ANALYSIS OF MARKET SEGMENTATION IN THE PURCHASE OF MCDONALD'S PRODUCTS IN JAKARTA USING THE K-MEANS CLUSTERING METHOD

Noveansyah[1], Jerry Heikal[2]

[1,2]Universitas Bakrie

Email : veanoveans@gmail.com[1], jerry.heikal@bakrie.ac.id[2]

ABSTRACT

The fast food industry, as a fast-growing sector in many big cities, including Jakarta, is experiencing rapid dynamics along with changing consumer lifestyles and habits. An in-depth understanding of consumer behaviour is crucial to respond to the increasingly diverse demands of the market. The purpose of this research is to identify customer characteristics, and product categories in Jakarta using the K-Means Clustering Method. There are two variables, namely customer characteristics, and product categories. Data processing is assisted by using the SPSS V application. 25.

Keywords: *McDonald's, Data Mining, Customer Clustering, Clustering, K-Means.*

ABSTRAK

Industri makanan cepat saji sebagai sektor yang tumbuh pesat di banyak kota besar, termasuk Jakarta, mengalami dinamika yang pesat seiring dengan perubahan gaya hidup dan kebiasaan konsumen. Pemahaman yang mendalam tentang perilaku konsumen sangat penting untuk menanggapi tuntutan pasar yang semakin beragam. Tujuan dari penelitian ini adalah untuk mengidentifikasi karakteristik pelanggan dan kategori produk di Jakarta menggunakan Metode K-Means Clustering. Terdapat dua variabel yaitu karakteristik pelanggan dan kategori produk. Pengolahan data dibantu dengan menggunakan aplikasi SPSS V. 25.

Kata Kunci: McDonald's, Data Mining, Customer Clustering, Clustering, K-Means.

INTRODUCTION

The fast food industry, as one of the fastest-growing sectors in major cities including Jakarta, is experiencing rapid dynamics along with changes in consumer

lifestyles and habits. In this context, a deep understanding of consumer behavior is essential to respond to increasingly diverse market demands. As a leading brand in this industry, McDonald's is required to continuously innovate and adapt its marketing strategies to maintain and expand its market share. Therefore, analyzing market segmentation in the purchase of McDonald's products in Jakarta becomes crucial to address current challenges and opportunities.

Jakarta, as Indonesia's economic and business hub, reflects significant growth patterns in the fast food industry. Changes in lifestyle, urbanization, and increased mobility have contributed to rising interest and demand for fast food. McDonald's, as a global brand, plays an important role in catering to these evolving consumer needs.

According to Kotler and Keller (2010), marketing is a social and managerial process by which individuals and groups obtain what they need and want through creating, offering, and exchanging products of value. In the fast food industry, this process involves a deep understanding of consumer needs and desires, which are highly dynamic and varied. Market segmentation is a strategic tool that helps marketers divide the market into distinct groups of consumers with similar characteristics, behaviors, or needs,

allowing companies to design more targeted and effective marketing strategies.

Modern consumers consider not only taste and price in their decision-making process but also nutrition, sustainability, and overall experience. McDonald's, which has diversified its menu to meet both local and global preferences, must understand and respond effectively to these shifting consumer preferences.

Sunyoto (2014) emphasizes that marketing strategy refers to a set of coordinated marketing activities designed to create and deliver value to customers while maintaining profitable customer relationships. In this case, McDonald's must develop appropriate marketing mix strategies—product, price, place, and promotion—tailored to each identified customer segment to meet their unique expectations.

In the digital era, the use of technology in fast food purchases is increasingly prominent. Online ordering apps, digital promotions, and social media play crucial roles in influencing consumer decisions. Understanding the extent to which these technologies impact consumer purchasing behavior offers valuable insights for businesses like McDonald's to refine their digital marketing efforts.

Fierce competition in the fast food industry puts immense pressure on

McDonald's to continually develop effective marketing strategies. Market segmentation analysis is essential to identify opportunities and threats, allowing McDonald's to tailor its marketing efforts in alignment with the needs and preferences of specific consumer segments.

Customer segmentation is necessary to understand consumer characteristics, needs, and behaviors, which helps businesses enhance revenue performance. One of the techniques used for processing this type of data is data mining. Data mining is a step in the knowledge discovery in databases (KDD) process, which analyzes large and complex datasets to extract hidden patterns and useful information.

One of the most widely used data mining techniques is clustering analysis. As stated by Assauri (2015), understanding consumer behavior and clustering them accordingly is an integral part of a data-driven marketing strategy. Clustering allows companies to group customers based on shared traits and preferences, leading to more informed and effective strategic decisions.

Among clustering techniques, the K-Means Clustering algorithm is the most popular for minimizing clustering errors in Euclidean space. It is a non-hierarchical data partitioning method that aims to classify data into one or more clusters, ensuring that items with similar characteristics are grouped together.

RESEARCH METHOD

The stages in this study are: (1) problem identification. At this stage, the researcher identifies the phenomenon that occurs. (2) Information search At this stage, the researcher searches for information ranging from data surveys, research, journals, and books related to this research. (3) Data collection At this stage, researchers distributed questionnaires to respondents to obtain data. This data is collected and then analyzed. (4) Data analysis The data that has been obtained through questionnaires is then carried out in the data analysis stage using the K-Means Clustering algorithm application. (5) Testing stage At this stage, testing of the top McDonald's customer data in Jakarta is carried out to determine customer characteristics and product categories.

Informants in this research are people who understand the object under study and can account for the truth. The informants used as sources in this study are customers who buy McDonald's products in Jakarta randomly. The participants in this study are McDonald's customers who live in DKI Jakarta and are aged at least 18 years and a maximum of 54 years. Data processing was assisted by the SPSS (Statistical Package

for the Social Sciences) V.25 application. Referring to Santosa (2017), there are several steps that can be used in the clustering process with the K-Means method.

To understand Suzuki customers better, it is necessary to get an overview of customer profiles. For this purpose, it is necessary to segment Suzuki customers in Bandung. The approach is carried out by processing sales data owned by Suzuki Bandung, which in this paper is limited to the sales period of June - September 2024.

Segmentation is done using the K-means clustering method with the help of the SPSS program (Sugiyono, 2021). Clustering is a method for grouping a set of objects that have similar characteristics between one object and another. Clustering is a data mining technique and is divided into 2 categories, namely hyrarchical clustering and non-hyrarchical clustering. In hyrarchical clustering, two or more objects that have the closest similarity are grouped, then the process continues to the next object that has similarities and this process continues to be carried out so as to form a tree with clear levels (Hyrarchi) between objects from the most similar to the least similar.

In the end all objects come together in one cluster. In contrast to hyrarchical clusters, in non-hyrarchical clustering

methods the number of clusters is set early in the process. After the number of clusters is determined, the clustering process begins. In this paper the steps for preparing data before the analysis process is carried out using the SPSS program. Here is the flow of the analysis process carried out.
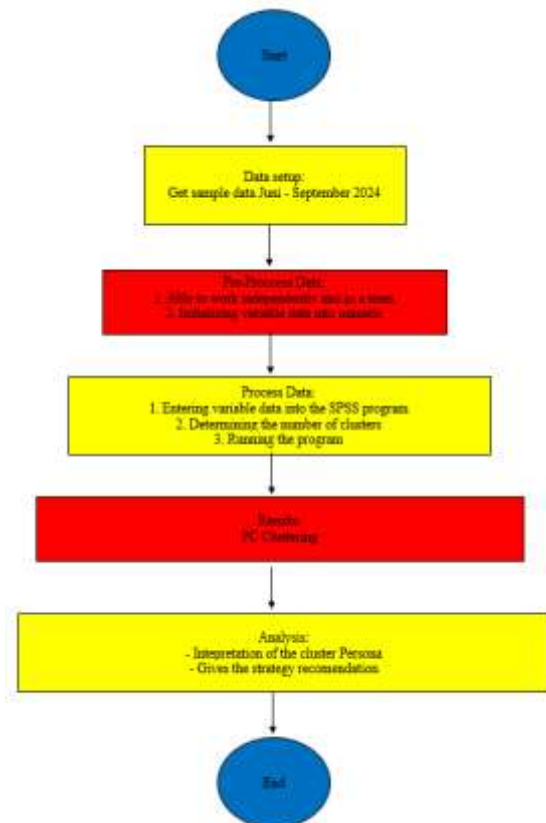
RESULTS AND DISCUSSION

At this stage, the researcher conducts cluster analysis testing with the K-means method used for grouping customers based on the data obtained.

Table 1: Results of the calculation of K-Means Clustering Data

	Final Cluster Centers				
	Cluster				
	Urban Enthusiasts	Promo Enthusiast	Diverse Explorers	Sophisticated Shoppers	Balanced Tech Savvies

Perempuan	0.71	0.50	0.00	0.80	0.00
Laki-Laki	0.29	0.50	1.00	0.20	1.00
Usia	30.39	40.50	35.33	30.27	34.50
Jakarta	0.86	1.00	0.50	0.80	0.50
Non Jakarta	0.14	0.00	0.50	0.20	0.50
Penghasilan	5,000,000.00	20,000,000.00	15,000,000.00	10,000,000.00	20,000,000.00
Konsumsi Mcd Per bulan	1.93	2.00	1.67	1.67	1.00
Pesan Online	0.25	0.50	0.17	0.40	0.50
Makan Ditempat	0.75	0.50	0.83	0.60	0.50
Tertarik dengan Promo MCD	0.61	0.00	0.50	0.73	0.50
Tidak Tertarik dengan Promo MCD	0.39	1.00	0.50	0.27	0.50
Nominal per Transaksi	85,714.29	125,000.00	116,666.67	106,666.67	50,000.00
Menggunakan Diskon/Promo MCD	0.36	0.50	0.33	0.40	0.00
Tidak Menggunakan Diskon/Promo MCD	0.64	0.50	0.67	0.60	1.00

Table 1 is the result of the calculation of K-mean clustering. From the results, it can be seen the characteristics of consumers in each cluster. The characteristics of consumers in cluster 1 are dominated by women as much as 71% and men as much as 29% with an age of about 30 years earning $5 million per month and consumption per month almost twice a month domiciled in Jakarta as much as 86% and non-Jakarta 14%. McDonald's product purchases are more often eaten on the spot than ordered online. 61% of consumers are interested in promotions, and 39% are not interested in promotions. The use of discounts when buying McDonald's products by consumers is 36%, and they do not use discounts as much as 64%. The nominal per transaction is Rp. 85,714.

Consumer characteristics in cluster 2: female consumers as much as 50% and male consumers as much as 50% with an age of around 40 years earning $20 million per month and consumption per month twice as domiciled in Jakarta. McDonald's product purchases are eaten on the spot compared to online messages. Overall, consumers in Cluster 2 are interested in the McDonald's promo. The use of discounts when buying McDonald's products by consumers is 50%, and they do not use discounts as much as 50%. The nominal per transaction is Rp. 125,000.

The characteristics of consumers in cluster 3 are dominated by males as a whole with an age of around 35 years with an income of 15 million per month and consumption per month almost 2 times domiciled in Jakarta as much as 50% and another city 50%. Consumers who are interested in promos are 50% and 50% are not interested in promos. Then 33% of consumers use discounts when buying McDonald's products and 67% do not use discounts. The nominal per transaction is Rp.116,666.

The characteristics of consumers in cluster 4 are dominated by women as much

as 80% and men as much as 20% with an age of around 30 years earning 10 million per-month and consuming almost 2 times a month domiciled in Jakarta as much as 80% and non-Jakarta 20%. McDonald's product purchases are more often eating on the spot than ordering online. Then 73% of consumers are interested in promos and 27% are not interested in promos. The use of discounts when buying mcd products by consumers is 40% and does not use discounts as much as 60%. The nominal per transaction is IDR 106,666.

The characteristics of consumers in cluster 5 are dominated by men as a whole with an age of around 34 years with an income of 20 million per month and consumption per month only once a month domiciled in Jakarta as much as 50% and non-Jakarta 50%. McDonald's product purchases eat on the spot compared to online messages. Consumers who are interested in promos are 50% and 50% are not interested in promos. Consumers in cluster 5 do not use promos at all. The nominal per transaction is Rp.50,000.

CONCLUSION AND RECOMMENDATION
Conclusion

Based on the results and discussion above, It can be concluded about the characteristics of consumers in each cluster. Cluster 1 (one) is dominated by women who are mostly around 30 years old, earn around $5 million per month, often live in Jakarta, prefer to eat on the spot, and have an interest in promotions and discounts.

Cluster 2 (two) consists of female and male consumers who are around 40 years old, earn around $20 million per month, tend to live in Jakarta, and have a high interest in McDonald's promotions. Cluster 3 is dominated by men who are around 35 years old, earn around $15 million per month, live in various locations, prefer to eat in, and have an interest in promotions and discounts.

Cluster 4 (four) is dominated by females who are mostly around 30 years old, earn around $10 million per month, are often domiciled in Jakarta, prefer to eat there, and have a high interest in McDonald's promotions. Cluster 5 is dominated by men who are around 34 years old, earn around $20 million per month, live in various locations, eat in and order online equally, have an interest in promotions, but do not use them.

These conclusions provide a more in-depth picture of consumer preferences and behavior in relation to McD products, which can form the basis for further marketing strategies.

Recommendation

Based on the conclusions drawn from the clustering analysis, several strategic recommendations can be proposed for McDonald's in Jakarta to optimize its marketing efforts and respond more effectively to consumer preferences:

1) McDonald's should develop personalized marketing strategies for each customer cluster. For example, Cluster 1 and Cluster 4 are dominated by younger female consumers who are responsive to promotions. McDonald's can focus more on digital discount campaigns and loyalty programs for this segment.

2) As online ordering remains moderate across clusters, McDonald's should strengthen its digital channels through more engaging mobile app features, exclusive online discounts, and real-time delivery tracking to increase online transactions, especially among tech-savvy clusters.

3) For clusters with higher income (e.g., Cluster 2 and Cluster 5), McDonald's can introduce premium product lines or bundled menus that emphasize quality, convenience, and added value, rather than only relying on price promotions.

4) There are clusters that show a strong interest in McDonald's promotions (e.g., Cluster 2 and Cluster 4), while others do not use them (e.g., Cluster 5). This implies the need to evaluate current promotion strategies and personalize promotional content, possibly using CRM systems and purchase history data.

5) Since there is still a significant portion of consumers from outside Jakarta (especially in Cluster 3 and Cluster 5), McDonald's may consider expanding or enhancing services in suburban areas or through mobile ordering infrastructure to reach this segment more effectively.

6) McDonald's is encouraged to continuously use data mining techniques like clustering to monitor changes in customer behavior over time. This will allow dynamic adaptation of marketing strategies based on real-time consumer insights.

7) With growing consumer interest in sustainability and health-consciousness, McDonald's should consider incorporating more communication about environmentally friendly practices and healthier menu options, particularly to appeal to younger, urban segments.

REFERENCES

Assauri, S. (2015). *Manajemen*

Pemasaran: Dasar dan Strategi. Jakarta: Rajawali Pers.

Kotler, P., & Armstrong, G. (2010). *Principles of Marketing* (13th ed.). Upper Saddle River, NJ: Pearson Education.

Kotler, P., & Keller, K. L. (2010). *Marketing Management* (13th ed.). Jakarta: Erlangga.

Santosa, Budi. (2017). Data Mining Techniques For Utilizing Data For Business Purposes. Yogyakarta: Graha Ilmu.

Sugiyono. (2021). Metode Penelitian Kualitatif. 4th Ed. Bandung: Cv Alfabeta.

Sunyoto, D. (2014). *Dasar-Dasar Manajemen Pemasaran: Konsep, Strategi, dan Kasus*. Yogyakarta: CAPS (Center for Academic Publishing Services).

Tan, P. N., Steinbach, M., & Kumar, V. (2006). *Introduction to Data Mining*. Boston: Pearson Addison Wesley.