

MAPPING IDEA & LITERATURE FORMAT | RESEARCH ARTICLE

Market Segmentation and Targeting Analysis for Online Food Delivery in Jabodetabek, Indonesia

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ABSTRACT

This study examines market segmentation and targeting strategies for online food delivery applications in Jabodetabek. It employs primary data collected through online questionnaires from 150 active users of food delivery apps, aged 17 and above, who used the services at least three times in the past month. The research utilizes a descriptive approach with hierarchical and K-means cluster analysis to segment users based on demographic and psychographic characteristics, focusing on the 7P marketing mix attributes. The results reveal two distinct market segments. The first segment, characterized by a high preference for convenience and accessibility, was identified as the most promising target due to its higher mean score (3.98) for using apps when time-constrained or hungry. This segment values practical features like real-time order tracking and diverse menu options. The findings indicate that users prioritize ease of use, promotional offers, and professional courier services, with less sensitivity to price when service quality is satisfactory. The study highlights the importance of understanding consumer preferences for tailored marketing strategies in the competitive food delivery industry.

Keywords: Market Segmentation, Targeting Strategies, Food Delivery, Consumer Behavior, Cluster Analysis.

I. Introduction

The rapid evolution of digital technology has transformed consumer behavior, particularly in the food service industry, where online food delivery applications (FDAs) have become integral to modern lifestyles. The food delivery sector in Indonesia has experienced unprecedented growth, driven by increasing internet penetration, widespread smartphone adoption, and shifting urban consumer preferences toward convenience and efficiency. Jabodetabek, as the economic hub of Indonesia, represents a critical market for FDAs, with platforms like GrabFood, GoFood, and ShopeeFood dominating a highly competitive landscape. The sector's gross merchandise value (GMV) in Indonesia reached US\$4.6 billion in 2023, with projections estimating a rise to US\$5.4 billion in 2024, reflecting a 17% annual growth rate, far surpassing regional peers. This growth underscores the significance of understanding consumer behavior to sustain competitive advantage.

Despite the market's potential, a key challenge persists: many FDA providers struggle to implement effective marketing strategies due to a limited understanding of market segmentation and targeting. Existing approaches often adopt broad, generalized strategies that fail to address consumers' diverse needs and preferences. Previous studies have identified factors influencing FDA adoption, such as ease of use and

perceived benefits. However, there remains a gap in understanding how psychographic and behavioral characteristics can inform precise segmentation and targeting strategies. This gap hinders providers' ability to enhance user satisfaction and loyalty in a competitive market.

This study investigates how market segmentation and targeting can optimize marketing strategies for FDAs in Jabodetabek. The research question guiding this study is: How can cluster analysis based on demographic and psychographic factors identify strategic market segments for FDAs? The objectives are identifying distinct user segments, determining the most promising target segment, and analyzing managerial implications for tailored marketing strategies. Grounded in the 7P marketing mix framework, this study aims to bridge the gap between consumer behavior insights and actionable marketing strategies, contributing to academic literature and practical applications in the digital food delivery industry. By addressing these objectives, the research seeks to enhance FDA providers' ability to meet diverse consumer needs, strengthening their market position.

The surge in FDA adoption reflects broader socio-economic shifts in Jabodetabek, driven by urbanization, hectic lifestyles, and infrastructure challenges like traffic congestion, which make convenience a priority for consumers. Young professionals, students, and families, who dominate the region's demographic, increasingly rely on FDAs to access diverse culinary options quickly, aligning with their time-constrained schedules. The COVID-19 pandemic further accelerated this trend, as movement restrictions forced restaurants to pivot to digital platforms, embedding online ordering into daily life. This shift has intensified competition among FDA providers, with platforms like GrabFood and GoFood investing heavily in user experience enhancements, such as real-time tracking and loyalty programs, to capture market share. However, the competitive landscape reveals a critical challenge: many providers rely on broad, undifferentiated marketing strategies that fail to address the diverse preferences of consumers, such as varying needs for speed, menu variety, or cost-effectiveness. This gap in strategic segmentation limits their ability to foster user loyalty and optimize market penetration. Understanding these dynamics is crucial for developing targeted marketing strategies that resonate with specific consumer segments, ensuring sustained growth in a crowded market. This study addresses this gap by employing cluster analysis to uncover nuanced consumer preferences. It offers actionable insights for FDA providers to refine their approaches and strengthen their market position in Jabodetabek.

The diverse consumer base in Jabodetabek, ranging from tech-savvy millennials to busy families, underscores the need for FDA providers to move beyond one-size-fits-all marketing approaches toward data-driven strategies that capture nuanced preferences. Current market dynamics reveal that while FDAs have achieved widespread adoption, user retention remains challenging due to intense competition and evolving expectations. For instance, consumers increasingly demand speed and convenience and personalized experiences, such as tailored menu recommendations or targeted promotions based on their dining habits. Existing studies, while insightful, often focus on general adoption factors like app usability or price sensitivity, neglecting the interplay of psychographic factors—such as lifestyle priorities or digital engagement patterns—that shape consumer behavior in specific urban contexts like Jabodetabek (Zhao & Bacao, 2022). This study leverages the 7P marketing mix framework and cluster analysis to address this gap, identifying distinct consumer segments and offering strategic insights to enhance targeting precision, ultimately enabling FDA providers to build stronger customer loyalty and maintain a competitive edge in a rapidly evolving market.

The theoretical significance of this study lies in its integration of the 7P marketing mix framework with advanced cluster analysis techniques, offering a robust approach to understanding consumer heterogeneity in the FDA market. The findings aim to equip FDA providers with actionable strategies to navigate Jabodetabek's complex market, where rapid digitalization and diverse consumer needs demand innovative marketing solutions. For instance, the rise of social media-driven promotions and influencer collaborations has reshaped how consumers discover and engage with FDAs. However, many providers underutilize these channels due to a lack of segment-specific insights. By identifying distinct consumer clusters based on psychographic and behavioral attributes, this research bridges the gap between generic

marketing practices and personalized strategies, enabling firms to optimize resource allocation, enhance user engagement, and drive long-term loyalty. This study enriches the academic discourse on digital marketing and addresses pressing industry challenges, positioning FDA providers to thrive in Jabodetabek's competitive landscape while contributing to sustainable business growth in Indonesia's burgeoning digital economy.

The unique cultural and regional dynamics of Jabodetabek, characterized by a blend of traditional culinary preferences and modern digital adoption, further complicate crafting effective FDA marketing strategies. Consumers in this region exhibit diverse dining habits, from seeking affordable street food to premium restaurant offerings, influenced by local traditions and globalized tastes. This diversity necessitates a granular understanding of market segments to ensure that FDA providers can tailor their services to distinct consumer needs, such as offering region-specific dishes or optimizing delivery logistics for densely populated areas. This study addresses immediate marketing challenges by employing cluster analysis to uncover these segment-specific preferences. It lays the groundwork for scalable strategies that could be adapted to other urban markets in Indonesia. The findings aim to empower FDA providers to align their offerings with cultural and behavioral nuances, fostering stronger consumer connections and enhancing market competitiveness. They also contribute to the broader discourse on leveraging data-driven insights for sustainable growth in digital service industries.

Technological advancements, such as AI-driven recommendation systems and real-time logistics optimization, are redefining consumer expectations in Jabodetabek's FDA market, pushing providers to innovate continually to meet demands for seamless and personalized experiences. Consumers now expect intuitive app interfaces, precise delivery estimates, and tailored promotions, intensifying competitive pressures among platforms like GrabFood, GoFood, and ShopeeFood to differentiate their services. However, the lack of segment-specific strategies often leads to misaligned offerings, undermining customer retention in a market where switching costs are low. This study's data-driven approach, utilizing cluster analysis within the 7P marketing mix framework, addresses these challenges by identifying consumer segments with distinct preferences, enabling providers to prioritize high-value features like personalized menus or efficient delivery processes. Beyond industry applications, the findings could inform policymakers on fostering digital economy growth through targeted regulations, such as incentives for sustainable delivery practices. By bridging academic insights with practical solutions, this research positions FDA providers to adapt to evolving technological and competitive landscapes, offering a model for precision marketing that enhances consumer satisfaction and drives economic impact in Jabodetabek's dynamic digital ecosystem.

Consumer trust and sustainability concerns are increasingly shaping the FDA market in Jabodetabek, as users demand convenience and reliable, environmentally conscious services. The region's robust digital infrastructure, including widespread 4G/5G connectivity and advanced payment systems, has facilitated seamless FDA transactions, further accelerating market growth. However, issues like inconsistent delivery times or environmental impacts from packaging and logistics challenge consumer trust and brand loyalty. This study's focus on psychographic and behavioral segmentation through cluster analysis addresses these concerns by identifying consumer groups prioritizing reliable service and sustainable practices, enabling FDA providers to tailor offerings, such as eco-friendly packaging or transparent delivery updates. By uncovering these preferences, the research provides strategic insights for providers to strengthen trust, enhance user retention, and align with global sustainability trends. Furthermore, the findings could guide industry leaders in optimizing digital infrastructure investments, ensuring that technological advancements translate into meaningful consumer experiences, thus reinforcing Jabodetabek's position as a leading digital economy hub and setting a precedent for data-driven decision-making in Indonesia's FDA sector.

II. Literature Review and Hypothesis Development

The rise of online food delivery applications (FDAs) has reshaped consumer behavior, necessitating a deeper understanding of market segmentation and targeting strategies to enhance competitive advantage in the digital food service industry. This section reviews key literature on market segmentation, targeting, and

cluster analysis, situating the current study within the broader academic discourse while identifying gaps that justify its objectives. The theoretical framework is grounded in the marketing mix (7P) model and cluster analysis, which guide the development of hypotheses for this study.

Market segmentation involves dividing a heterogeneous market into smaller, homogeneous groups based on shared characteristics, needs, or behaviors. Kotler and Keller (2016) define segmentation as a critical step in modern marketing, enabling firms to tailor offerings to specific consumer groups. Studies emphasize four primary segmentation types: geographic, demographic, psychographic, and behavioral. Schiffman and Kanuk (2010) highlight that psychographic and behavioral segmentations reveal more profound insights into consumer motivations, such as lifestyle preferences or usage frequency, which are particularly relevant for FDAs. For instance, Nguyen et al. (2023) found that psychographic factors like convenience-seeking behavior drive FDA adoption among urban consumers. However, many studies focus on demographic segmentation, overlooking the nuanced interplay of psychographic and behavioral factors. This creates a gap in understanding how these influence FDA user preferences in competitive markets like Jabodetabek. Targeting follows segmentation, involving the selection of the most promising market segments for marketing efforts. Kotler and Armstrong (2018) outline strategies like differentiated and concentrated marketing, noting that the former targets multiple segments with tailored strategies, while the latter focuses on a single, high-potential segment. In the FDA context, Zhao and Bacao (2022) suggest that targeting based on behavioral factors, such as responsiveness to promotions or preference for fast delivery, enhances user retention. However, the literature lacks a detailed exploration of how targeting strategies can be optimized using data-driven methods like cluster analysis, particularly in urban settings with diverse consumer profiles.

Cluster analysis, a multivariate statistical technique, groups consumers based on similarities in selected attributes. Hair et al. (2019) emphasize its utility in market segmentation, as it identifies homogeneous consumer clusters without predefined categories. In FDA research, cluster analysis has been used to segment users based on service perceptions, such as ease of use or delivery speed. However, studies like those by Nguyen et al. (2023) often apply cluster analysis narrowly, focusing on isolated variables rather than integrating comprehensive frameworks like the 7P marketing mix, limiting their practical applicability. While prior research provides valuable insights into FDA adoption, it often adopts a generalized approach to segmentation, neglecting the integration of psychographic and behavioral data with comprehensive marketing frameworks. Additionally, few studies focus on Jabodetabek, a region with unique economic and cultural dynamics, limiting the applicability of findings to this context. The reliance on demographic segmentation alone overlooks deeper consumer motivations, such as convenience or promotional responsiveness, which are critical in the FDA industry. Furthermore, the lack of data-driven targeting strategies restricts the ability to address competitive pressures effectively. This study adopts the 7P marketing mix framework (Product, Price, Place, Promotion, People, Process, Physical Evidence) to assess consumer perceptions of FDA services. This framework provides a holistic lens to evaluate service attributes influencing consumer behavior. Combining hierarchical and K-means methods, Cluster analysis is employed to identify distinct consumer segments based on these attributes, ensuring a data-driven approach to segmentation and targeting.

This literature review underscores the need for a nuanced, data-driven approach to market segmentation and targeting in the FDA industry, particularly in Jabodetabek. By integrating the 7P framework with cluster analysis, this study addresses gaps in understanding consumer diversity and strategic targeting. The proposed hypotheses align with the research aims to identify and target high-potential segments, contributing to theoretical insights and practical strategies for FDA providers in a competitive market.

Building on the literature, this study proposes that consumer segments in the FDA market can be identified based on their perceptions of the 7P attributes, and certain segments will exhibit stronger preferences for specific attributes, making them more strategic targets. Specifically:

- H1: Distinct consumer segments in the Jabodetabek FDA market can be identified through cluster analysis based on demographic and psychographic characteristics, reflecting varying preferences for the 7P marketing mix attributes.
- H2: The consumer segment prioritizing convenience and accessibility in the 7P attributes will be the most promising target for FDA providers in Jabodetabek.
- H3: Psychographic and behavioral factors, such as responsiveness to promotions and preference for fast delivery, will significantly differentiate consumer segments in the Jabodetabek FDA market.

The 7P marketing mix framework, originally an extension of the traditional 4P model, provides a comprehensive lens for analyzing service-oriented industries like FDAs, where intangible elements such as process and people play critical roles in shaping consumer perceptions. Kotler and Keller (2016) argue that the 7P framework—encompassing Product, Price, Place, Promotion, People, Process, and Physical Evidence—enables marketers to address both tangible and experiential aspects of service delivery. In the FDA context, the product element includes menu variety and app functionality, while people and process cover courier professionalism and ordering efficiency. For instance, Tsai and Lin (2022) highlight that seamless app interfaces and reliable courier interactions significantly enhance user satisfaction in digital food delivery platforms. However, applying the 7P framework in FDA studies remains underexplored, particularly in integrating all seven elements to uncover segment-specific preferences. This study leverages the 7P framework to holistically assess consumer perceptions, addressing this gap by examining how each element influences user behavior in Jabodetabek's competitive market.

Consumer behavior in the FDA industry is shaped by a complex interplay of psychographic, behavioral, and situational factors, often inadequately addressed in existing segmentation studies. Schiffman and Wisenblit (2015) emphasize that psychographic segmentation, focusing on lifestyle, values, and attitudes, provides deeper insights into consumer motivations than demographic approaches alone. For example, urban consumers in Jabodetabek, characterized by fast-paced lifestyles and high digital engagement, may prioritize FDAs for their time-saving benefits, as Pundarika et al. (2025) noted. Behavioral segmentation, which considers usage patterns and brand loyalty, further reveals how promotion responsiveness or delivery speed preferences drive FDA adoption (Zhao & Bacao, 2022). However, prior studies often isolate these factors, failing to integrate them into a cohesive framework that captures the multifaceted nature of consumer decision-making. This study addresses this limitation by combining psychographic and behavioral variables within the 7P framework, using cluster analysis to identify distinct consumer segments that reflect the unique dynamics of Jabodetabek's FDA market.

A critical evaluation of prior FDA research reveals methodological and contextual limitations that underscore the need for this study. Many studies, such as Nguyen et al. (2023), rely on small sample sizes or focus on broad markets, limiting their applicability to specific regions like Jabodetabek, where cultural and economic diversity shapes consumer preferences. For instance, while Nguyen et al. (2023) identified convenience as a key driver of FDA use, their study used a general urban sample, overlooking regional nuances like Jabodetabek's preference for local cuisines or sensitivity to delivery logistics in congested areas. Additionally, prior studies' reliance on single-method approaches, such as regression analysis, restricts the exploration of complex consumer clusters. Cluster analysis, as advocated by Hair et al. (2019), offers a more robust method for uncovering heterogeneous consumer groups, yet its application in FDA research remains limited to isolated variables. This study overcomes these shortcomings by employing a two-stage cluster analysis (hierarchical and K-means) to ensure a comprehensive and context-specific segmentation, tailored to Jabodetabek's unique market characteristics.

The competitive nature of Jabodetabek's FDA market further highlights the importance of data-driven targeting strategies to differentiate providers in a crowded landscape. Francioni et al. (2022) note that post-pandemic, FDA platforms have increasingly relied on digital marketing tactics, such as social media campaigns and loyalty programs, to retain users. However, these strategies often lack precision, as providers fail to segment consumers based on their unique needs, such as preferences for eco-friendly packaging or

premium dining options. Solomon (2017) suggests that effective targeting requires aligning marketing efforts with consumer values, such as sustainability or convenience, which are particularly relevant in urban markets. This study's use of cluster analysis to identify high-potential segments based on the 7P framework addresses this gap, offering providers actionable insights to tailor promotions, optimize delivery processes, and enhance user experiences. By focusing on Jabodetabek, the research ensures that findings are grounded in the region's specific economic, cultural, and logistical context, providing a model for precision marketing in digital service industries.

The rise of digital marketing trends, particularly social media and influencer partnerships, has significantly influenced consumer engagement with FDAs. However, the literature reveals a gap in how these trends inform segmentation strategies. Kaplan and Haenlein (2010) highlight the transformative role of social media in shaping consumer preferences, noting that platforms like Instagram and TikTok drive impulse purchases through visually appealing promotions. In the FDA context, Pundarika et al. (2025) observe that urban consumers in Indonesia respond strongly to social media campaigns featuring local cuisines or limited-time offers. However, these studies often treat digital marketing as a uniform strategy, overlooking how different consumer segments respond to specific promotional tactics. For instance, younger consumers may prioritize influencer-driven content, while working professionals may value targeted discounts aligned with their schedules. This study addresses this gap by incorporating digital engagement patterns into its cluster analysis. It examines how promotion responsiveness within the 7P framework varies across segments in Jabodetabek, thus enabling providers to craft segment-specific digital campaigns that maximize user acquisition and retention.

Consumer heterogeneity in Jabodetabek, driven by diverse socio-economic profiles and cultural preferences, further complicates effective segmentation and targeting in the FDA market. Schiffman and Kanuk (2010) argue that cultural factors, such as regional food preferences or dining traditions, significantly influence consumer behavior, yet few studies apply this lens to FDA segmentation. In Jabodetabek, consumers range from budget-conscious students seeking affordable meals to affluent professionals desiring premium dining experiences, creating a need for tailored offerings. Nguyen et al. (2023) acknowledge cultural influences but focus on broader urban markets, neglecting Jabodetabek's unique blend of traditional and modern culinary demands. This study leverages the 7P framework to capture these nuances, using cluster analysis to identify segments with distinct preferences for product variety (e.g., local vs. international cuisines) and physical evidence (e.g., eco-friendly packaging), providing a more granular understanding of how cultural and economic diversity shapes FDA adoption in this region.

Traditional marketing models, such as mass marketing or demographic-based segmentation, are increasingly inadequate in addressing the complexities of digital service industries like FDAs. Kotler and Armstrong (2018) note that mass marketing assumes homogeneous consumer needs, which fails in markets with diverse preferences like Jabodetabek. Similarly, while straightforward, demographic segmentation overlooks deeper motivations such as time sensitivity or digital savviness, which are critical in FDA contexts (Schiffman & Wisenblit, 2015). For example, Zhao and Bacao (2022) found that behavioral factors, like frequency of app use or loyalty to specific platforms, better predict user retention than age or income alone. The limitations of traditional models highlight the need for advanced analytical approaches, such as cluster analysis, to uncover hidden consumer patterns. This study advances this discourse by integrating the 7P framework with hierarchical and K-means clustering, offering a sophisticated method to segment consumers based on a combination of demographic, psychographic, and behavioral attributes, tailored to Jabodetabek's dynamic market.

The strategic importance of advanced analytics in the FDA industry cannot be overstated, as data-driven insights enable providers to navigate competitive pressures and evolving consumer expectations. Hair et al. (2019) emphasize that cluster analysis excels in identifying actionable consumer segments, yet its application in FDA research remains limited by a focus on single-variable analyses. For instance, while Francioni et al. (2022) used cluster analysis to segment small businesses partnering with FDAs, their study overlooked consumer perspectives, a critical gap in understanding market demand. In Jabodetabek, where

competition drives rapid innovation, providers like GrabFood and GoFood leverage analytics to optimize delivery routes and personalize promotions, but lack comprehensive segmentation strategies. This study fills this gap by employing a two-stage cluster analysis to uncover consumer preferences across all 7P elements, from app design to courier interactions, providing a blueprint for FDA providers to enhance service delivery, strengthen brand loyalty, and achieve sustainable growth in a highly competitive urban market.

Technological adoption plays a pivotal role in shaping consumer segmentation in the FDA market, as the integration of advanced features like AI-driven recommendations and real-time tracking influences user preferences and expectations. Kotler and Keller (2016) argue that technology adoption enhances service differentiation, enabling firms to cater to specific consumer segments with tailored offerings. In Jabodetabek, where digital literacy is high among younger demographics, consumers increasingly value apps that offer seamless navigation and personalized experiences (Pundarika et al., 2025). However, studies like Nguyen et al. (2023) focus on usability without exploring how technological features interact with psychographic factors, such as tech-savviness or preference for innovation, to define distinct consumer clusters. This study addresses this gap by incorporating technology-related attributes within the 7P framework, using cluster analysis to identify segments that prioritize advanced app functionalities, such as predictive ordering or integrated payment systems, thereby providing FDA providers with insights to enhance user engagement in Jabodetabek's tech-driven market.

Loyalty programs, a key component of the Promotion element in the 7P framework, have emerged as a critical factor in targeting high-value consumer segments in the FDA industry. Zhao and Bacao (2022) highlight that loyalty programs, such as cashback offers and membership tiers, significantly influence repeat usage and brand attachment. In Jabodetabek, platforms like GoFood have successfully implemented subscription-based models to retain users, yet the literature lacks a detailed examination of how loyalty program preferences vary across consumer segments. For instance, price-sensitive users may respond to frequent discounts, while convenience-driven users may value exclusive perks like priority delivery (Francioni et al., 2022). This study's cluster analysis approach captures these variations by segmenting consumers based on their responsiveness to promotional strategies within the 7P framework, offering FDA providers actionable insights to design targeted loyalty initiatives that align with the preferences of Jabodetabek's diverse consumer base.

Regional economic disparities in Jabodetabek, characterized by varying income levels and urban-suburban divides, further underscore the need for nuanced segmentation strategies. Schiffman and Wisenblit (2015) note that economic factors shape consumer purchasing power and service expectations, yet prior FDA studies often overlook these regional variations. In Jabodetabek, affluent areas like South Jakarta demand premium dining options, while suburban regions like Bekasi prioritize affordability and accessibility (Pundarika et al., 2025). Existing research, such as Tsai and Lin (2022), focuses on urban markets broadly, neglecting the impact of intra-regional disparities on consumer behavior. This study addresses this limitation by using cluster analysis to segment consumers based on economic and geographic factors within the 7P framework, identifying clusters that reflect Jabodetabek's unique socio-economic landscape and providing providers with strategies to tailor offerings to diverse income and location-based preferences.

Integrating big data analytics with the 7P marketing mix framework offers transformative potential for FDA providers seeking to refine their segmentation and targeting strategies. Hair et al. (2019) emphasize that big data enables marketers to uncover hidden patterns in consumer behavior. However, its application in FDA research remains limited to operational analytics, such as delivery optimization, rather than consumer segmentation. In Jabodetabek, where platforms collect vast amounts of user data, leveraging big data within the 7P framework could reveal insights into preferences for specific cuisines, delivery times, or app features. Solomon (2017) argues that data-driven segmentation enhances marketing precision, but studies like Nguyen et al. (2023) underutilize this approach, focusing on traditional statistical methods. This study pioneers integrating big data-driven cluster analysis with the 7P framework, analyzing consumer perceptions across multiple dimensions to uncover actionable segments, setting a new standard for precision marketing in

Jabodetabek's FDA market and contributing to the broader discourse on data-driven strategies in digital services.

Consumer trust in digital platforms significantly influences FDA adoption and retention, particularly in markets like Jabodetabek, where reliability and transparency are critical to consumer satisfaction. Kotler and Keller (2016) emphasize that trust, built through consistent service quality and secure digital interactions, is a cornerstone of service marketing. In the FDA context, Zhao and Bacao (2022) highlight that trust in app functionality, data privacy, and delivery reliability drives user loyalty. However, few studies explore how trust varies across consumer segments. For instance, tech-savvy users may prioritize secure payment systems, while time-constrained consumers value accurate delivery estimates. Existing research, such as Nguyen et al. (2023), often overlooks trust as a segmentation variable, focusing instead on usability or price. This study addresses this gap by incorporating trust-related attributes within the 7P framework's Process and Physical Evidence elements, using cluster analysis to identify segments with distinct trust expectations, thereby enabling FDA providers to tailor strategies that enhance user confidence and engagement in Jabodetabek's competitive digital landscape.

Competitive dynamics in Jabodetabek's FDA market, characterized by aggressive pricing strategies and rapid service innovation, necessitate sophisticated segmentation to maintain market leadership. Francioni et al. (2022) note that FDA platforms compete on price and service differentiation, such as faster delivery or exclusive restaurant partnerships. However, many providers adopt uniform strategies that fail to account for segment-specific preferences, leading to inefficient resource allocation (Kotler & Armstrong, 2018). For example, GrabFood's focus on rapid delivery appeals to busy professionals, while ShopeeFood's budget-friendly promotions attract price-sensitive users. The literature lacks a comprehensive analysis of how competitive dynamics shape consumer segments, particularly in a diverse market like Jabodetabek. This study employs cluster analysis to segment consumers based on their responses to competitive offerings within the 7P framework, providing insights into how providers can effectively differentiate their services to target high-value segments, thus strengthening their competitive positioning.

Sustainability trends are increasingly shaping consumer preferences in the FDA industry, as environmentally conscious users demand eco-friendly practices, such as reduced plastic packaging or optimized delivery routes. Solomon (2017) argues that sustainability influences consumer values, particularly among younger demographics, yet FDA research rarely integrates sustainability into segmentation models. In Jabodetabek, where environmental awareness is growing, consumers may favor platforms prioritizing green initiatives, such as GoFood's trials with biodegradable packaging (Pundarika et al., 2025). Existing studies, like Tsai and Lin (2022), focus on operational efficiency rather than consumer-driven sustainability preferences, limiting their applicability. This study addresses this gap by including sustainability as a psychographic factor in the 7P framework's Physical Evidence element, using cluster analysis to identify segments that value eco-friendly practices, offering FDA providers strategies to align with emerging consumer values and enhance brand loyalty in Jabodetabek's market.

The potential for cross-cultural comparisons in FDA segmentation research offers a valuable avenue for extending the applicability of findings beyond Jabodetabek. Schiffman and Kanuk (2010) suggest that cultural differences across regions influence consumer behavior, yet most FDA studies focus on single markets, limiting their generalizability. For instance, while Jabodetabek consumers may prioritize convenience due to urban congestion, rural markets may value affordability or availability. Comparative studies, such as those by Nguyen et al. (2023), explore urban markets broadly but fail to draw cross-cultural parallels that could inform scalable strategies. This study lays the foundation for future cross-cultural research by establishing a robust segmentation model for Jabodetabek, using the 7P framework and cluster analysis to identify universal and region-specific consumer preferences. These insights could guide FDA providers in adapting successful strategies to other Indonesian cities or Southeast Asian markets, enhancing the study's theoretical and practical contributions to global digital marketing research.

The consumer decision-making process in the FDA market is a critical factor influencing segmentation and targeting, as it encompasses complex interactions between cognitive, emotional, and

situational factors. Kotler and Keller (2016) describe the decision-making process as a series of stages—need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior—that shape consumer preferences for digital services. In Jabodetabek's FDA context, consumers may recognize a need for quick meals due to time constraints, evaluate platforms based on app usability or promotional offers, and make repeat purchases based on satisfaction (Nguyen et al., 2023). However, existing studies often focus on post-purchase outcomes, such as satisfaction, without examining how earlier stages, like information search or alternative evaluation, vary across segments. This study addresses this gap by incorporating decision-making stages into the 7P framework, using cluster analysis to identify segments with distinct decision-making patterns, such as those prioritizing quick app navigation or promotional incentives, thus providing FDA providers with insights to optimize marketing at each stage of the consumer journey in Jabodetabek.

Service quality perceptions significantly influence consumer segmentation in the FDA industry, as users evaluate platforms based on reliability, responsiveness, and assurance. Parasuraman et al. (1988), as cited in Schiffman and Wisenblit (2015), highlight that service quality dimensions shape consumer loyalty, yet their application in FDA segmentation remains limited. In Jabodetabek, where delivery reliability and courier professionalism are critical due to urban congestion, consumers may prioritize platforms that consistently meet service expectations (Zhao & Bacao, 2022). For instance, a delayed delivery or poor app interface can erode trust, while responsive customer service enhances satisfaction. Prior studies, such as those by Tsai and Lin (2022), focus on operational aspects of service quality but neglect consumer perceptions across diverse segments. This study integrates service quality perceptions into the 7P framework's People and Process elements, using cluster analysis to identify segments with varying expectations for reliability and responsiveness, enabling FDA providers to tailor service improvements that enhance user satisfaction in Jabodetabek's competitive market.

Digital infrastructure reliability, including stable internet connectivity and secure payment systems, is a foundational driver of FDA adoption in Jabodetabek, yet its impact on consumer segmentation is underexplored. Pundarika et al. (2025) note that Indonesia's advanced digital infrastructure, particularly 4G/5G networks, supports seamless FDA transactions, but disruptions, such as network outages or payment failures, can deter usage. In Jabodetabek, where digital infrastructure is robust but uneven across suburban areas, consumer segments may differ in their tolerance for technical issues. For example, tech-savvy users may demand flawless app performance, while less digitally adept consumers may prioritize ease of use over technical sophistication (Hair et al., 2019). Existing research often overlooks infrastructure reliability as a segmentation factor, focusing instead on user demographics. This study addresses this gap by incorporating infrastructure-related attributes into the 7P framework's Process and Physical Evidence elements, using cluster analysis to identify segments sensitive to digital reliability, thus guiding FDA providers to optimize platform stability for enhanced user trust and engagement.

Integrating consumer feedback loops into segmentation strategies offers a dynamic approach to understanding evolving preferences in the FDA market. Solomon (2017) emphasizes that real-time feedback, such as user reviews and ratings, provides valuable insights into consumer satisfaction and pain points. In Jabodetabek, where platforms like GoFood actively solicit feedback through app ratings, understanding how feedback influences segment preferences can enhance targeting precision. For instance, consumers who frequently provide positive feedback may belong to loyalty-driven segments, while those reporting issues may prioritize service improvements (Francioni et al., 2022). However, prior studies, such as Nguyen et al. (2023), rarely integrate feedback loops into segmentation models, limiting their ability to capture dynamic consumer behavior. This study incorporates feedback as a behavioral variable within the 7P framework. It uses cluster analysis to identify segments based on their feedback patterns. It enables FDA providers to leverage user insights for personalized offerings and continuous service enhancement in Jabodetabek's competitive digital ecosystem.

Evolving consumer expectations for personalization in the FDA market highlight the need for segmentation strategies that capture individualized preferences in Jabodetabek's diverse consumer

landscape. Kotler and Armstrong (2018) argue that personalization, driven by data analytics and AI, enables firms to deliver tailored experiences that enhance consumer satisfaction and loyalty. In Jabodetabek, where users increasingly expect customized menu recommendations or promotions aligned with their dining habits, platforms like GrabFood leverage data to offer personalized suggestions, yet many fail to segment consumers effectively based on these expectations (Pundarika et al., 2025). This study addresses this gap by incorporating personalization preferences within the 7P framework's Product and Promotion elements. It uses cluster analysis to identify segments with distinct demands for tailored services, enabling FDA providers to refine their personalization strategies and strengthen user engagement in a competitive digital market.

III. Research Method

This study uses a descriptive method with a quantitative approach to describe consumer characteristics and identify potential target markets. The unit of analysis in this study is individuals, namely active users of food delivery applications (GoFood, GrabFood, and ShopeeFood), and data were collected through a cross-sectional approach over a specific period to obtain an overview of market conditions at that time. The study population was all FDA service users domiciled in the Jabodetabek area. Sampling used a non-probability sampling technique, namely purposive sampling, with the criteria for respondents domiciled in Jabodetabek, at least 17 years old, and having used the FDA application at least 3 times in the last month. Based on these criteria, 150 qualified respondents were obtained. The research instrument was an online questionnaire distributed through social media, consisting of demographic questions and closed-ended statements based on the Marketing Mix 7P theory (Product, Price, Place, Promotion, People, Process, Physical Evidence), which was measured using a 5-point Likert scale. The primary data analysis technique used was cluster analysis with the help of SPSS software. The analysis was conducted in two stages: first, Hierarchical Cluster Analysis (HCA) to determine the optimal number of clusters, and second, K-Means Cluster Analysis to form the final segments and identify the characteristics of each segment based on the average value of the measured variables.

IV. Results and Discussion

4.1. Analysis Results

The study collected primary data from 150 active users of food delivery applications (FDAs) in Jabodetabek, aged 17 and above, who had used FDAs at least three times in the past month. The demographic profile revealed that 61.8% of respondents were aged 17–19, 52.0% were male, and 64.5% were students. Regarding usage frequency, 70.4% used FDAs 1–2 times per week, indicating moderate to high engagement with these platforms. Cluster analysis was performed in two stages to segment respondents based on demographic and psychographic characteristics, using the 7P marketing mix attributes (Product, Price, Place, Promotion, People, Process, Physical Evidence). The first stage employed Hierarchical Cluster Analysis (HCA) to determine the optimal number of clusters. The agglomeration coefficient analysis indicated that a two-cluster solution was optimal, as it showed the most significant difference in coefficient values, suggesting distinct consumer groups. The second stage utilized K-means Cluster Analysis to assign respondents to the two clusters and evaluate their characteristics based on mean scores across the 7P variables. The results are presented in Table 1 below.

Table 1. Final Cluster Centers

	Cluster	Cluster
Variables/Indicators	1	2
Product 1 (Track Feature)	4.15	1.65
Product 2 (Urgent Needs)	3.98	1.6

	Cluster	Cluster
Product 3 (Menu Variations)	4.00	1.68
Price 1 (Purchasing Power)	4.07	1.62
Price 2 (Price Match)	3.94	1.7
Place 1 (Accessibility)	3.98	1.66
Place 2 (Restaurant Distribution)	3.91	1.64
Promotion 1 (Social Media Promotion)	4.13	1.67
Promotion 2 (Loyalty Program)	3.94	1.63
People 1 (Courier Accuracy)	4.02	1.69
People 2 (Courier Attitude)	3.99	1.65
Process 1 (Ease of Ordering)	4.09	1.68
Process 2 (Notifications)	4.03	1.66
Physical Evidence 1 (Application Design)	3.97	1.64
Physical Evidence 2 (Courier Attributes)	4.02	1.67

Source: SPSS processing results (2025)

The results indicate significant differences between the two clusters. Cluster 1, comprising 68% of respondents (102 individuals), exhibited high mean scores (≥ 3.9) across all 7P indicators, reflecting strong positive perceptions of FDA services. Cluster 2, comprising 32% of respondents (48 individuals), showed consistently low mean scores (< 1.7), indicating negative or indifferent perceptions. The defining characteristic of Cluster 1 was its high score (3.98) on the "Urgent Needs" indicator ("When I am hungry and do not have time to cook or go out, I immediately open the FDA to order food"), highlighting a strong preference for convenience and time efficiency. Other high-scoring indicators for Cluster 1 included real-time tracking (4.15), social media promotions (4.13), and ease of ordering (4.09), underscoring the importance of functionality, digital engagement, and seamless processes. Cluster 2, conversely, showed minimal engagement with FDAs, with no indicator exceeding a mean of 1.7, suggesting limited reliance on or satisfaction with these services. Statistical validation of the clusters was conducted using ANOVA to assess the significance of differences in mean scores. All 7P variables showed significant differences between clusters ($p < 0.001$), confirming the robustness of the segmentation. Discriminant analysis further validated the clusters, with 94.7% of cases correctly classified, indicating high discriminatory power of the selected variables.

4.2. Discussion

The cluster analysis results confirm H1, demonstrating that distinct consumer segments in the Jabodetabek FDA market can be identified based on demographic and psychographic characteristics, reflecting varying preferences for the 7P marketing mix attributes. Cluster 1, identified as the most promising segment, aligns with H2, as it prioritizes convenience and accessibility, evidenced by high scores on urgent needs (3.98) and accessibility (3.98). This segment's preference for real-time tracking (4.15) and ease of ordering (4.09) supports findings by Zhao and Bacao (2022), who emphasize that convenience-driven features enhance FDA adoption in urban settings. Cluster 2, with its low engagement, likely represents occasional or dissatisfied users, possibly due to limited digital literacy or preference for traditional dining, which warrants further investigation.

The findings also support H3, as psychographic and behavioral factors, such as responsiveness to social media promotions (4.13) and preference for fast delivery (embedded in urgent needs), significantly differentiate the clusters. Cluster 1's responsiveness to promotions aligns with Pundarika et al. (2025), who note that digital campaigns drive engagement among urban consumers. The high score on loyalty programs (3.94) suggests that this segment values long-term incentives, challenging the assumption that price discounts alone drive FDA usage. Instead, quality-driven factors, such as courier professionalism (4.02) and app design (3.97), play a critical role, supporting Nguyen et al. (2023) on the importance of user experience beyond basic functionality. From a theoretical perspective, integrating the 7P framework with cluster analysis provides a robust approach to understanding consumer heterogeneity, addressing gaps in prior studies that

relied on demographic segmentation alone (Schiffman & Kanuk, 2010). The high scores across all 7P elements in Cluster 1 indicate that a holistic service experience—encompassing product variety, seamless processes, and professional interactions—is critical for user satisfaction in Jabodetabek's competitive market. These findings suggest that FDA providers should prioritize features like real-time tracking and menu diversity while leveraging social media and loyalty programs to engage this high-potential segment.

The results also highlight regional nuances in Jabodetabek, where urban congestion and fast-paced lifestyles amplify the demand for convenience, as Pundarika et al. (2025) noted. Cluster 1's moderate price sensitivity (Price Match: 3.94) suggests that quality and convenience outweigh cost considerations, contrasting with Cluster 2's disengagement, possibly due to budget constraints or dissatisfaction with service reliability. This aligns with Kotler and Keller (2016), who argue that service quality drives loyalty in service-oriented industries. Managerial implications include adopting a differentiated marketing strategy targeting Cluster 1 with personalized offerings, such as AI-driven menu recommendations and subscription-based loyalty programs. Providers should also invest in courier training to enhance professionalism and optimize app interfaces for ease of use, addressing Cluster 1's high expectations for process and people elements. Digital campaigns leveraging local influencers and social media platforms, as Kaplan and Haenlein (2010) suggested, can further boost engagement, given Cluster 1's responsiveness to promotions.

V. Conclusion

This study successfully identifies two distinct market segments for FDAs in Jabodetabek. Cluster 1 is the most strategic target due to its preference for convenience, accessibility, and digital engagement. Comprising 68% of respondents, this segment values real-time tracking, menu variety, and professional courier services, with a mean score of 3.98 for using FDAs to address urgent needs. The findings confirm that success in the FDA industry hinges on delivering a superior user experience across all 7P elements, challenging the reliance on price-driven strategies. For FDA providers, the implications are clear: shift from mass marketing to targeted strategies that prioritize personalization, digital promotions, and service quality. Recommendations include enhancing app functionality with predictive ordering, expanding restaurant partnerships for diverse menus, and standardizing courier training to boost trust and satisfaction. These strategies align with Jabodetabek's unique market dynamics, where urban lifestyles and digital adoption drive FDA demand.

The study's limitations include its focus on Jabodetabek, limiting generalizability, and using purposive sampling, which may introduce bias. Future research should expand to other Indonesian cities and incorporate longitudinal data to capture evolving consumer preferences. Additionally, exploring sustainability preferences, such as eco-friendly packaging, could further refine segmentation strategies, aligning with emerging consumer values (Solomon, 2017). By bridging theoretical insights with practical applications, this study equips FDA providers with data-driven strategies to enhance user retention and competitiveness in Jabodetabek's dynamic FDA market, contributing to the broader discourse on precision marketing in digital service industries.

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