Persona-Based Segmentation: Customer Data Mapping as the Foundation of Corporate Marketing Strategy (Case Study on Scarlett Whitening)

Ahmad Syawaldi Afwan
Magister Managemen, Universitas Bakrie, Jakarta, Indonesia
Aldi.Marz82@gmail.com

Dinda Ayu Pradina
Magister Managemen, Universitas Bakrie, Jakarta, Indonesia
dindaayupradina50@gmail.com

Yuni Kurniawati
Magister Managemen, Universitas Bakrie, Jakarta, Indonesia
yunikurniawati8693@gmail.com

Jerry Heikal
Magister Managemen, Universitas Bakrie, Jakarta, Indonesia
jerry.heikal@bakrie.ac.id

Abstract:

This research aims to analyze customer segmentation in energy resource companies using the K-Means Clustering method. In the era of increasingly fierce business competition, a deep understanding of customer preferences and behavior is crucial for companies to design effective marketing strategies. Customer data, including purchase frequency, customer service field, company type and geographic location, were collected and analyzed using the K-Means Clustering algorithm. The analysis results showed the formation of homogeneous customer groups, allowing the company to identify the distinctive characteristics of each group. Five main groups were formed from the processed customer data using SPSS. The first group consists of scarlett's facial wash lovers who are dominated by women with an average age of 31 years, earning an average income of Rp15 million per month who live outside Jakarta and work as private employees. This group recognizes the majority of scarlett products from Tiktok. The second group consists of scarlett serum lovers who are dominated by women with an average age of 32 years, earning an average income of IDR 23 million per month who live in South Jakarta and work as private employees. This group also recognizes the majority of scarlett products from Tiktok. The third group consists of scarlett's shower scrub lovers who are dominated by single women with an average age of 31 years, earning an average income of IDR 10 million per month who live in South Jakarta and work other than private employees. This group recognizes scarlett products mostly from Instagram. The fourth group consists of scarlett's body lotion lovers who are dominated by women with an average age of 32 years, earning an average income of IDR 19 million per month who live outside Jakarta and work as private employees. This group recognizes the majority of scarlett products from Instagram. The fifth group consists of scarlett's body scrub lovers who are dominated by women with an average age of 28 years, with an average income of IDR 6.5 million per month who live in South Jakarta and work as entrepreneurs. This group recognizes the majority of scarlett products from Tiktok. The implementation of marketing strategies based on the results of this analysis shows that Scarlett needs to use cluster 2 as its target segment in order to continue to increase its revenue. Because by choosing this cluster, Scarlett will find it easier to design its marketing strategy, namely by increasing social media strategies by involving creative content and collaboration on the Tiktok platform, offering promotions and special offers for customers who buy Serum. Scarlett could present a special bundle offer for the product or provide points that can be redeemed for further discounts or free products after reaching a certain amount and since cluster 2 is predominantly in the South Jakarta area, focus the marketing campaign in that area. Scarlett's value proposition lies in the use of brand ambassadors, digital marketing, product quality and brand trust. Thus, this study concludes that customer segmentation analysis using K-Means Clustering brings strategic benefits to scarlett sellers. A deeper understanding of customers enables sellers to improve the

relevance of marketing strategies, achieve better customer satisfaction, and remain responsive to changes in the business environment.

Keywords: *Segmentation; Customer Persona; Value Proportion*

Introduction

As the development of the business world is increasing rapidly, companies are trying to improve their performance to achieve their goals. One of the main goals of a company is to maximize customer satisfaction, because customer satisfaction is an investor's perception and description of the company's success rate which is usually associated with the company's value. high stock prices can make the company name also high, so that with the high name of the company, market confidence in the company's future prospects will also increase (Philip Kotler).

In the era of globalization and increasingly fierce business competition, modern companies are increasingly aware of the importance of understanding customer behavior in order to maintain and increase market share. One effective way to achieve this understanding is through customer segmentation techniques. Customer segmentation allows companies to identify groups of customers with similar characteristics, facilitate more effective targeting, and increase customer satisfaction.

In the care and beauty industry, a deep understanding of customers is crucial to optimize product benefits, improve customer satisfaction, and design more effective marketing strategies. One method that has proven effective in analyzing customer segmentation is using the K-Means Clustering algorithm. This algorithm allows companies to group customers based on the similarity of certain characteristics, assisting them in detailing customer preferences, needs, and behaviors.

Customer segmentation analysis using K-Means Clustering utilizes customer data to form homogeneous groups, allowing companies to provide a more targeted and personalized approach to each group. With a deeper understanding of the needs of each customer segment, skincare companies can design more effective loyalty programs, adjust pricing strategies, and improve operational efficiency. (Nurdiyansyah et al., 2018).

In this context, customer data mapping is the key to creating accurate and relevant personas. Customer data includes various information, such as transaction volume history, customer type, and customer address. Persona segmentation analysis uses this data to identify groups of similar customers and develop personas that represent these groups holistically.

Through this approach, companies can detail the characteristics of each persona, understand their unique needs, and design more focused and relevant marketing strategies. With a better understanding of who their customers are, companies can optimize the allocation of marketing resources, improve customer retention, and generate more satisfying customer experiences. (Wibowo: 2020).

In this context, it is important to understand how the K-Means Clustering algorithm can be applied to customer data in the fuel industry. Factors such as frequency of purchase, type of product most in demand, or even geographic location can be key elements in forming significant customer segments.

In this study, researchers are interested in using information from Scarlett Whitening, which is one of the beauty care products originating from Indonesia. Scarlett Whitening itself was founded in 2017 by Felicya Angelista, a public figure who has graced the Indonesian screen, both through movies and soap operas (Soehandoko, 2022). Before Scarlett Whitening appeared, Felicya Angelista first launched the Feli Skin product, which is a face mask product sold in packages. This Feli Skin product was then in demand by many consumers. Because she received support from consumers who were satisfied with Feli Skin products, Felicya Angelista then made another series of skincare products called Scarlett Whitening.

Scarlett Whitening, which has been registered with the Food and Drug Administration (BPOM), focuses on three categories of care, namely body, face and hair care. Each category has several variants that can be selected by consumers according to skin conditions and consumer needs. Scarlett Whitening not only provides products for consumers who have normal skin, but also for consumers who have skin problems, such as acne, dry skin, and signs of aging.

Scarlett Whitening also claims that its products do not use harmful substances, such as mercury and hydroquinone, so they are safe for consumption, even for pregnant women and nursing mothers. Scarlett Whitening products that are best-selling through Shopee marketplace are Scarlett Whitening Facial Wash, Scarlett Whitening Body Lotion, and Scarlett Whitening Acne Serum. These three products are able to reach a

thousand products sold every month. In 2021 alone, it is known that Scarlett Whitening Brightly Ever After Serum and Scarlett Whitening Acne Serum were able to achieve sales of IDR 15.5 billion. In May 2021, it is also known that Scarlett Whitening was able to sell 36 thousand products, or if converted into IDR 2.6 billion.

However, based on data from Compas.co.id, there is a phenomenon experienced in scarlett sales, after June 2022 Scarlett Whitening experienced a significant decline in sales and occurred in total sales on e-commerce platforms in Indonesia. Where in July 2022 to January 2023 Scarlett's sales decreased to reach 8% sales. Compared to the previous months which were increasing, starting from February which reached 12.50% of sales to June which reached 16% of sales. Scarlett's sales lagging far behind can be interpreted that Scarlett is not perfect in terms of attracting repurchase decisions in consumers, advertisements that do not influence consumer memories, consumer perceptions of brand image and product quality offered by Scarlett can be one of the influences in making purchasing decisions.

Through this paper, we will review the implementation of K-Means Clustering on customer segmentation analysis in Scarlet Company. We will discuss the advantages and potential pitfalls of this method, as well as provide a detailed view of how the company can optimize marketing and service strategies based on the results of customer segmentation analysis using the K-Means Clustering algorithm. It is hoped that this research can contribute to practical and strategic understanding for fuel companies in the face of ever-changing market dynamics. (Febrianti, A. F., Cabral, A. H., & Anuraga, G.: 2018).

Based on the above phenomenon, it is interesting for the author to make a paper that reviews the implementation of K-Means Clustering on customer segmentation analysis of scarlett products. In the end we will provide a detailed view of how companies can optimize marketing and service strategies based on the results of customer segmentation analysis using the K-Means Clustering algorithm. It is hoped that this research can contribute to practical and strategic understanding for fuel companies in the face of ever-changing market dynamics. (Febrianti, A. F., Cabral, A. H., & Anuraga, G.: 2018). So from the information presented above, the title of this research is "Persona-Based Segmentation: Customer Data Mapping as the Foundation of the Company's Marketing Strategy (Case Study at Scarlett Company)".

Literature Review / State–of–Arts / Research Background

1. Customer Segmentation

The definition of market segment according to Kotler & Keller (2012: 248) states that "Market Segment consists of a group of customers who share a similar set of needs and wants" which can be interpreted that a market segment consists of groups of customers who share similar wants and needs. The same. Customer segments according to Osterwalder & Pigneur (2010:20) are defined as different groups of people or organizations that are targeted to be reached and served by a company. In general, market segments and customer segments are the same two things. To serve customers better, companies must group customers into different segments but with similar needs, behavior, distribution channels and other attributes in each segment. Companies must make decisions about which segments to serve or reject.

Osterwalder and Pigneur (2012:14) say that the building blocks of customer segments describe a group of different people or organizations that a company wants to reach or serve. Customer segments explain how companies choose the most potential customer segments to choose so that the business activities they carry out are right on target and in line with the desired consumer targets. As stated by Osterwalder and Pigneur (2012:20) that customers are the core of the business model. Without customers, no one can make a profit, and of course no company can survive for a long time. To better satisfy customers, companies can group them into different segments based on similar needs, behavior or other attributes. Still according to Osterwalder and Pigneur (2012:20) who state that a business model can describe one or several customer segments, large or small. An organization must decide which segments to serve and which to ignore.

2. Value Proposition

Value proposition according to Kotler & Keller (2012) is a series of benefits that a company provides to customers to meet customer needs. It defines the way companies work by focusing their activities on best serving their customers while doing things profitably (Barnes, Blake, & Pinder, 2009). Through a value proposition, it will be easier for a company to present the advantages of its products/services.

In simple terms, the value proposition is very useful for a company so that its customers have reasons why they should buy the company's products/services. In compiling a value proposition, there is a framework that can be used, namely the value proposition canvas. There are four types of value propositions that are sought

based on customer type, namely economic customer value propositions, functional customer value propositions, emotional customer value propositions, and symbolic customer value propositions (Mitronen, 2007).

In the economic customer value proposition, economical prices are important (Mitronen, 2007). Economic value can be defined as the lowest price or the best tradeoff between quality and price (Gale, 1994). Functional customer value propositions are customers who are motivated by convenient solutions and seek functional value (Mitronen, 2007). Functional value is the perceived utility derived from an alternative's capacity for functional, utilitarian, or physical performance (Sheth, Newman, & Gross, 1991). Emotional customer value propositions are customers who are motivated by aspects of the shopping experience to appreciate companies that create emotional value (Mitronen, 2007).

Emotional value can be defined as "the perceived utility derived from an alternative's capacity to evoke feelings or affective states" (Sheth, Newman, & Gross, 1991). Meanwhile, according to Mitronen (2007), symbolic customer value propositions are customers who are motivated by the expressive consumption aspect of appreciating companies or organizations that create symbolic value. A symbol is a special type of social object that represents something; has meaning and when used is intended to convey shared meaning to the recipient (Flint, 2006).

3. Marketing Strategy

Marketing strategy is a series of goals and objectives, policies and rules that provide direction to a company's marketing efforts from time to time, at each level, references and allocations, especially as a company's response to the ever-changing environment and competitive conditions (Aji , Nadhila & Sanny, 2020). Marketing strategy has an important role in that there is segmenting, targeting and positioning which determine the success of a company in running its business in the marketing sector (Apriani, 2019).

According to Atmoko (2018) Strategy is the overall concept of how a company organizes itself and all activities with the aim of running a successful business, competing and providing returns to shareholders. In marketing strategy there is a set of marketing tools known as the 4P marketing mix, namely product, price, place, promotion, while in marketing in the services sector there are several additional marketing tools, namely people, process and physical evidence (Atmoko, 2018). Based on the definition above, it can be interpreted that the marketing mix consists of controlled aspects, aimed at getting the expected response from the target market.

Methodology

1. Data Collection:

Customer data from Scarlett Whitening users which includes customer ID data, customer status, gender, customer occupation, social media as a platform to recognize scarlett products, customer domicile, customer age, and customer income data were collected through distributed questionnaires.

2. Data Preprocessing:

The data that has been collected will go through a preprocessing stage to ensure quality and consistency. Steps in data preprocessing may include data cleaning (e.g., removing missing or duplicate data), data transformation (e.g., normalization or standardization), and selection of relevant variables.

3. K-Means Clustering Analysis:

This research method adopts the approach of analyzing customer segmentation using the K-Means Clustering algorithm in fuel supply companies. This research is Quantitative, with the aim of understanding the structure of homogeneous customer groups based on certain variables such as purchase frequency, type of consumer business, and geographic location. (Nainggolan: 2019).

The method used in this research is quantitative method with K-Means Clustering approach. K-Means Clustering is one of the algorithms in data analysis used to categorize data into groups based on the similarity or similarity between them. The main objective of K-Means Clustering is to divide data into groups that are significantly different from each other (Tuwindar: 2023).

The K-Means Clustering method will be used to group companies based on changes in their financial performance segmentation. The steps in the K-Means Clustering analysis include:

a) Determine the optimal number of groups (clusters) based on in-depth analysis and understanding of the data.

b) Selecting variables to be used in clustering analysis, namely customer status, gender, customer occupation, social media, customer domicile, customer age, and customer income data.

c) Determining the initial value of the cluster center randomly or by other appropriate

methods.

d) Calculate the distance between each customer and the nearest cluster center.

e) Group customers into the appropriate cluster based on the shortest distance.

f) Recalculating the cluster center by using the average value of the customers in each cluster.

g) Repeating steps d-e until the convergence point is reached (i.e., the change in cluster center is very small).

h) Interpret the clustering results and analyze the changes in customer segmentation in each cluster.

After clustering analysis, the next step is the implementation of a focused marketing strategy. The marketing strategy design is based on the findings from the segmentation analysis, and includes personalization of marketing campaigns and customization of services according to the profile of each cluster. Strategy evaluation is done by comparing marketing performance before and after implementation, while regular monitoring ensures that the strategy can be adapted to dynamic changes in customer preferences. In addition, the study used a qualitative approach to understand the context more deeply, involving interviews with internal stakeholders, such as marketing and sales teams, to gain a more contextual perspective related to customer behavior.

Result and Discussion

Based on the results of data processing, which the process starts from the researcher matching the data taken in excel format and then entered into the Statistical Package for the Social Sciences (SPSS) system. SPSS is computer software used for statistical analysis. It is one of the most popular and commonly used tools in social, economic, and behavioral science research. SPSS has various features and functions for collecting, analyzing, and interpreting data, statistical analysis, including descriptive statistics, hypothesis testing, regression analysis, factor analysis, cluster analysis. From the SPSS results, the following results were obtained:

Table 1. Persona dan Cluster Membership

	Persona Per Cluster	Cluster Membership
Cluster 1 Facial Wash Lovers	**Persona Cluster 1:** Female-dominated Married and single The majority work as private employees Get to know scarlett from Tiktok Dominated by domicile outside Jakarta Average age 31 years Average income Rp15 million Fans of facial wash	22
Cluster 2 Serum Lovers	**Persona Cluster 2:** Female-dominated Majority are married The majority work as private employees Get to know scarlett from Tiktok Dominated by domicile in South Jakarta Average age 32 years Average income Rp23 million Fans of serum	24
Cluster 3 Shower Scrub Lovers	**Persona Cluster 3:** Female-dominated Majority are single The majority work other than private employees and entrepreneurs Get to know scarlett from Instagram Dominated by domicile in South Jakarta Average age 31 years Average income Rp10 million Fans of shower scrub	20

Cluster 4 **Body** **Lotion** **Lovers**	**Persona Cluster 4:** Female-dominated Majority are single The majority work as private employees Get to know scarlett from Instagram Dominated by domicile outside Jakarta Average age 32 years Average income Rp19 million Fans of body lotion	23
Cluster 5 **Body** **Scrub** **Lovers**	**Persona Cluster 5:** Female-dominated Majority are single The majority work as entrepreneurs Get to know scarlett from Tiktok Dominated by domicile in South Jakarta Average age 28 years Average income Rp6.5 million Fans of body scrub	10
Total		**99**

Based on table 1, the cluster membership for this cluster is 22 people dominated by women aged 31 years, domiciled mostly outside Jakarta, working as private employees with an average income of Rp15 million. Cluster 1 members are filled with people who are partly married and partly single. They first learned about Scarlett products on average from Tiktok and Cluster 1 is a fan of facial wash because people in this cluster spend a lot of money buying Scarlett facial wash. Meanwhile, in cluster 2 there are 24 people, the majority of whom are women with the most married status and domiciled in South Jakarta. People who are in this cluster work as private employees on average, aged 32 years old with an average income of Rp23 million. Cluster 2 is filled with people who spend a lot on Scarlett serum where they first learned about Scarlett products from Tiktok.

Furthermore, in cluster 3 there are 20 people, which are dominated by women with an average age of 31 years with single status. People in this cluster predominantly live in South Jakarta who have jobs outside of being private employees and entrepreneurs and whose average income is IDR 10 million. Members of this cluster first learned about Scarlett from Instagram and they spend the most on shower scrub products. Then, in cluster 4 there are 23 people, which are dominated by single women with an average age of 32 years. The people in this cluster predominantly live outside Jakarta, have the majority of jobs as private employees with an average income of Rp19 million and they first learned about Scarlett products from Instagram and spend a lot on body lotion products. Finally, in cluster 5 there are 10 people who are dominated by women with an average age of 28 years with single status. The people in this cluster predominantly live in South Jakarta with a job as an entrepreneur with an average income of IDR 6.5 million. The people in cluster 5 first learned about Scarlett from Tiktok and spent a lot on body scrub products.

After dividing the cluster membership, the analysis carried out is to analyze the persona owned by each cluster. The analysis can be done based on the final cluster table below:

Table 2 Final Cluster Centers

Final Cluster Centers

	Cluster				
	1	2	3	4	5
Married	0,50	0,63	0,45	0,43	0,10
Single	0,50	0,38	0,55	0,57	0,90
Male	0,14	0,21	0,40	0,17	0,10
Female	0,86	0,79	0,60	0,83	0,90
Wirausaha	0,23	0,17	0,25	0,43	0,10
Karyawan Swasta	0,45	0,46	0,35	0,30	0,90
Other	0,32	0,38	0,40	0,26	0,00
Instagram	0,23	0,25	0,50	0,48	0,30
Tiktok	0,73	0,58	0,20	0,26	0,60
Twitter	0,00	0,08	0,15	0,00	0,00
Other	0,05	0,08	0,15	0,26	0,10
Jakarta Utara	0,18	0,13	0,20	0,13	0,10

Jakarta Selatan	0,27	0,38	0,35	0,22	0,40
Jakarta Timur	0,05	0,08	0,15	0,09	0,10
Jakarta Barat	0,09	0,13	0,10	0,09	0,20
Non Jakarta	0,32	0,17	0,15	0,39	0,10
Age	31	32	31	32	28
Income	14.881.778	23.226.553	10.128.379	19.152.395	6.492.766
Body Lotion	536.059	506.527	533.412	549.566	445.155
Shower Scrub	336.122	325.552	338.426	328.218	320.580
Serum	525.739	595.393	536.010	552.274	534.002
Body Scrub	479.086	497.520	474.525	500.567	517.298
Facial Wash	469.433	443.126	448.580	444.680	378.073

Based on the results of the SPSS data, the author chose cluster 2 as the target segment because people in that cluster have the highest income compared to other clusters, cluster 2 is also the cluster with the most members compared to other clusters and spends a lot on serum products which are the highest spending products compared to other products. After determining the target segment, marketing strategies that can be carried out include:

1. Improve social media strategy by engaging creative content and collaboration on the Tiktok platform.
2. Offer special promotions and deals for customers who purchase Serum. Scarlett can present bundles of special offers for the product or provide points that can be redeemed for subsequent discounts or free products after reaching a certain amount.
3. Since cluster 2 is predominantly in the South Jakarta area, focus the marketing campaign in that area.

The value proposition of Scarlett products include:

Scarlett Whitening is a hair and skincare brand founded in 2017 by Felicya Angelista, a famous actress in Indonesia. The brand offers various products such as body lotion, facial wash, body scrub, serum, toner, and others. Scarlett Whitening has several factors that affect the brand's value proposition, among others:

1. Use of brand ambassadors. Scarlett Whitening uses brand ambassadors to attract consumers and increase interest in its brand.
2. Digital marketing. The brand focuses on marketing through digital platforms, including the brand's official webpage and YouTube.
3. Product quality. Scarlett Whitening offers high-quality products and has been honored as the best product at the Female Daily Best of Beauty Award.
4. Brand trust. The brand has high trust in the hair and skincare market in Indonesia.

Conclusion

To understand the diversity of customers and design the right marketing strategy, it is necessary for sellers to analyze their customer segmentation. In this study, the results obtained are that Scarlett Whitening sellers can use cluster 2 as their target segment in order to continue to increase their revenue. Because by choosing this cluster, Scarlett will find it easier to design its marketing strategy, namely by increasing social media strategies by involving creative content and collaboration on the Tiktok platform, offering promotions and special offers for customers who buy Serum. Scarlett can present bundles of special offers for the product or provide points that can be redeemed for subsequent discounts or free products after reaching a certain amount and since cluster 2 is dominant in the South Jakarta area, focus the marketing campaign in that area. In addition, Scarlett has a proportion of value that lies in the use of brand ambassadors, digital marketing, product quality and brand trust. Thus, this study concludes that customer segmentation analysis using K-Means Clustering brings strategic benefits to scarlett sellers. A deeper understanding of customers enables sellers to improve the relevance of marketing strategies, achieve better customer satisfaction, and remain responsive to changes in the business environment.

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