College student	Website
	Print KHS in accordance with the required semester	College student	Website
Lecture Schedule	The system automatically checks class schedules, hours and days	Study Program Team	Website
	The system displays lecture schedules according to student accounts	College student	Website
Lecture Presence	The system recapitulates the number of face-to-face meetings	Study Program Team	Website
	The system provides information on the number of meetings that have been done for each course being taught	Supporting lecturer	Website
	The system provides attendance information for each course.	College student	Website
	The system provides a recapitulation of attendance for each course (attendance of less than 80% cannot attend UAS)	College student	Website

## 5. Discussion of results

### 5.1 Discussion

This section clarifies the results of this research, from the bibliography observations section 2 above, the purpose of CRM is customer relationships to increase profits, information for ease and repetitive sales. promotion continuously and consistently in various ways, according to point 2.2 Pagaralam College of Technology must be able to integrate all the potential it has so that it can support each other to get the desired advantages.

Next we need multi-channel technical applications, call center services, websites and e-mail. Recognizing the consumer phase: suspect, prospect, applicant, admitted, enrolle and alumni by knowing this phase STT Pagaralam will know its customers well and increase the number of consumers (students), while in the terrain of tertiary systems in universities there are identified

strategic centralized, strategic decentralized and transactional decentralized whose implementation is carried out at the institutional level, study program.

Another thing that is sometimes not thought of by the leaders of institutions or heads of study programs at tertiary institutions (PT) is non-technical matters, seminal occurs losing some lecturers because of moving campus or because of death, or because of a sudden damage to the service system caused by indeed hardware systems that are too old or because of a sudden natural disaster.

To overcome this, the solution obtained from the Focus Group Discussion held at the time of research at the Pagaralam College of Technology (STTP) must prepare a strategic plan for the development of structured and planned human resources in the long term, regeneration and screening of superior seeds of prospective human resources the reliable must be educated from an early age. So that lecturers do not move to other tertiary institutions, the Pagaralam College of Technology, triggers them by making strict rules and agreements, making comfortable situations so that lecturers feel comfortable, and giving rewards to outstanding lecturers so that lecturers really feel valued for their existence.

5.2 Results

Through discussion 5.1 and referring to obstacles that occur 4.1, and identification of needs such as 4.2, from the results of research, analysis and observation as well as through interviews and focus group discussions (FGD), then based on CRM planning methods in the following things must be done by the management in perform services expected by consumers (stakeholders / students), based on strategies or transactions that must be carried out based on Table 1 viz:

Table 3. Analysis Results & plan conclusions

No	Authority	Service	Service type
1	Strategic-Centralized	Making rules / regulations clear (Rules of leadership) Making guidelines (SOP, Guide) Making rules and instructions or work procedures Making technical rules for multichannel use Integrate the entire service system And others	SI Service rules SI Guidelines SI Work procedures SI Work Instructions SI Means
2	Strategic-Decentralized	Activities handled by study program: academic calendar	Academic SI

		- Courses and others.	
3	Transactional -Centralized	This activity is usually managed by the Pagaralam College of Technology, such as: New Student Admissions(PMB), student selection student registration, finance graduation and others.	SI Admission of new students SI Finance Thesis SI SI Graduation
4	Transactional - Decentralized	Activities are usually managed by study programs, such as: filling out study plans, guardianship, scheduling, academic assessment, lecture attendance, etc.	SI Study Plan Academic SI

Table 3. Is the result of planning analysis that has been done from research conducted at the Pagaralam College of Technology, appropriate planning improvements leading to a fully digitized system, and integrated with each other where all parts or systems must understand and provide precise, clear, and accurate information. valid (true) even though the existing information system (Sistem Informasi, SI) is different, and is controlled by each section which may be fragmented but institutionally unified and controlled information. The above planning (table 3) is only partial, from the results of the analysis there are still many types of services that can be provided by the informatics engineering program or the Pagaralam College of Technology as an institution.

6. Conclusions and suggestions

The following are some conclusions and suggestions that can be drawn from this research.

6.1 Conclusions

This research was conducted at the Pagaralam College of Technology (STTP), especially what happened in the Informatics Engineering study program. Customer Relationship Management (CRM) system planning is carried out on Transactional-Decentralized activities, which are transactional activities managed by the Pagaralam College of Technology. There were 7 (seven) processes that were successfully identified in the Higher Education (PT) system, which subsequently became the basis for planning the functional requirements of the system by taking into account the concept of Customer Relationship Management (CRM). Users involved are

students, guardian lecturers (PA), lecturers and lecturers of academic administration. The proposed Customer Relationship Management system is divided according to previously identified processes. To integrate the system, the existing system is used, the Website and an added SMS gateway to disseminate important information to users personally, with this proposed system, academic activities run smoothly, effectively and efficiently, even students have pride because they can show their presets with very easy to people or their families.

## 5.2 Suggestion

This research can still be developed further. There are still many things that can be reviewed in depth. Customer focus can be expanded, for example, students' parents or other tertiary stakeholders.

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