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CUSTOMER SEGMENTATION BASED ON RFM ANALYSIS AS THE BASIS OF MARKETING STRATEGY CASE STUDY OF CRUDE PALM OIL PRODUCT IN PALM OIL INDUSTRY

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ARTICLE INFO	ABSTRACT			
Keywords: Crude Palm Oil, Recency Frequency Monetary (RFM), Marketing Strategy, Group Segmentation, Group Label, Potential Buyer, Loyal Buyer.	Nowadays so many palm oil companies sell the product to potential buyer to maximize their revenue, so they need to understand the customer's data better in all aspects. Segmenting the customers according to their data became extrem important in this context. This study aims to explore customer segmentation using RFM (Recency, Frequency, and Monetary) analysis as a basis for developing an effective marketing strategy for Crude Palm Oil (CPO) products in the palm oil industry. In this paper, i used data of crude palm oil sales database that obtained from digital platform named Customer Relationship Management (CRM) System and Auction by E-commerce involving 56 buyers by 2.499 transactions. After the scoring and data processing, the number of customers for each RFM Score is obtained, then the Monetary group is segmented which is divided into 27 Labels and grouping to 11 (eleven) Labels of Buyer's Company, Engaged, Loyal, Potential, Affair, Broke Up, No Hurt Feeling, Disappointed, Agony, Broken Heart, Hurt Feeling and Lost Feeling. By using RFM analysis, it can effectively create a marketing strategy to increase the status of potential customer to the loyal customer to increase the corporate's revenue and to improve corporate's value added.			

INTRODUCTION

The palm oil industry plays a crucial role in the global agricultural market, providing crude palm oil (CPO) as a key raw material for various industries, including food, cosmetics, and biofuels. As the demand for CPO continues to grow, companies in the palm oil sector face increasing challenges in maintaining customer relationships and driving sales growth in a highly competitive environment. A key factor for success in this industry is the ability to develop targeted marketing strategies that align with customer needs and behaviors. This has led to the growing importance of customer segmentation as a strategic tool to optimize marketing efforts and ensure a customer-centric approach.

Customer segmentation involves dividing the customer base into distinct groups based on specific characteristics or behaviors. By identifying homogeneous segments within the customer population, companies can tailor their marketing strategies to better address the unique preferences and spending patterns of each segment. This is particularly important for the palm oil industry, where the buying behavior of customers can vary significantly based on geography, market demand, and seasonality(Hughes, 2005). To achieve effective segmentation, many companies have turned to RFM (Recency, Frequency, and Monetary) analysis, a method that categorizes customers based on their purchasing behavior.

RFM analysis is a data-driven approach that evaluates customers based on three dimensions: Recency (the time since the last purchase), Frequency (the number of purchases made within a certain period), and Monetary value (the total amount spent). This method allows companies to identify high-value customers, loyal customers, and at-risk customers. In the context of the palm oil industry, RFM analysis can provide valuable insights into which customers are most engaged with the company's products and which customers may require targeted marketing efforts to encourage re-engagement or increased spending(Tsiptsis & Chorianopoulos, 2011).

Despite the potential benefits, customer segmentation using RFM analysis has not been widely explored in the palm oil industry, particularly for CPO products. Most studies and strategies in this industry have focused on production efficiency and supply chain management, while customer relationship management (CRM) has received less attention. This gap in research presents an opportunity to understand how data-driven segmentation can enhance marketing strategies and improve customer retention and acquisition in the CPO market.

This study aims to fill this gap by applying RFM analysis to segment customers of a palm oil company that produces and sells crude palm oil(Bi et al., 2016). By analyzing historical transaction data, the study seeks to identify distinct customer segments and understand their behaviors, ultimately providing a foundation for tailored marketing strategies. The research aims to answer the following key questions: (1) What are the main customer segments in the CPO market based on RFM analysis? (2) How can marketing strategies be optimized for each segment to enhance customer to the loyal group and increase revenue growth? (3) What insights can be drawn from RFM-based segmentation that can guide future marketing decisions in the palm oil industry?

The findings of this study are expected to contribute to the literature on customer segmentation and marketing strategy in the palm oil industry, offering practical insights for companies looking to leverage customer data to improve their competitive edge. By focusing on RFM analysis, the research highlights the importance of data-driven decision-making in creating effective marketing campaigns that resonate with the specific needs of varied customer segments. Ultimately, the study aims to demonstrate how understanding customer behavior through segmentation can lead to more efficient allocation of marketing resources, higher customer satisfaction, and sustainable growth in the competitive CPO market.

Nowadays, the development of information technology has transformed the landscape of the marketing world in recent years. Marketing communication methods that once relied on traditional and conventional approaches have undergone significant transformation to the integrated comprehensive digital system. This phenomenon is known as digital marketing. According to (Chavey, 2000), digital marketing, or electronic marketing (e-marketing), has a nearly identical meaning, both describing the management and execution of marketing through digital era. Crude palm oil as the one of high potential product in plantation industry has also been affected by the advancements in the digital world. Transaction of Crude Palm Oil (CPO) by using CRM (Customer Relationship Management) system and Auction, offering by CRM or Auction by Digital platform such E-commerce for auction and tender, as well as best items which always oversold by outstanding. Like many other products, CPO has experienced a significant shift in how they interact with customers especially for trader who export CPO to other country(Adiana et al., 2018). Concerning to the sustainability competitive advantage Certified CPO is the most valuable product for export that heavily relied on digital marketing strategies to achieve the premium price for CPO's value added, targeting potential customers, especially those certified product to the special country such Europe.

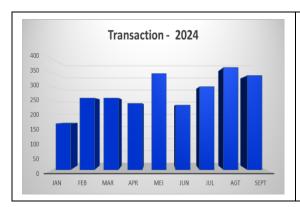
Palm Oil industry especially certified crude palm oil recognized the importance of utilizing digital media as a marketing effort to increase product awareness among potential customers. For nearly the past year, CPO has been leveraging digital media, specifically CRM, E-commerce and some events relate to promote its products to achieve premium price. CRM and E-commerce have observed an increase in customer engagement since adopting digital media. However, the product competitor in plantation industry suspected to be contributing to the sales like oil beans, sun flower's oil, etc. Firstly, the emergence of a new competitor around of certified CPO over the world. Secondly, the premium price of certified CPO has resulted in regular customers. Thirdly, the trend of Crude Palm Oil trading by using Customer Relationship Management and Auction by E-commerce has interested in more potential buyer.

Consumer purchasing decisions involve an activity where consumers select based on their business, assess, and evaluate alternative purchases based on their businesses desire. According to (Kotler et al., 2023), manufacturers require a consumer behavior strategy to achieve these goals, and there are several internal and external factors that influence this process. One approach is for companies to leverage existing sales data. In this research, the analyst will conduct a customer segmentation analysis for The Crude Palm Oil Product in Palm Oil Industry utilizing the RFM model, utilizing transactional data over 9 months (January – September 2024). Recency, Frequency, and Monetary (RFM) are methods that can be employed to predict the behavior and potential of loyal consumers (valuable customers) by analyzing when the customer's last purchase occurred (Recency), how frequently the customer engages in transactions (Frequency), and which customers have the highest spending within a specific period (Monetary)(Cheng & Chen, 2009). The objective of conducting segmentation analysis using the RFM model is to gather data on Crude Palm Oil product sales transactions. This data serves as a foundational basis for understanding consumer behavior in Palm Oil industry. Subsequently, it is utilized to

formulate more effective online marketing by CRM (Customer Relationship System and Auction) system with the aim of enhancing the palm oil company's revenue for creating long term sustainable competitive advantage.

Establishing Palm Oil companies which not only focus on strategies that prioritize products (product-oriented), but they also implement strategies that prioritize customers (customer-oriented). Developing customer relationship between the company and customers based on the transactions related to the recency, frequency and buyers monetary.

In 2024, based on information from transaction data, the sales that have been made are quite fluctuate monthly between transaction and sales revenue, such as below:





The objective of this research is to analyze the segmentation of crude palm oil's buyer related to the 56 buyers which have 2.499 transaction since January 2024 to September 2024 by using digital platform based on business-to-business relationship. One way to find out and analyze the fluctuate in sales of Crude Palm Oil product being sold is by utilizing data from existing daily sales transactions based on Customer Relationship Management (CRM) System and Auction by E-commerce. The palm oil company's focus is customers because customers are also companies and big group company which buy company's products regularly(Arthanugraha et al., 2024). The key point of this research is how to increase the status of potential group to the loyal group by marketing strategy refer to RFM (Recency, Frequency and Monetary) analysis.

METHOD

Conducting customer segmentation, several previous studies have been developed which state that the model that is widely used and has a high level of accuracy is Recency, Frequency, and Monetary (RFM). This model groups customers based on the time interval of the customer's last visit, the frequency of visits, and the amount of value issued as company royalties (Angelis et al., 2005; Cheng & Chen, 2009). By studying records of past customer interactions and transactions, companies can assess these 3 (three) dimensional aspects. The RFM model is widely applied to marketing databases and is a commonly used tool for establishing and developing marketing strategies. Based on customer segmentation using the Recency, Frequency, Monetary (RFM) model, it can develop segmentation capabilities. In this research, customer segmentation was carried out from the sales data based on transaction and sales revenue of each customer in the company and analyzed the segmentation to identify profitable customers and vice versa.

The Recency Frequency Monetary (RFM) model is a method that has been used for a long time and very popular in its application to measure the relationship built with customers by making estimates using a database. RFM is an internal model which can be applied to support marketing strategies and to create competitive value added for the rcompany related to the customer's behavioral based on transaction. The purpose of using the RFM Score is to predict customer's behavior in the future.

The RFM (Recency, Frequency, Monetary) model can be an effective tool for customer segmentation in the crude palm oil (CPO) industry, helping businesses in the palm oil sector understand their buyers and optimize marketing strategies. The model analyzes customer behavior in terms of how recently they made a purchase (Recency), how often they make purchases (Frequency), and how much they spend (Monetary). By segmenting customers based on these factors, the palm oil industry can better target key buyers, improve customer retention, and maximize sales opportunities RFM Model segmentation supports businesses to identify customer groups for special treatment divide to the best loyal customers, loyal customers, potential customers, and new customers. Concerning to this model segmentation allows the creation of targeted marketing meet the specific preferences of

customer segments. By creating valuable insights into customer behavior through RFM analysis, businesses can implement more targeted and effective marketing strategies that most suitable with the customer and market.

Using the RFM model for segmentation in the crude palm oil (CPO) industry helps identify key customer segments and enables more targeted marketing and sales strategies. By understanding who the most valuable customers are and how they behave in terms of recency, frequency, and monetary spending, businesses can tailor their efforts to improve customer retention, boost repeat sales, and maximize corporate's revenue.

RESULTS AND DISCUSSION

Analyzing database of Crude Palm Oil Product sales in one of corporate plantation related to the data of Customer Relationship Management System and Auction by E-commerce results. The software used is MS Excel to process the data and IBM SPSS for the RFM scoring process with a binning value of 3. In this research using 2.499 Transaction from 56 buyers for 9 months (January – September 2024) related to the number of frequencies (how often) transactions made by customers during the research period, and the number transaction nominal for each customer during the research period.

The data processed is start form of raw data that needs to be pre-processed before the transaction data can be used for research by sorting it into per-customer transaction data with target dataset attributes namely customer_id, transaction_nominal, and transaction_date.

After processed the data using SPSS and examined the results of the RFM analysis, the results with several distinct customer segments indicated. Developing the result of this analysis that can be build for more effective marketing strategy to improve customer retention and maximize the value of each segment. The following is an overview of each segmentation based on the RFM score.

F	requency scor	e * Monet	ary score * Re	ecency score (Crosstabulation	1
Recency score			Monetary score			Total
			1	2	3	Total
1 (CHURN)	Frequency score	1	3	3	3	9
		2	1	2	1	4
		3	1	2	2	5
	Total		5	7	6	18
	Frequency score	1	2	3	2	7
		2	2	3	2	7
2 (RISK)		3	2	3	2	7
	Total		6	9	6	21
	Frequency score	1	1	2	2	5
3 (ACTIVE)		2	2	2	2	6
		3	2	2	2	6
	Total		5	6	6	17
		1	6	8	7	21
Total	Frequency	2	5	7	5	17
	score	3	5	7	6	18
	Total		16	22	18	56

With a description of each dimension below:

Recency

- 1. Long Standing Customers
- 2. Relatively recent customers
- 3. Recent Customers

Frequency

- 1. Purchase rarely (single orders)
- 2. Purchase Infrequently
- 3. Purchase Often

Monetary Value

- 1. Low Value of Purchase
- 2. Average Value of Purchases
- 3. High Value of Purchases

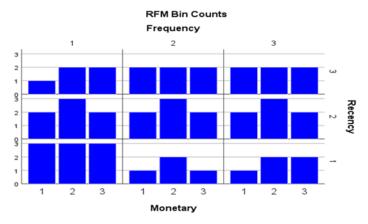
Analyzing RFM Segmentation

Best Customers: existing or currently repeat customers who have a higher average order value and a higher chance of conversion to spend more money. Additionally, they are loyal consumers to create personalized content and customer experience mapping are considered the best ways to optimize customer retention. Therefore, focusing on nurturing existing customers and providing customer's personalized experiences can be an effective digital marketing strategy.

Loyal Customers: customers who have purchased crude palm oil from a business and continue to return for future purchases. These loyal customers are very important to a business because they can make a significant contribution to the business's revenue and can become free advertisers through their recommendations and positive experiences. Digital marketing such Customer Relationship Management System and E-commerce platform can help businesses maintain customer loyalty by providing personalized and relevant experiences.

Potential Customers: The customer who needs a product or service and can pay for the product but has not tried or consumed a particular product. Potential customers have great potential to become old customers and can help business growth. How to reach potential customers by getting to know competitors, using targeted marketing and easily adapting to new trends of digital platform.

Lost Customers: is a customer who was previously engaged with a business—making purchases or using its services—but has since stopped interacting or buying from the company for an extended period. In many industries, including the crude palm oil (CPO) industry, a lost customer is typically defined by a significant period of inactivity or non-purchase after being a regular or occasional buyer.



Mapping table by labelling from RFM Score to Segmentation:

	RFM (Recency, Frequency, Monetery) Analysis					
No.	RFM	Company	Label of Segmentation	Grouping Label		
1	333	2	Best Engaged			
2	332	2	Super Engaged	1	Engaged Group	
3	331	2	Very Engaged	1		
4	323	2	Engaged			
5	322	2	Best Loyal		Loyal Group	
6	321	2	Super Loyal			
7	313	2	Very Loyal	2		
8	312	2	Loyal			
9	311	1	New Loyal Customer			
10	233	2	Best Potential		Potential Group	Marketing
11	232	3	Very Potential	3		Strategy to raise this Potential
12	231	2	Potential	3		Level to the
13	223	2	Semi Potential			Loyal Level
14	222	3	Best Affair			
15	221	2	Super Affair		Affair Group	
16	213	2	Affair	4		
17	212	3	Semi Affair			
18	211	2	New Affair			
19	133	2	Enjoy Affair			
20	132	2	Time to Broke Up			
21	131	1	Broke Up	5	Broke Up Group	
22	123	1	No Hurt Feeling	6	No Hurt Feeling	
23	122	2	Disappointed	7	Disappointed	
24	121	1	Agony	8	Agony	
25	113	3	Broken Heart	9	Broken Heart	
26	112	3	Hurt Feeling	10	Hurt Feeling	
27	111	3	3 Lost Feeling		Lost Feeling	
T	otal		56			

No.	Group Labels	Number of Company		
1	Engaged	8		
2	Loyal	9		
3	Potential	9		
4	Affair	14		
5	Broke Up	3		
6	No Hurt Feeling	1		
7	Disappointed	2		
8	Agony	1		
9	Broken Heart	3		
10	Hurt Feeling	3		
11	Lost Feeling	3		
	Total	56		

The marketing strategy in this reseach is how to increase the buyer's status from potential group buyers into loyal group buyers and what the best strategy to do based on the group buyers segmentation. This is a crucial

process in palm oil industry especially crude palm oil (CPO) product requires a combination of strategies aimed at digital marketing strategy for building trust, delivering value, and nurturing long-term relationships based on business-to-business relationship in palm oil industry. Concerning to the step-by-step guide on how the strategy to increase the potential group buyers into loyal group buyers, such explain below:

1. Deliver Exceptional Value from the Start

- a. Understanding Customer Needs by building loyalty is to deeply understand your potential customers' needs, pain points, and preferences. Tailor your products or services to meet those specific needs.
- b. Offering High-Quality Products/Services by ensuring that the initial experience with your product is positive by delivering a high-quality product that exceeds expectations. In the CPO industry, for example, ensure that the product meets industry standards and is delivered reliably.
- c. Providing Clear Value Propositions by articulating the benefits and unique selling points (USPs) of your product clearly. Potential customers should immediately see why your offering stands out from competitors.

2. Provide Excellent Customer Service by Digital Marketing

- a. Timely Responses by offering prompt and helpful customer service that addresses any concerns or questions by digital marketing platform such mailchimp, CRM (Customer Relationship Management) and digital platform for tender or auction like E-commerce for potential customers that make their initial experience smooth and pleasant.
- b. Proactive Support by waiting for customer to reach out, be proactive in offering support or assistance. Whether through live chat, email, or phone, let potential customers know that you are available to help them.
- c. Personalized Attention by customizing your interactions to show that you care about their unique needs. For example, addressing them by name, referring to their recent interactions, or understanding their purchasing history can create a personalized experience.

3. Build Trust and Credibility

- a. Offer Transparency by open and honest about your products, pricing, and terms of service. Avoid hidden fees or surprises that could erode trust.
- b. Showcase Testimonials and Case Studies by using social proof to demonstrate the success others have had with your product. Positive reviews, testimonials, and case studies from satisfied customers can reassure potential customers of your reliability.
- c. Provide Certifications and Credentialsn which concern in palm oil industry where quality and standards are crucial, providing certifications or compliance with industry regulations (e.g., certified product like RSPO Roundtable on Sustainable Palm Oil) can boost trust.

4. Offer Loyalty Programs and Incentives

- a. Rewards for Repeat Purchases by implementing a loyalty program where customers can accumulate points or rewards for making repeat purchases. Offering discounts, free products, or exclusive deals can incentivize customers to keep coming back.
- b. Early Access to Products/Services by rewarding potential customers who become loyal by giving them early access to new product launches, special events, or premium services.
- c. Referral Bonuses by encouraging word-of-mouth marketing by rewarding loyal customers for referring others. This not only builds loyalty but also helps expand your customer base.

5. Nurture Relationships Through Ongoing Engagement

- a. Follow-Up After Purchase after a customer makes a purchase, don't end the interaction there. Follow up with a thank-you note, a survey to gauge satisfaction, or provide information on how to get the most out of their purchase.
- b. Personalized Email Campaigns by using customer data to send targeted, personalized email campaigns with product recommendations, exclusive offers, or valuable content.
- c. Regular Communication by concerning to the product updates, and palm oil industry insights. Continuous engagement helps keep the product to top-of-mind.

6. Offer Consistency and Reliability of Delivery and Quality

a. Consistent Quality whether it's the product itself, the customer service experience, or the delivery time, ensure that the customer has a consistently positive experience with every interaction.

b. Timely Deliveries and Services Crude Palm Oil product in Palm Oil industry, where timing can be critical, ensure that deliveries are timely and in accordance with the promises made. Meeting delivery expectations consistently builds trust over time.

7. Leverage Data and Feedback

- a. Analyze Customer Behavior by using RFM (Recency, Frequency, Monetary) analysis or other customer segmentation techniques to understand which customers have high potential to become loyal and target them with customized offers.
- b. Collect Feedback by asking for feedback regularly and act on it. Let customers know that their voice matters and that you're working on improving based on their suggestions.
- c. Improve Based on Insights by using data to continually optimize your offerings and customer experience. If potential customers see that their needs are being actively addressed, they're more likely to become loyal.

8. Create a Positive Product Experience

- a. Offer Certified Crude Palm Oil Product Experiences beyond just selling products, create a positive and memorable certified crude palm oil product experience.
- b. Engage on Digital Platform by building relationships with potential and current customers by engaging with them on digital platform by building Emotional Connections.
- c. Beyond rational appeals, create emotional connections with customers by aligning with their values. For example, in the palm oil industry, emphasize your commitment to sustainability and ethical sourcing, which can resonate with conscious buyers.

9. Offer Flexibility and Convenience

- a. Flexible Payment Terms by offering a flexible payment options or terms that make purchasing easier for the customer, especially for potential customers considering large amount purchases.
- b. Hassle-Free Returns and Support by developing the process for claim as seamless as possible. Customers will feel more comfortable making a purchase if they know it won't be difficult to claim related to the volume or quality if necessary

10. Recognize and Reward Loyal Customers

- a. Acknowledge Milestones by celebrating important milestones with your customers, such as anniversaries of their first purchase or reaching a certain spending threshold. Offering them personalized gifts or discounts as a token of appreciation can reinforce their loyalty.
- b. Exclusive Offers for Long-Term Customers by developing an exclusive tier in your loyalty program that provides long-term customers with benefits, such as VIP access or exclusive content, reinforcing their relationship with your brand.

CONCLUSION

The implementation of RFM analysis (Recency, Frequency, Monetary) can enhance the effectiveness and efficiency in identifying customer targets that need to be prioritized. With proper segmentation, companies can improve their marketing strategies to transform customer status from potential buyers to loyal buyers. RFM analysis divides customers into 27 labels and groups them into 11 labels, including Engaged, Loyal, and Potential. By leveraging this analysis, companies can design effective marketing strategies to increase customer loyalty, which in turn will boost revenue and add value to the company.

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