

## CRM IN RETAINING CUSTOMERS TO INCREASE VISICOM STORE SALES WITH THE ANALYTICAL HIERARCHY PROCESS METHOD

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### Abstract

Customer Relationship Management is a business strategy designed to optimize profits, income, and customer satisfaction to achieve ease of doing everything so that it is easy to access information about existing products. This development can have a good impact on business people, Customer Relationship Management (CRM) is one of the business strategies to meet these goals by combining CRM and analytic hierarchical process (AHP). For this reason, the author uses AHP to achieve this business strategy. So this study proposes combining the concept of DSS with CRM as an improvement in the company's business strategy process. By taking data at the Visicom store, the author finally gets data that can be applied to the AHP method to find product recommendations to customers.

**Keywords:** Customer Relationship Management, Analytical Hierarchy Process.

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## INTRODUCTION

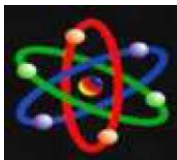
In cyberspace, many applications have been made, such as applications in the online sales process that are used to make it easier to get information online either for yourself or the general public, especially customers and other website visitors. On a website, there is an admin who can view and manage the contents on a website, such as adding information and giving access rights to users (user accounts) who play a role in providing some information or benefits to the system, where the right to access is given to users is limited. In the development of online sales applications, one of them is a CRM (Customer Relationship Management) application. CRM is a combination of corporate strategy, business processes, and information technology that is used to learn more about customer needs and behaviors to develop strong relationships with them. In other words, CRM is intended to provide knowledge to develop and implement smart strategies and most customers to maximize customer profitability. The decision support system (SPK) is part of a computer-based information system that is used for decision-making in an agency or company. A decision support system is built to make it easier for someone to make a decision. This system can decide according to the consideration of the criteria that have been entered before. One of the SPK methods is the AHP method, the AHP method is one of the techniques used to overcome uncertainty in making decisions. The advantage of the AHP method is that it has advantages in terms of decision-making processes and accommodations for attributes both quantitative and qualitative.

Visicom electronics store is an electronics store that acts as a distributor of electronic devices for other electronic stores in the city of Padang. The visicom store sells several products such as lamps, mosquito rackets, headlights, floodlights, outdoor antennas, and others. The increasing competition with other electronics stores makes visicom stores race – a race to retain their customers to increase their sales. But currently, the Visiocom Store does not have a specific strategy that handles marketing, product marketing is only done simply by the way the customer provides information about its location, its price, and its products to other potential customers. This way of marketing, causes the opportunity to increase sales to be not optimal.

### Customer Relationship Management (CRM)

CRM (Customer Relationship Management) is an enterprise strategy to optimize the profitability of the company while retaining and increasing the number of customers. The main objective of the strategy is to develop customer satisfaction, including clients, nurture customers through customer experience, attract new customers, win contracts, and increase profits, by reducing customer management costs (Ariyanti, 2017) [1], and CRM also as a core business strategy, which integrates internal business processes and functions with external networks, to create and provide value that benefits certain customers (Sumardi, 2021) [2]. The benefits of CRM are as follows (Adithya, 2021) [3]:





1. Increased revenue.
2. Encourage customer loyalty.
3. Reduce costs.
4. Improve operational efficiency.
5. Increased time to market.

4	0,90
5	1,12
6	1,24
7	1,32
8	1,41
9	1,45
10	1,49

### **Analitycal Hierarchy Process (AHP)**

AHP (Analytical Hierarchy Process) is a decision support method developed by Thomas L. Saaty. This decision-supporting model will describe complex multifactorial or multicrystal problems in a hierarchy. According to Saaty (1993), hierarchy is defined as the representation of a complex problem in a multi-level structure where the first level is the goal, followed by the level of factors, criteria, sub-criteria, and so on until the last level (Munthafa & Mubarok, 2017) [4]. Analytical Hierarchy Process (AHP) is used to solve problems that have many factors and many criteria. AHP can help solve the problem by conducting simultaneous and integrated analysis between the parameters of the existing criteria. The value of these parameters can be quantitative or qualitative or a combination of both, where qualitative parameters are first converted into quantitative parameters to produce more objective decisions (Yulistia, 2020) [5], The Analytic Hierarchy Process (AHP) method is a method that models complex and unstructured problems into a multilevel or tiered form of the problem, and the elements at each level will be given a qualitatively subjective evaluation. This method is relatively used to resolve disputes related to decision-making. (Fadillah et al., 2021) [6].

Matrix Size	IR Value
1,2	0,00
3	0,58

Table 1. Random Consistency (IR) Index List

### **RESEARCH METHODS**

CRM forms a collaboration with each consumer that can produce a state that does not harm one of the parties (win-win situation), that is, the company increases the value in the daily life of each consumer, and in return, the consumer gives loyalty to the customer (Amin Widjaja,. 2008) [7]. Implementation is the stage of mapping the system so that it is ready for operation. The implementation aims to confirm the design modules so that the user can provide input to the development of the system. At this stage, the design of the system is carried out using PHP and MySQL programming languages. As well as using sublime text or visual studio code to create a CRM website. Implementation is the stage of mapping the system so that it is ready for operation. The implementation aims to confirm the design modules so that the user can provide input to the development of the system. At this stage, the design of the system is carried out using PHP and MySQL programming languages. As well as using sublime text or visual studio code to create a CRM website.





## RESULTS AND DISCUSSION

### AHP Process

The data analysis process is where the data is in the form of criteria that are used as an assessment in helping CRM strategies in increasing sales. The method used in analyzing this data is to apply the AHP (Analytical Hierarchy Process) method to produce information in the form of a linkage to the criteria for the data that is managed later, as well as the steps needed for the desired design to the expected analysis.

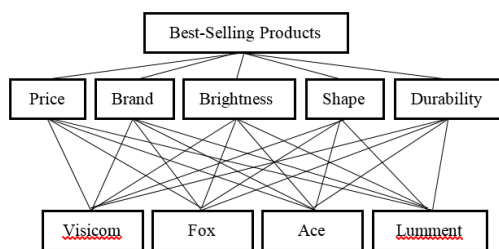


Figure 1. Tree Hierarchy

Criteria	Subcriteria
Price (k1)	Visicom(A1),Fox(A2), Ace(A3),Lumment(A4)
Brand (k2)	Visicom(A1),Fox(A2), Ace(A3),Lumment(A4)
Brightness (k3)	Visicom(A1),Fox(A2), Ace(A3),Lumment(A4)
Shape (k4)	Visicom(A1),Fox(A2), Ace(A3),Lumment(A4)
Durability (k5)	Visicom(A1),Fox(A2), Ace(A3),Lumment(A4)

Table 2. Criteria and Subcriteria Grouping

Criteria	K1	K2	K3	K4	K5
<b>K1</b>	1	3	5	3	3
<b>K2</b>	0,33	1	3	3	5
<b>K3</b>	0,2	0,33	1	2	2
<b>K4</b>	0,33	0,33	0,5	1	3
<b>K5</b>	0,33	0,2	0,5	0,33	1
Sum	2,19	4,86	10,00	9,33	14,00

Table 3. Paired Matrix

The number 1 in the price column and the price row describes the same level of importance between values and values, while the number 3 in the price row and brand column indicates that it is slightly more important between price and brand. The number 0.33 in the brand row in the price column is the result of the division of the number 1 in the row and the brand column with the number 3 in the row and the brand column. While the other numbers are obtained in the same way. After this, we look for the priority calculation of the value obtained from the sum column, which is summed up as the value of each row in table 3 and then divided by the value in k1 to k5 in table 3, such as 2.19 divided by 1 and so on. Still, in the calculation of priorities we look for the number obtained from the total value on each line, for example, 2.11 then we look for the priority obtained from 2.11 divided by 5 the result is 0.42, and the number 5 is obtained because we have 5 criteria. After that, we look for the sum of each row obtained from the priority calculation multiplied by the numbers in table column 3, such as 0.42x1 then 0.42x0.33, and so on. After multiplying all, we find the sum by adding all the searches inline, for example, 2.40. After that we look for the calculation of the consistency ratio where the sum of each row is divided by the priority of the criteria value, such as 2.40:0.42 the result is 5.71 look so on, and then sum it up and get the result 27.07.

um	27,07
N (number of criteria) (see table 1)	5
$\lambda_{maks} = \text{Sum}/n = 27,07/5$	5,414
$CI = (\lambda_{maks} - n)/(n-1) = (5,414-5)/(5-1)$	0.1035
$CR = (CI/IR) = 0,1035/1,12$ (see table 1, IR values)	0.09





Consistency Ratio Accepted

Table 4. Consistency Ratio Calculation Result Table

Do the same calculations and ways to find K1-K5 using alternatives to visicom, fox, ace, and lumment. After looking for the 4 alternatives, we look for the priority values of the criteria and subcriteria.

$$\begin{matrix} 0,43 \\ 0,27 \\ 0,12 \\ 0,11 \\ 0,06 \end{matrix} \times \begin{matrix} 0,55 & 0,47 & 0,42 & 0,42 & 0,54 \\ 0,25 & 0,33 & 0,30 & 0,30 & 0,27 \\ 0,12 & 0,13 & 0,16 & 0,16 & 0,13 \\ 0,08 & 0,08 & 0,12 & 0,12 & 0,07 \end{matrix}$$

Formula 1. Multiplication Of Criteria And Alternatives

The results in columns K1-K5 are obtained from the numbers in table 3,  $1 \times 3 \times 5 \times 3 \times 3$  and then the results are raised to the rank of  $1/n$ . Do it until endurance, then total the result and divide it with a result of  $1 \times 3 \times 5 \times 3 \times 3$  which has been raised to the rank of  $1/n$ . While the results in columns A1-A4 can be from the search priority K1 against A1-A4.

A1	0,50
A2	0,29
A3	0,14
A4	0,08

Table 5. Final Decision Table

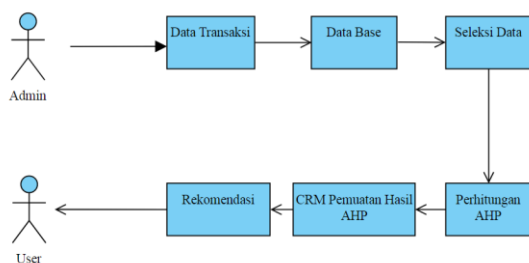


Figure 2. Transaction Data Management Process

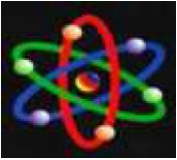
The admin carries out the management process of transaction data, then takes the transaction data needed, then the transaction data entered in the database, then the data is selected which will be used in the AHP process, then carries out the AHP calculation process through the selected data, then the AHP calculation results will be used in the CRM concept, namely where this AHP calculation will be used to recommend products, and users can take advantage of it when searching for products on their web.

### CONCLUSION

Based on the discussion that has been conveyed in the previous chapter, namely after conducting in-depth research and analysis. The author finally came to the following conclusion:

1. By applying the Analytical Hierarchy Process method where The Visicom Store can take advantage of the AHP calculation on the website. Where the AHP calculation is used to provide recommendations that will be displayed when the user searches for a product sorted from the first to the last device to retain customers and increase sales.
2. With this Customer Relationship Management (CRM) system, Visicom Stores can become an effective and efficient promotional medium for customers where they can maintain and facilitate customers to shop. Like the discount when buying on the visicom website, customers who are lazy to go to the store can get products online and order products online, and customers just wait at home waiting for the ordered products to arrive.





3. With this research, Toko Visicom applies strategies to build relationships with wider customers. Stores can establish more and wider customer-buyer relationships. Because the website can be accessed from anywhere and anytime, customers can also buy products anytime they want. This can certainly increase store sales results and increase regular customers.

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