# Used Car Customer Segmentation Using K-Means Clustering Model With SPSS Program: Case Study Caroline. Id 

Muhammad Farhan, Jerry Heikal<br>Master of Management, Bakrie University<br>Email : 2221011019@student.bakrie.ac.id, Jerry.heikal@bakrie.ac.id<br>Correspondence: 2221011019@student.bakrie.ac.id*

KEYWORDS
Customer Segmentation, Automobile Dealer, Clustering, K-Means, Marketing, Persona

## ABSTRACT

This study discusses the use of the K-Means clustering algorithm to determine market segmentation and prepare targeted marketing strategies. The process involves grouping customer data based on various factors such as transmission type, customer satisfaction, payment method, and branches. After grouping the data, the initialization stage is carried out by providing an initial number, and then the clustering process is carried out. The resulting clusters are analyzed to identify different customer profiles and needs. With an indepth understanding of each segmentation, companies can develop specific and targeted marketing strategies for each customer group. Additionally, this study discusses the construction of a brand persona by identifying the target audience, understanding their needs and wants, creating a character profile, and compiling a brand persona document that includes all the important information. The customized brand persona can then be used in the development of online value propositions and marketing strategies.

Attribution-ShareAlike 4.0 International (CC BY-SA 4.0)


## 1. Introduction

The used car market still has a large prospect in Indonesia. Used car businesses are also trying to optimize digitalization to boost sales (Luturlean \& Se, 2019). Especially in Jakarta the economic center of Indonesia, the odd-even rule on several streets has an impact on the sale of used cars, which increased by $20 \%$ in 2018 when the rule was implemented (HADI, 2020) (Santo Sirait, 2018). An increasing number of companies in the service sector, including the used car business, are recognizing their customers as their most valuable resources. According to Nailul Huda, Director of Digital Economy Celios, as quoted from CNN Indonesia on November 21, 2023. The interest in buying used cars is quite high. If new car sales can grow by $7 \%$, then used car sales can double or triple. This is because there are no longer any incentives from the government to buy new cars as has been the case in recent years. The competition for used car sales in Indonesia is quite tight, the presence of foreign players such as Carsome and Carro as well as domestic players such as mobil88 and OLX show that
the used car market in Indonesia is still profitable. The key to survival and sustaining a competitive edge lies in understanding and effectively meeting customer needs (Budianto \& Setiawan, 2020) (Athanassopoulos, 2000; Thomas, 2001; Verhoef \& Donkers, 2001; Jones et al., 2002; Van den Poel \& Larivie're, 2004; Li, 2012). Addressing customer requests promptly can contribute to establishing enduring connections between a company and its clientele and boost customers' intent to make repeat purchases. (Ozer, 2001; Anderson et al., 2004; White \& Yu, 2005; Chang \& Ku, 2009).

The importance of using the Model Using K-Means Clustering with the SPSS program in this study is to segment customers in the used car industry. Using clustering methods such as K-Means, customer data can be grouped into clusters based on certain characteristic similarities. This allows companies to understand customer profiles and needs more deeply, to develop specific and targeted marketing strategies for each customer group.

The way the K-Means Clustering Model works is initialization, which determines the desired number of initial clusters. At this stage, the starting center point for each cluster is randomly selected. Each customer's data is then grouped into clusters closest to its central point. The distance between the data and the cluster center point is calculated using certain metrics, such as Euclidean distance. After the initial grouping, the cluster center point is updated by calculating the average of all data included in that cluster. This update is performed for each cluster. The process of clustering and updating the cluster center point is done iteratively until there are no significant changes in the clustering of data. Iteration lasts until convergence is achieved as well as cluster analysis i.e. once the iteration is complete, analysis is performed to understand the characteristics and preferences of customers within each cluster. This helps identify different customer profiles and understand their needs more deeply.

Using the K-Means Clustering Model, companies can identify different market segments and develop marketing strategies that fit each of them. In addition, this model can also help in the development of an effective online value proposition by understanding the needs and problems of the target audience as well as offering unique solutions that differentiate the company from competitors and convey clear and convincing added value through short, concise, and compelling messages.

In the context of this study, a Model Using K-Means Clustering with the SPSS program is a proposed solution to analyze used car customer segmentation and develop specific and targeted marketing strategies. By understanding customer needs and preferences within each cluster, companies can optimize their marketing efforts and improve overall marketing success.

Customer segmentation plays a crucial role in the realm of Customer Relation Management (CRM) research. To tailor marketing strategies to different customer profiles, companies utilize statistical and data mining methods to analyze customer data (Kotler, Keller, Ang, Tan, \& Leong, 2018); (Roy, 2000); (Reynolds, 2006); Bassi, 2007; Viswanathan et al., 2007; Zhang et al., 2007). Among these methods, clustering analysis is employed as a technique for customer segmentation, dividing data objects into distinct groups or clusters based on a predetermined measure of similarity. The objective is to ensure that all instances within a cluster share similarities with one another while being distinct from instances in other clusters (Shaw et al., 2001). Previous research has demonstrated that employing clustering techniques for customer segmentation can yield favorable outcomes, aiding in the development of marketing strategies that contribute to increased marketing success.

This study presents a real case study of customer segmentation for a used car dealer in Caroline. id. Until March 2023, Caroline. id car sales are estimated to have reached 610 units, or a growth of 172.3 percent compared to the same period in 2022, which was only 224 units. Since January this year, overall, the Company has opened 4 new Caroline.id showrooms. Where in March, Caroline. id just opened a flagship showroom office in Serpong, Banten which can accommodate more than 50 units of cars.

According to Mordor Intelligence (2023), the used car market in Indonesia had a value of approximately 50.77 billion US dollars in 2021 and is projected to reach 70.43 billion US dollars by 2027, with an average annual growth rate of around $5.74 \%$ during the forecast period (2022-2027). That way used car sales are predicted to increase. Based on the data on increasing sales and predictions of future sales, research must be carried out on the target market and buyers from various Caroline. id branches spread across several regions.

So, the authors are interested in conducting research "Used Car Customer Segmentation Using K-Means Clustering Model with SPSS Program: Case Study Caroline. id", with the aim of the research being to analyze the characteristics of Caroline. id consumers to determine consumer segmentation. The results of this consumer segmentation will later be useful for Caroline. id's marketing division in selecting promotional strategies that are by the characteristics of potential customers.

## 2. Materials and Methods

In this research, the research method used by the researcher is as follows:

## Collection and processing of buyer data

Data was obtained through observation and sales data at several dealers from January 2023 until April 2023.

## Preprocess data

The data pre-processing stage is a process for preparing raw data before other stages are carried out, which include:
a) Attribute Analysis

Before processing the data, attribute selection is carried out by selecting the data to be used in the data grouping process. The selection of attributes is based on the company's needs. The selected attributes are then analyzed using the SPSS application. Attribute analysis was performed to understand the relationship between eight variables, ie generation, gender, a brand of car purchased, vehicle transmission, customer satisfaction, knowing the company, payment methods, and branches. b) Cluster Number Analysis

After analyzing the attributes, the next step is to analyze the number of clusters.
To prepare the data for the clustering process, the data pre-processing stage involves selecting the relevant attributes and analyzing the number of clusters using the Elbow method to determine the number of clusters optimal.

## Data grouping

Grouping sales data must be done before using the k-means clustering method. Sales data that has nominal attributes such as generation, gender, brand of car purchased, vehicle transmission, customer satisfaction, knowing the company, payment methods and branches must undergo an initialization process first. The initialization process involves grouping data in alphabetical order. The following is the grouping of data that is done:
a) Generations: Gen-Z, Millennials, Gen-X, and Baby Boomers
b) Gender: Male or female.
c) Car Brands: Honda, Toyota, Nissan, Mitsubishi, Wuling, Suzuki, Daihatsu, Hyundai and Mazda.
d) Transmission: Manual or Automatic.
e) Customer Satisfaction: Moderately Satisfied or Satisfied
f) Knowing the Company: OLX, Friends, Facebook, Employees, Branches, Websites, Googling, Instagram, Mobil123, Family, and Ads.
g) Payment Method: Cash or Credit
h) Branches: Bogor, Bekasi, Depok, Cempaka Putih, Gading Serpong, Medan, Makassar, Pondok Pinang, Palembang, Semarang, Tambun and Mangga Dua.

## Data initialization

After grouping the data, the initialization stage is carried out by providing an initial number.
Then based on the data above, the clustering process is carried out, according to the clustering process flow with the K-Means algorithm as illustrated in the following chart:


## Determination Of Market Segmentation Which Is The Target For Preparing Marketing Strategies.

To determine market segmentation based on the results of K-means clustering, the first step is to identify the groups or clusters resulting from the K-means algorithm. Then, analyze the characteristics and preferences of customers in each cluster to identify different profiles and needs. With an in-depth understanding of each segmentation, companies can develop specific and targeted marketing strategies for each customer group.

## Determination of Brand Persona and Online Value Proposition

To construct a brand persona, the following steps can be followed. First, identify the target audience by gathering information on their demographics, preferences, and behavior. Then, do indepth research to understand their needs and wants. After that, create a character profile that describes the characteristics and personality of the target audience. Next, create a story that shows their background, motivation, and challenges. If there is variation in the target audience, create a different segment persona for each significant segment. Additionally, compile a brand persona document that includes all the important information. Lastly, use customized brand persona in the development of marketing strategies and business decisions. Thus, a brand persona will help companies understand and interact with the target audience effectively.

The way to develop an Online Value Proposition is to identify the needs and problems of the target audience, offer unique solutions or benefits that differentiate the company from competitors, and convey clear and convincing added value to potential visitors or customers through short, concise, and attractive messages.

## Compilation of Marketing Strategy 8p

The method for preparing the marketing mix strategy involves eight important elements known as the 8P's, namely product, price, place, promotion, people, process, physical evidence, and packaging. In developing a marketing strategy, companies must pay attention to each of these elements to design suitable products, determine competitive prices, choose the right distribution channels, implement effective promotion strategies, involve people in the organization, optimize
business processes, and provide physical evidence to support and design attractive packaging. With an integrated approach to the 8P's, companies can achieve success in product marketing and win competition in the market.

## 3. Result and Discussion <br> Data processing

After carrying out the clustering process using the k-means algorithm on the clustering application, it is identified two clusters consisting of several members with similar characteristics. Information about the members in each of these clusters can be found in Table 1 and Table 3.

Table 1. Initial Cluster Centers

|  | Cluster |  |
| :--- | ---: | ---: |
|  | $\mathbf{1}$ | $\mathbf{2}$ |
| Generasi | .00000 | 3.00000 |
| Gender | 1.00 | 1.00 |
| Umur | 21.00 | 64.00 |
| Harga | -63 | -.45 |
| Merek | 1.00 | 5.00 |
| Transmisi | 1.00 | 1.00 |
| Tahun Pembuatan | 2017.00 | 2019.00 |
| Kepuasan | 1.00 | 1.00 |
| Caroline | 8.00 | 1.00 |
| Pembayaran | 1.00 | .00 |
| Cabang | 6.00 | 8.00 |

Table 2. Iteration History Iteration History

| Iteration History |  |  |
| :---: | :---: | :---: |
| Iteration | Change in Cluster Centers |  |
|  | $\mathbf{1}$ | $\mathbf{2}$ |
| 1 | 13.537 | 14.332 |
| 2 | .175 | .334 |
| 3 | .000 | .000 |

a.Convergence achieved due to no or small change in clusters. The maximum absolute coordinate change for any center is .000 . The current iteration is 3 . The minimum distance between initial centers is 43.955

Table 3. Final Clustering

|  | Cluster |  |  |
| :--- | ---: | ---: | ---: |
|  | $\mathbf{1}$ | $\mathbf{2}$ |  |
| Generasi | .79439 | 1.81132 |  |
| Gender | .20 | .21 |  |
| Umur | 33.01 | 50.04 |  |
| Harga | -.03 | .07 |  |
| Merek | 2.50 | 1.85 |  |
| Transmission | .77 | .74 |  |
| Tahun Pembuatan | 2018.23 | 2018.09 |  |
| Kepuasan | .94 | .96 |  |


| Caroline | 2.56 | 3.00 |
| :--- | ---: | ---: |
| Pembayaran | .27 | .23 |
| Cabang | 5.90 | 6.30 |

Based on the clustering for each of the attributes above, it can be seen which attribute is included in cluster 1 and cluster 2, based on the highest value. For example, for generation, based on the value, it is greater in cluster 2 (1.81132), so it is included in cluster 2. Based on this reference, a table for each cluster can be made with its attributes:

Table 4. Cluster Attributes
Atribut Cluster

|  | Atribut Cluster |
| ---: | ---: | ---: |
| $\mathbf{1}$ | $\mathbf{2}$ |
| Merek | Generasi |
| Tahun Pembuatan | Gender |
| Pembayaran | Umur |
|  | Harga |
|  | Kepuasan |
|  | Caroline |

Table 5. ANOVA

|  | Cluster |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  | Mean <br> Square | df |  | Mean <br> Square | df |  |  |
| Generasi | 36.654 | 1 | .289 | 158 | 127.031 | Sig. |  |
| Gender | .005 | 1 | .162 | 158 | .028 | .000 |  |
| Umur | 10277.485 | 1 | 29.386 | 158 | 349.746 | .068 |  |
| Harga | .352 | 1 | 1.004 | 158 | .351 | .554 |  |
| Merek | 14.804 | 1 | 4.795 | 158 | 3.088 | .081 |  |
| Transmisi | .033 | 1 | .186 | 158 | .177 | .675 |  |
| Tahum | .688 | 1 | 6.504 | 158 | .106 | .745 |  |
| Pembuatan |  |  |  |  |  |  |  |
| Kepuasan | .012 | 1 | .048 | 158 | .248 | .619 |  |
| Caroline | 6.839 | 1 | 6.104 | 158 | 1.120 | .291 |  |
| Pembayaran | .071 | 1 | .281 | 158 | .251 | .617 |  |
| Cabang | 5.805 | 1 | 9.513 | 158 | .610 | .436 |  |

The F tests should beused only for descrptive purposes because the clusters have been chosen to maximize the fifferences among cases in different clusters. The observed significance levels are not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

Based on Table 5. The ANOVA above illustrates the difference in an attribute between cluster 1 and cluster 2. To determine whether there is a difference, it can be seen from the significance value (sig.) or p-value, that is, if sig. $<0.000$ indicates a significant difference between cluster 1 and cluster 2. Based on the results above, it can be seen that the attributes that have a significance value of $<0.05$ are generation and age. Meanwhile for the attributes that do not show a significant difference between cluster 1 and cluster 2 .
e-ISSN: 2723-6692 p-ISSN: 2723-6595
From the two clusters that have been formed, it can be seen the number that entered cluster 1 and cluster 2. Based on Table 13 below, it is known that Cluster 1 consists of 107 buyers and Cluster 2 of 53 buyers.

Table 6. Number of Cases in each Cluster

## Number of Cases in each Cluster

| Cluster |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
|  |  |  | 107.000 |
|  |  |  | 53.000 |
| Valid |  |  | 160.000 |
| Missing |  |  | .000 |

The next step is to determine whether each buyer or customer belongs to clusters 1 and 2 . Based on the results of the analysis, cluster membership is obtained as follows.

| Buyers | Clusters | Buyers | Clusters | Buyers | Clusters | Buyers | Clusters |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | 41 | 1 | 81 | 1 | 121 | 2 |
| 2 | 2 | 42 | 1 | 82 | 1 | 122 | 1 |
| 3 | 1 | 43 | 2 | 83 | 1 | 123 | 2 |
| 4 | 1 | 44 | 1 | 84 | 2 | 124 | 2 |
| 5 | 1 | 45 | 2 | 85 | 1 | 125 | 2 |
| 6 | 1 | 46 | 1 | 86 | 1 | 126 | 1 |
| 7 | 1 | 47 | 2 | 87 | 1 | 127 | 2 |
| 8 | 1 | 48 | 1 | 88 | 1 | 128 | 1 |
| 9 | 1 | 49 | 1 | 89 | 1 | 129 | 1 |
| 10 | 1 | 50 | 1 | 90 | 1 | 130 | 1 |
| 11 | 1 | 51 | 2 | 91 | 1 | 131 | 1 |
| 12 | 2 | 52 | 1 | 92 | 2 | 132 | 2 |
| 13 | 1 | 53 | 2 | 93 | 1 | 133 | 1 |
| 14 | 1 | 54 | 2 | 94 | 2 | 134 | 2 |
| 15 | 2 | 55 | 1 | 95 | 1 | 135 | 1 |
| 16 | 2 | 56 | 2 | 96 | 2 | 136 | 2 |
| 17 | 1 | 57 | 1 | 97 | 1 | 137 | 1 |
| 18 | 2 | 58 | 2 | 98 | 2 | 138 | 2 |
| 19 | 2 | 59 | 1 | 99 | 1 | 139 | 1 |

e-ISSN: 2723-6692 $\mathbb{C D}$ p-ISSN: 2723-6595

| Buyers | Clusters | Buyers | Clusters | Buyers | Clusters | Buyers | Clusters |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 20 | 1 | 60 | 1 | 100 | 1 | 140 | 2 |
| 21 | 2 | 61 | 1 | 101 | 2 | 141 | 1 |
| 22 | 1 | 62 | 1 | 102 | 2 | 142 | 2 |
| 23 | 1 | 63 | 1 | 103 | 1 | 143 | 1 |
| 24 | 1 | 64 | 2 | 104 | 1 | 144 | 1 |
| 25 | 1 | 65 | 1 | 105 | 1 | 145 | 1 |
| 26 | 1 | 66 | 2 | 106 | 2 | 146 | 1 |
| 27 | 1 | 67 | 1 | 107 | 1 | 147 | 1 |
| 28 | 1 | 68 | 1 | 108 | 1 | 148 | 1 |
| 29 | 2 | 69 | 2 | 109 | 1 | 149 | 1 |
| 30 | 2 | 70 | 1 | 110 | 1 | 150 | 1 |
| 31 | 2 | 71 | 1 | 111 | 1 | 151 | 1 |
| 32 | 1 | 72 | 2 | 112 | 1 | 152 | 1 |
| 33 | 1 | 73 | 1 | 113 | 2 | 153 | 1 |
| 34 | 2 | 74 | 2 | 114 | 2 | 154 | 1 |
| 35 | 2 | 75 | 1 | 115 | 2 | 155 | 1 |
| 36 | 2 | 76 | 1 | 116 | 1 | 156 | 2 |
| 37 | 2 | 77 | 2 | 117 | 1 | 157 | 1 |
| 38 | 1 | 78 | 2 | 118 | 1 | 158 | 1 |
| 39 | 1 | 79 | 1 | 119 | 1 | 159 | 1 |
| 40 | 1 | 80 | 2 | 120 | 1 | 160 | 1 |

Of the two clusters formed above, it is known that cluster 1 is the most with a total of 107 buyers. This cluster needs to be the focus of the marketing division's attention because it has the potential to be optimized to increase company sales. The following is a profile or buyer persona in cluster 1 based on the attributes of generation, gender, age, price, brand, transmission, year of manufacture, satisfaction, caroline, payment, and branch.

Table 7. Generation

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Valid | Gen Z | 24 | 22.4 | 年 22.4 | 22.4 |
|  | Milenial | 82 | 76.6 | 76.6 | 99.1 |
|  | Baby Boomer | 1 | 9 | 9 | 100.0 |
|  | Total | 107 | 100.0 | 100.0 |  |
| Table 8. Gender |  |  |  |  |  |
|  |  | Frequency | Percent V | Valid Percent Cu | Cumulative Percent |
|  | Valid Pria | 86 | 80.4 | 80.4 | 80.4 |
|  | Wanita | 21 | 19.6 | 19.6 | 100.0 |
|  | Total | 107 | 100.0 | 100.0 |  |
| Table 9. Age |  |  |  |  |  |
|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | <=30 tahun | 27 | 25.2 | 25.2 | 25.2 |
|  | 31-40 tahun | 68 | 63.6 | 63.6 | 88.8 |
|  | 41-50 tahun | 12 | 11.2 | 11.1 | 100.0 |
| Total |  | 107 | 100.0 | 100.0 |  |

Table 10. Prices

|  | Frequency | Percent | Valid Percent | Cumulative Percent |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: |
| Valid $<100 \mathrm{jt}$ | 7 | 6.5 | 6.5 | 6.5 |  |
|  | $100 \mathrm{s.d}<200 \mathrm{jt}$ | 93 | 86.9 | 86.9 | 93.5 |
| $200 \mathrm{s.d}<300 \mathrm{jt}$ | 4 | 3.7 | 3.7 | 97.2 |  |
| 300 s.d <400jt | 1 | .9 | .9 | 98.1 |  |
| $>=500 \mathrm{jt}$ | 2 | 1.9 | 1.9 | 100.0 |  |
| Total | 107 | 100.0 | 100.0 |  |  |

Table 11. Brands

|  |  | frequency | percent | Valid Percent | Cumulative Percent |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Valid | Honda | 18 | 16.8 | 16.8 | 16.8 |
|  | Toyota | 36 | 33.6 | 33.6 | 50.5 |
|  | Nissan | 14 | 13.1 | 13.1 | 63.6 |
|  | Mitsubishi | 6 | 5.6 | 5.6 | 69.2 |
|  | Wuling | 1 | . 9 | . 9 | 70.1 |
|  | Suzuki | 14 | 13.1 | 13.1 | 83.2 |
|  | Daihatsu | 16 | 15.0 | 15.0 | 98.1 |
|  | Hyundai | 1 | . 9 | . 9 | 99.1 |
|  | Mazda | 1 | . 9 | . 9 | 100.0 |
|  | Total | 107 | 100.0 | 100.0 |  |

Table 12. Transmission

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Valid | Manual | 25 | 23.4 | 23.4 | 23.4 |
|  | Matic | 82 | 76.6 | 76.6 | 100.0 |
|  | Total | 107 | 100.0 | 100.0 |  |

Table 13. Year of Manufacture

|  | Frequency | Percent | Valid Percent | Cumulative Percent |
| :---: | :---: | :---: | :---: | :---: |
| Valid | 3 | 2.8 | 2.8 | 2.8 |
|  | 2 | 1.9 | 1.9 | 4.7 |
|  | 3 | 2.8 | 2.8 | 7.5 |
|  | 3 | 2.8 | 2.8 | 10.3 |
|  | 3 | 2.8 | 2.8 | 13.1 |
|  | 6 | 5.6 | 5.6 | 18.7 |
|  | 9 | 8.4 | 8.4 | 27.1 |
|  | 28 | 26.2 | 26.2 | 53.3 |
|  | 24 | 22.4 | 22.4 | 75.7 |
|  | 2 | 1.9 | 1.9 | 77.6 |
|  | 13 | 12.1 | 12.1 | 89.7 |
|  | 7 | 6.5 | 6.5 | 96.3 |
|  | 4 | 3.7 | 3.7 | 100.0 |
|  | 107 | 100.0 |  |  |

Table 14. Satisfaction

|  | Frequency | Percent | Valid Percent | Cumulative Percent |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: |
| Valid | Cukup Puas | 6 | 5.6 | 5.6 | 5.6 |
|  | Puas | 101 | 94.4 | 94.4 | 100.0 |
|  | Total | 107 | 100.0 | 100.0 |  |

Table 15. Caroline

|  | frequency | percent | Valid <br> Percent | Cumulative <br> Percent |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Valid OLX | 29 | 27.1 | 27.1 | 27.1 |

```
e-ISSN: 2723-6692 p-ISSN: 2723-6595
```

| Friend | 15 | 14.0 | 14.0 | 41.1 |
| :--- | :---: | :---: | :---: | :---: |
| Facebook | 13 | 12.1 | 12.1 | 53.3 |
| Employee | 13 | 12.1 | 12.1 | 65.4 |
| Often through | 14 | 13.1 | 13.1 | 78.5 |
| branches | 13 | 12.1 | 12.1 | 90.7 |
| Caroline's website | 4 | 3.7 | 3.7 | 94.4 |
| Googling | 2 | 1.9 | 1.9 | 96.3 |
| Instagram | 2 | 1.9 | 1.9 | 98.1 |
| Mobile123 | 1 | .9 | .9 | 100.0 |
| Family | 107 | 100.0 | 100.0 |  |
| Google Ads |  |  |  |  |
| Total | 10 |  |  |  |

Table 16. Payments

|  |  | frequency | percent | Valid Percent | Cumulative Percent |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Valid | Cash | 83 | 77.6 | 77.6 | 77.6 |
|  | credits | 21 | 19.6 | 19.6 | 97.2 |
|  | IT Cash | 1 | . 9 | . 9 | 98.1 |
|  | IT Credits | 2 | 1.9 | 1.9 | 100.0 |
|  | Total | 107 | 100.0 | 100.0 |  |

Table 17. Branches


From the buyer profile above, in general, it can be seen that cluster 1 is dominated by the millennial generation (51.2\%) with male gender (53.8\%). Age ranged from 31-40 years (42.5\%) and the car purchased had a price range of between Rp. 100 million - < Rp. 200 million. Next, the brand chosen was mostly Toyota (22.5\%) with automatic transmission (51.2\%) and 2018 year of
manufacture (17.5\%). The majority of buyers in cluster 1 are satisfied ( $63.1 \%$ ) with OLX (18.1\%) as Caroline. I'd touch point media. The payment method used in general is through the cash system (51.9\%) and the most chosen branch is PDP (12.5\%).

By the previous results, it is known that those included in cluster 1 are brand attributes, transmission, year of manufacture, and payment. These attributes need to be prioritized, especially in marketing programs, so that they are effective in increasing sales. The company must increase the promotion of the Toyota brand and increase its variants, especially the 2018-2019 output and the automatic transmission, because consumers have bought the most so far. As for the payment system, it can be directed to a cash or cash system, because so far consumers have chosen the most. The following is the relevant 8P marketing mix strategy implemented based on the results of the cluster analysis above.

## Market segmentation

Based on the above information, a segmentation, targeting, and positioning (STP) strategy can be developed as follows:
a) Segmentation: The consumers obtained are Gen Z aged 18-28 with a purchase price of under IDR $100,000,000$ and millennials aged 30-40 years with an affordable purchasing price of IDR 100,000,000 - IDR 200,000,000.
b) Targeting: Cluster 1 is the most numerous segment, with the majority of millennial consumers in the age range of 31-40 years and cars purchased at a price range of 100-200 million rupiah, dominated by the Toyota brand in 2018 with automatic transmission.
c) Positioning: Based on the preferences and needs of each segment, the positioning strategy can be adjusted. For example, for Cluster 1, marketing can be focused on millennials aged 31-40 years with a selling price of 100-200 million rupiahs, for car brands focused on supplying Toyota brand cars with automatic transmission.

From the two clusters, the company can make cluster 1 the main target in the strategy that will be prepared at this time because the cluster is likely to be more interested in Caroline's way of selling and selling methods. The following is a brand persona that can be compiled:
Brand Persona for Cluster 1 Segment:
Name: AFFLUENT MILLENNIAL
Description: A car-loving individual living in south Jakarta aged 30-40 who is energetic and wellestablished, who can buy a car in the price range of 100-200 million in cash. At that age, they are active in daily activities and need reliable mobility, therefore they choose the Toyota brand with a relatively young year of manufacture, such as 2018 \& 2019 with an automatic transmission for the practicality of driving. They are generally internet users who are quite active in using OLX in looking for used cars.

The online Value Proposition (OVP) for brand persona cluster 1 segment can be focused on brands, transmission, and cash payments. The company must increase the stock of the Toyota brand and increase its variants, especially for the 2018-2019 output and automatic transmission, because consumers have bought the most so far. As for the payment system, it can be directed to a cash or cash system, because so far consumers have chosen the most.

## Marketing Strategy with Marketing Mix 8p

The following are Marketing Mix 8Ps that can be applied to cluster 4 segments:
a) Product: Increase the stock of Toyota brand units at the South Jakarta area branch, such as the GDS and PDP branches, considering that transactions at this branch are quite high.
b) Price: always provide the best price for the customer.
c) Place: Present dealers in strategic locations that are easy to access and comfortable with a sophisticated design
d) Promotion: Carry out promotions through online and offline channels that are relevant to the cluster 1 segment, such as advertisements on the OLX platform as well as on social media, and activation activities in crowded places.
e) People: Train sales and customer service staff to provide a good experience and understand the needs and preferences of consumers in cluster segment 1. Personalize services such as service reminders, birthday campaigns, and vehicle registration renewal reminders.
f) Process: Provide flexible payment schemes such as virtual accounts with several bank options. So that consumers can get a car faster considering that with a virtual account, transactions are identified more quickly.
g) Physical Evidence: Take care of the dealer's appearance and condition so that it reflects the quality and reliability of the car, one of which displays testimonials from previous customers. As well as displaying 7G+ warranty information banners at each branch.
h) Partnership: Build partnerships with companies and financial institutions to provide special offers or attractive payment programs for cluster 1 consumers by providing additional benefits such as service vouchers, shopping vouchers, etc.

By implementing the 8P Marketing Mix, it is hoped that brands can attract attention and meet the needs of the cluster 1 segment with products and provide benefits for cluster 1 consumers in making cash and credit payments.

## 4. Conclusion

In implementing the 8P Marketing Mix for the cluster 1 segment, several aspects need attention. In terms of products, the relatively young Toyota brand and year 2018-2019 units are the main focus. A flexible and affordable payment scheme through the cash option is an advantage in terms of price. Placement of authorized dealers in strategic locations close to the work areas of private employees and placing 7G+ guarantee banners at dealers are important factors in terms of location.

In terms of promotion, the use of online and offline channels that are relevant to the cluster 1 segment, such as on the OLX platform as well as social media and brochures in offices, needs to be implemented. Training of sales and customer service staff is also a concern in terms of people. An easy and fast purchasing process, as well as responsive after-sales service, are the focus in terms of the process.

The appearance and condition of a good dealer and displaying testimonials of previous customer satisfaction are important in terms of physical evidence. Finally, collaboration with automotive companies and financial institutions in terms of partnerships is an important factor in providing special offers or attractive cash programs for the cluster 1 segment.

By implementing the 8P Marketing Mix, it is hoped that the brand can attract attention and meet the needs of the cluster 1 segment with appropriate products and services and provide a positive experience in the process of buying and using cars with other brands.

## 5. References

Budianto, Apri, \& Setiawan, Iwan. (2020). Pengaruh Inovasi dan Kualitas Produk Terhadap Keunggulan Bersaing (Suatu Studi pada Payung Geulis Mandiri Tasikmalaya). Business Management and Entrepreneurship Journal, 2(1), 56-65.
HADI, BALQIS BINADARI. (2020). ANALISIS PENERAPAN EARMARKING TAX ATAS PAJAK KENDARAAN BERMOTOR DI PROVINSI DKI JAKARTA TAHUN PAJAK 2018.
Kotler, Philip, Keller, Kevin Lane, Ang, Swee Hoon, Tan, Chin Tiong, \& Leong, Siew Meng. (2018). Marketing management: an Asian perspective. Pearson London.
Luturlean, Bachruddin Saleh, \& Se, M. M. (2019). Strategi Bisnis Pariwisata. Humaniora.
Reynolds, Thomas J. (2006). Methodological and strategy development implications of decision segmentation. Journal of Advertising Research, 46(4), 445-461.
Roy, Santanu. (2000). Strategic segmentation of a market. International Journal of Industrial Organization, 18(8), 1279-1290.

- Market Soars, Used Car Sales in Caroline Increase 172.3 Percent in Quarter 12023 - Otomotif Liputan6.com
- Schiffman, Leon, Kanuk, Leslie Lazar. 2007. Consumer Behavior 7th. Editions. (Consumer behavior). Jakarta: PT. Index. Maranatha Christian University
- Wedel, M. and Kamakura, WA (2012). Market Segmentation: Conceptual and. Methodological Foundations. Springer Science \& Business Media. Wind, Y. (1978)
- Jain, SC, \& Haley, GT (2009). Marketing Planning and Strategy. Cincinnati South-Western Publishing Company 1985
- Lukman, Sampara. 2000. Service Quality Management. Jakarta: STIA LAN Press.
- Anderson, E.W., C. Fornell and S.K. Mazvancheryl (2004) Customer satisfaction and shareholder value, Journal of Marketing, 68, 172-185.
- Athanassopoulos, A.D. (2000) Customer satisfaction cues to support market segmentation and explain switching behavior, Journal of Business Research, 47, 191-207.
- Chang, H.H., and P.W. K (2009) Implementation of relationship quality for CRM performance: acquisition of BPR and organizational learning, Total Quality Management \& Business Excellence, 20, 327-348.
- Thomas, J.S. (2001) A methodology for linking customer acquisition to customer retention, Journal of Marketing Research, 38, 262-268.
- Verhoef, P.C. and B. Donkers (2001) Predicting customer potential value in an application in the insurance industry, Decision Support Systems, 32, 189-199.
- Jones, M.A., D.L. Mothersbaugh, and S.E. Beatty (2002) Why customers stay: measuring the underlying dimensions of services switching costs and managing their differential strategic outcomes, Journal of Business Research, 55, 441-450.
- Van Den Poel, D. \& B. Larivie're. (2004) Customer attrition analysis for financial services using proportional hazard models, European Journal of Operational Research, 157, 196-217.
- Li, L. (2012) Effects of enterprise technology on supply chain collaboration: analysis of Chinalinked supply chain, Enterprise Information Systems, 6, 55-77.
- Ozer, M. (2001) User segmentation of online music services using fuzzy clustering, Omega, 29, 193-206.
- Reynolds, T.J. (2006) Methodological and strategy development implications of decision segmentation, Journal of Advertising Research, 46, 445-461.
- Viswanathan, S., J. Kuruzovich, S. Gosain and R. Agarwal (2007) Online infomediaries and price discrimination: evidence from the auto-retailing sector, Journal of Marketing, 71, 89-107.
- White, C. and Y.T. Yu (2005) Satisfaction emotions and consumer behavioral intentions, Journal of Services Marketing, 19, 411-420.
- Zhang, Y., J. Jiap and Y. Ma (2007) Market segmentation for product family positioning based on fuzzy clustering, Journal of Engineering Design, 18, 227-241.
- Bassi, F. (2007) Latent class factor models for market segmentation: an application to pharmaceuticals, Statistical Methods \& Applications, 16, 279-287.
- Mordor Intelligence Research \& Advisory. (2023). Indonesia Used Car Market - Growth, Trends, and Forecasts (2023 - 2028). Mordor Intelligence. Retrieved October 24, 2023, from https://www.mordorintelligence.com/industry-reports/indonesia-used-car-market
- Santo Sirait. (2018). Dampak Aturan Ganjil-Genap Terhadap Penjualan Mobil Bekas Dan Sepeda Motor Baru. https://www.carmudi.co.id/journal/dampak-aturan-ganjil-genap-terhadap-penjualan-mobil-bekas-dan-sepeda-motor-baru/

