Sales Promotion System Design with Customer Relationship Management approach at Hotel

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Abstract. The hotel needs to consider how to establish working relationships with other companies and how to continue to increase hotel revenue. The purpose of this research is to design a system that can provide recommendations on the types of promotions given to customers based on the hotel's sales call data, therefore the hotel's revenue targets could be achieved. Based on the results of the analysis that has been done, which is revenue for the next periods and target of sales promotion it can be concluded that the system design is made by calculating using the Trend Linear method can determine the estimated revenue that will be achieved in the future. Therefore, the Customer Relationship Management approach can help the Director of Sales Marketing in determining the target promotion and estimation of the hotel's revenue so that the number of customers can increase.

1. Introduction
Customer Relationship Management is used by companies to improve good relations between customers and companies. The cooperation between the hotel and the agency aims to have the hotel have customer value therefore the companies that were once a partner will come back to the hotel. The success of a business-customer relationship is determined by the quality of the interactions. Whether the interaction occurs via telephone, direct mail, web site, or any other channel, the customer's experience is in the company's hands. If managed improperly, it can undermine the success of that relationship [1].

Customer Relationship Management (CRM) integrating with the Revenue Management strategy has an impact on the hotel case to increase revenue. There is a relationship between customer segmentation, demand forecasting, management information systems, and human resource management in the company [2]. CRM has many similarities with ERP that can be integrated as front-office integration. Creating a CRM solution for most companies is the integration of hardware, software, and application that require analysis of the business process [3]. Then, the impact of the use of information technology in the application of customer acquisition, retention, and maintenance depends on the company's stakeholders and CRM should be implemented with the support of all parties involved, especially companies and customers [4]. Additionally, many organizations decide to use CRM even though they don't know the exact purpose of implementing CRM, some executives declare CRM as customer service, data warehouse processing, customer loyalty, or even those who consider CRM as the development of e-commerce. CRM is a strategic approach by increasing value through customer relationships and segmenting customers [5]. Then, overall to support the successful
implementation of CRM it is also necessary to apply BI (business intelligent) to see whether there is an increase in customer transactions [6].

Based on the problems that have been described, the research is purposed to design a system that can provide recommendations on giving promotion with the Customer Relationship Management approach. Because companies are motivated to adopt CRM is when a company’s competitors implement a CRM system and a company fears losing customers and revenue [7]. Then the sales promotion system design is expected to help the Director of Sales Marketing in determining the proper promotion to the customer and knowing the estimated revenue that will be earned in the next period.

2. Method
The methodology used in this research is descriptive method. This research began with observations at the hotel and collected customer data, sales call data and revenue data. The Framework Dynamic CRM is used in the analysis process. The initial stage is Relationship Initiation by collecting data related to the customer. Customer classification is carried out that might increase hotel revenue. The next step is to calculate hotel revenue estimates using the Trend Moment method. After the calculation is done, the estimated revenue that will be obtained in the next period and which target customers will be given a more appropriate promotion at the Relationship Positioning stage. The next step is to create a system architecture model to build a sales promotion system at the hotel. The sales promotion system design is expected to help the hotel by creating promotional strategies to increase customer satisfaction.

3. Results and Discussion
The purpose of CRM is to enhance the long-term ability to serve customers. The power of any CRM system is dependent upon the quality and the maintenance of information in the system [1]. Then the Director of Sales Marketing should identify based on sales call data in order to know the hotel’s revenue in the future. The following are the stages in Customer Relationship Analysis:

a. Framework Dynamic CRM Analysis
The framework of dynamic CRM is used as a CRM development framework so as to produce information in the form of relationship commitment [8].

Based on the framework of Dynamic CRM, Director of Sales Marketing creating the promotion strategy to improve customer based on hotel’s sales call data. The following are the steps in Dynamic Relationship Management analysis:

1. Relationship Initiation: This phase is collecting all data that is directly related to the customer. This phase is also the initial phase in mapping which types of customers contribute more to the company.

2. Relationship value analysis: This stage is the stage where customers and companies are more precisely identified, by providing more value to customers and then knowing the estimated revenue that will be obtained at the next stage. At this stage, the Director of Sales Marketing will forecast using the Trend Moment method based on a hotel’s sales call data. In its implementation the method could be done with historical data from one variable, the following is the formula of the method:

\[ Y = a + b X \]  

\( Y \), periodic data for a certain period  
\( a \), constant  
\( b \), coefficient X, slope of trend line  
\( X \), time period (day, week, month, or year)
The trend line must first be found for the values of $a$ and $b$. To calculate these variables, you can use the least squares method. Following is the formula of the least squares method for calculating or knowing the values of $a$ and $b$.

$$a = \frac{\sum Y}{n} \text{ dan } b = \frac{\sum XY}{\sum x^2}$$

(2)

$Y$, periodic data value  
$n$, number of time periods  
$X$, code of year

The data that will be used in the calculation is the sales report data from early 2017 to November 2018. This sales report data comes from the customer transaction sales plan data. Table 1 describes the calculating results using formulas.

| Month          | Total transaction value (y) | Number of time periods (x) | (x,y) | $x^2$ |
|----------------|-----------------------------|----------------------------|-------|-------|
| January 2017   | 132                         | -11                        | -1452 | 121   |
| February 2017  | 506                         | -10                        | -5060 | 100   |
| March 2017     | 509                         | -9                         | -4581 | 81    |
| April 2017     | 959                         | -8                         | -7672 | 64    |
| May 2017       | 793                         | -7                         | -5551 | 49    |
| June 2017      | 499                         | -6                         | -2994 | 36    |
| July 2017      | 743                         | -5                         | -3715 | 25    |
| August 2017    | 608                         | -4                         | -2432 | 16    |
| September 2017 | 419                         | -3                         | -1257 | 9     |
| October 2017   | 736                         | -2                         | -1472 | 4     |
| November 2017  | 666                         | -1                         | -666  | 1     |
| December 2017  | 365                         | 0                          | 0     | 0     |
| January 2018   | 457                         | 1                          | 457   | 1     |
| February 2018  | 531                         | 2                          | 1062  | 4     |
| March 2018     | 423                         | 3                          | 1269  | 9     |
| April 2018     | 241                         | 4                          | 964   | 16    |
| May 2018       | 781                         | 5                          | 3905  | 25    |
| June 2018      | 235                         | 6                          | 1410  | 36    |
| July 2018      | 641                         | 7                          | 4487  | 49    |
| August 2018    | 521                         | 8                          | 4168  | 64    |
| September 2018 | 457                         | 9                          | 4113  | 81    |
| October 2018   | 951                         | 10                         | 9510  | 100   |
| November 2018  | 877                         | 11                         | 9647  | 121   |

Based on table 1, the next step is calculating $a$ and $b$ values:

$$a = \frac{\sum Y}{n} \approx \frac{13050}{23} = 567.39$$

After the value of $a$ is obtained, the next step is to calculate the value of $b$, the value of $b$ is the value of the slope of the trend line.

$$b = \frac{\sum XY}{\sum x^2} \approx \frac{4140}{1012} = 4.09$$
The next step is to enter the calculated values a and b into the formula moment trend method:

\[ Y = 567.39 + 4.09(12) \]
\[ Y = 567.39 + 49.08 \]
\[ Y = 616.47 \]

Based on the results of these calculations, it can be concluded that the estimated number of customer transactions is 617 transactions for October 2018. Then the Director of Sales Marketing will estimate potential customers who will be given a special promotion so that the promotion will be right on target to increase revenue. The following Table 2 is described companies that are potential customers of the Hotel that will be given special promotions in order to increase revenue.

| Number | Companies                  |
|--------|----------------------------|
| 1      | Dirgantara Indonesia       |
| 2      | Gereja Yesus Kristus OSZA  |
| 3      | BJB Syariah Bandung        |
| 4      | BIRD Privileges Card       |
| 5      | Kemenpora                  |

Table 2 is defined based on sales report data in November 2018, then the Director of Sales Marketing can find out the estimated total revenue based on the company's target data multiplied by the results of the previous calculation.

3. Relationship Positioning: at this stage is maintaining a long-term relationship between the customer and the company. The Hotel will create promotional information through the web site and media partner platforms.

b. System Architecture Model

Based on the analysis result of Dynamic Relationship Management steps then Figure 1 describes the system architecture model of sales promotion at Hotel.

![Figure 1. System Architecture Model of Sales Promotion System at Hotel](image-url)
Based on the system architecture model, then the next step is creating the system interface design.

c. Sales Promotion System Design

Figure 2 below is an example of the user interface for the recommendation process to estimate potential customers who will be given special promotions.

![Figure 2. The system Interface design of the recommendation process](image)

Based on the results of the analysis that has been done, the sales promotion system can be used by the Director of Sales Marketing in knowing estimates of potential customers who will be given a promotion with the CRM approach. Actually, the success factor of implementing CRM is the importance of initiatives from the IT department in helping marketing, the need for business process sustainability on customer desires, the need for organizational culture to change, and the importance of managing IT infrastructure [9]. The use of technology and social media can influence customers to filter messages, promotions, and advertisements, therefore the adoption of a CRM system allows customers to compare prices from competing companies. Technology in a CRM system must continue to evolve if it wants to survive by engaging customers and generating value for the company and customers [10].

4. Conclusion

Based on the analysis and the results of the research already done, it can be concluded that the calculation of sales call recommendations helps the Director of Sales Marketing in making revenue targets in the following months. Then based on these estimates, the Director of Sales Marketing can determine which target customers will be given the right promotions so that the system design is expected that the hotel can increase revenue and the number of customers can increase.

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