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**MARKETING 4.0 FOR MANGO MARKET DEVELOPMENT
EFFECTIVELY IN INDRAMAYU REGENCY, INDONESIA**Ellen Rusliati¹, Mulyaningrum², Erni Rusyani³, Ferry Mulyanto⁴⁶^{2,3,4} Universitas Pasundan¹)ellen_rusliati@unpas.ac.id, Universitas Pasundan, Indonesia²)mulyaningrum.unpas@gmail.com, Universitas Pasundan, Indonesia³)ernirusyani@unpas.ac.id, Universitas Pasundan, Indonesia⁴)ferry@unpas.ac.id, Universitas Pasundan, Indonesia

Abstract. Entrepreneurs experienced a decline in sales during Covid-19. Digital marketing strategies could identify the desired products and services of their potential customers. Therefore, the objective of this study was to generate a market 4.0 model by integrating conventional and digital marketing with the 4C market mix, customer behavior, and the 5A approach (aware, appeal, asked, acted, advocate). Descriptive and qualitative methods were used with an atlas.ti software for data analysis. The study focused on mango farmers and entrepreneurs producing derived products in Indramayu Regency, Indonesia. In-depth interviews and participant observations were used to collect data. The research results showed that farmers and entrepreneurs who applied Marketing 4.0 were able to survive during the COVID-19 pandemic, and were interested in continuing to develop the market in the future. The use of digital technology in marketing activities is still at an early stage, which is limited to WhatsApp groups and websites. The use of marketing 4.0 has resulted in a wider marketing reach for Indramayu mangoes.

Keywords: marketing 4.0; market development; mango; Indramayu regency

Abstrak.

Pengusaha mengalami penurunan penjualan selama Covid-19. Strategi pemasaran digital dapat mengidentifikasi produk dan layanan yang diinginkan dari pelanggan potensial mereka. Oleh karena itu, tujuan dari penelitian ini adalah untuk menghasilkan model pasar 4.0 dengan mengintegrasikan pemasaran konvensional dan digital dengan bauran pasar 4C, perilaku pelanggan, dan pendekatan 5A (aware, appeal, asked, acted, advocate). Metode deskriptif dan kualitatif digunakan dengan atlas. Perangkat lunak TI untuk analisis data. Studi ini berfokus pada petani mangga dan pengusaha yang menghasilkan produk turunan di Kabupaten Indramayu, Indonesia. Wawancara mendalam dan observasi partisipan digunakan untuk mengumpulkan data. Hasil riset menunjukkan bahwa petani dan pengusaha yang menerapkan Marketing 4.0 mampu bertahan di masa pandemi COVID-19, dan tertarik untuk terus mengembangkan pasar ke depannya. Penggunaan teknologi digital dalam kegiatan pemasaran masih pada tahap awal, yaitu terbatas pada grup WhatsApp dan website. Penggunaan marketing 4.0 telah menghasilkan jangkauan pemasaran mangga Indramayu yang lebih luas.

Kata Kunci: Marketing 4.0, pengembangan pasar, mangga, Kabupaten Indramayu

INTRODUCTION

Innovation is crucial for success in global competition. However, micro, small, and medium-sized enterprises (MSMEs) only sometimes need to learn how to manage the creative component of the innovation process and how to stimulate creativity within the company (Arenhardt *et al.*, 2018). Marketing's primary focus is to meet human needs, but technology has changed the game in modern marketing. The internet impacts cultural, economic, and social changes, which affects businesses like digital marketing. The Internet is the most essential medium for marketing strategies (Ghazie & Dolah, 2019). The Internet enables producer to

expand and develop their markets using digital technology. There is a shift in the relationship between producers and customers to one mutually beneficial. This feature lets customers obtain information quickly and choose the appropriate product that meets their needs. In addition, producers can acquire insights into customer demands and competitor offerings and adjust their marketing strategies based on the market segment they seek to serve.

Currently, five generations coexist, each possessing distinct attitudes, inclinations, and tendencies. Research conducted by (Adwan *et al.*, 2019) has demonstrated that individuals in the Y/Millennial age bracket (ages 22-35) have effectively utilized digital marketing as a cost-efficient and streamlined means of procuring goods and services. Older generations were hesitant to adopt digital marketing due to a lack of familiarity with and distrust of online purchases. By contrast, the prevalence of social media platforms, email, blogs, [16](#) search engines has led to a decline in traditional marketing strategies. The growth of [the digital economy is](#) heavily reliant [on digital](#) marketing because of its capacity to (1) connect with consumers, (2) monitor consumer behavior, (3) expand market share, (4) decrease traditional marketing expenses, (5) and increase competitiveness in the digital era (Komalasari *et al.*, 2021).

The issues of mango marketing in Indonesia. Digital marketing plays an essential role in the continued growth of the digital economy. According to (Krasnov *et al.*, 2018), three pillars of digital marketing: (1) regulating consumer interaction, (2) utilizing digital methods for marketing information analysis, and (3) executing automated marketing activities through planning. Then, (Flaherty *et al.*, 2021) stated that digital technology's use by marketers is shifting from communication and promotion to supporting design, content, and personalized behavior interventions. The rapid evolution of digital technology has transformed it into a valuable marketing tool from solely a communication mechanism. These technologies enable exchanging information, research, collaboration, co-creation, and delivery of goods and services, offering greater segmentation and targeting possibilities.

Furthermore, Obeidat (2021) found [th14](#) e-marketing affects competitive advantage. Likewise, (Nikbin *et al.*, 2021) discovered [that the COVID-19 pandemic has caused a significant shift in](#) customer demand and behavior, causing novel marketing practices and survival techniques. Previous studies proved that e-marketing, innovative marketing practices, and survival strategies impact competitive advantages. This condition is typically a complex problem when managers must progressively implement new decision-making styles, processes, and behaviors to place the company competitively and acquire an advantage in entering new markets (Okoi *et al.*, 2022).

A challenging issue in the Indramayu region's mango marketing is the control of intermediaries who sell to exporters, modern or traditional markets, or derivative product manufacturers. The farmers' role mainly focused on planting, fertilizing, insecticide spraying, tending, and harvesting. Additionally, they can be categorized into landowners, tenants, and tree tenants. The income level of farmers is positively correlated with their land ownership status (Rasmikayati *et al.*, 2019)

Mango farmers and intermediaries are interested in marketing in modern markets such as supermarkets, exporters, and marketplaces, as markets can often provide higher prices but demand superior quality. Smallholder farmers and intermediaries need more confidence to enter the modern market because they have small farms, low production volume, and more skills and information to access modern markets (Ashari *et al.*, 2021). While the price of mangoes declines during harvest, middle and upper-class consumers continue to require labels and

packaging when shopping in supermarkets. Labels and packaging remain essential to convince consumers of product quality. Packaging contents range from 22 pounds for inter-city shipment to 11 pounds and 5 pounds for the final consumer (Deliana *et al.*, 2017).

Research Gap. A study by (Purnama *et al.*, 2014) SWOT and AHP analysis showed the competitive position of mangoes (*magnifera indica L. var, Gedong Gincu, and Harumanis*). The growth and development of the Harum Manis mango variety in Indonesia requires the implementation of recommendations on key strategic priorities. These include (1) strengthening mango marketing based on the results of the AHP, (2) conducting standardization of mango orchards, and (3) strengthening cooperation between exporters and farmers, and building a one-stop service to produce and ensuring the availability of high-quality fruit that meets international standards.

Agricultural market development is an important source of profits, productivity, inputs, and labor for economic diversification and helps people living in poverty to increase their incomes (Sinha *et al.*, 2013). There is a need to diversify downstream products, such as post-harvest processing requirements, activate village and urban nodes as linkages to potential marketing areas, and expand downstream marketing areas for wider market penetration (Purnomo *et al.*, 2020).

Our research aims to find an answer to this challenging problem of (1) the current marketing of mangoes in the Indramayu regency, (2) the utilization of marketing 4.0 in mango marketing, and (3) market development opportunities by utilizing marketing 4.0. One of the objectives is to determine and design a market development strategy that ensures the demand for mangoes increases.

LITERATURE REVIEW

Marketing 4.0. This research constitutes a relatively new area that has emerged because of digital transformation. Digital transformation enhances business operations by incorporating digital technology into products, services, and market demands. Thus, A digital marketing strategy leverages digital media to promote products and services online, thereby expanding consumer reach (Musnaini *et al.*, 2020). According to Komalasari, Pebrianggara, and Outarjo, (2021), business professionals should implement a digital marketing strategy to optimize existing digital marketing initiatives. Additionally, the steps of a basic digital marketing strategy consist of (1) creating digital assets, (2) driving website traffic, (3) optimizing social media accounts, (4) conducting email marketing campaigns, and (5) broadcasting messages.

Digital marketing promotes products or services through digital technology to enhance brand recognition, boost engagement, and increase sales. Digital marketing includes websites, social media, search engines, email, and online advertising (Wati *et al.*, 2020). The business development advantages are (1) attracting a broad audience, (2) boosting sales, (3) redirecting competition, and (4) requiring no substantial material or financial resources (Bizhanova *et al.*, 2019). In addition, Ralitasari, (2016) argues that the main objective of digital marketing strategy is to foster brand trust and customer loyalty through communicating with brands.

Digital marketing entails leveraging technology for marketing via the Internet, mobile devices, advertisements, and other electronic media (Pradhan *et al.*, 2018). Furthermore, digital marketing represents a creative and efficient approach to obtaining, expanding, and sustaining customer relationships. Online platforms, such as industry-specific websites, outlets, and forums, have been identified as highly valuable for MSMEs (Arobo, 2022). To expand and

integrate networks, MSMEs in developing countries require support for internationalization (Ahimbisibwe *et al.*, 2020)

According to Nadja *et al.*, (2019), developing a passion fruit agroindustry strategy is transferable to the mango industry, as both fruits are tropical. Abbreviations for technical terms should be explained upon first use. Then, the research commonalities include developing derived products, innovative and attractive packaging, strengthening agroindustry institutions, improving information technology for product marketing, and better coordination between stakeholders such as government, farmers, traders, and processors.

Currently, digital technology enables companies to sell their products and process payments online (Wardhana, 2022). According to research by Zhu (2022), digital technology impacts the marketing mix. In the digital era, product concepts are evolving quickly, and customers can purchase products through applications that provide information about product variety and classification. Retailers are also able to provide information to customers to facilitate product purchases. With the help of digital technology, the marketing mix is adapting to meet the needs of today's consumers. Applications can provide general and specific information about variety and classification. Meanwhile, retailers can offer customers information to assist with purchasing products. Digital advancements benefit consumers by enabling them to customize services, functions, and product choices.

Combining traditional and digital formats can lead to increased revenue. The reduced cost and faster process of connecting merchants with customers enable dynamic pricing of products and services online. It is important to note that technical terms will be explained upon their first instance of use. Customers can save money by purchasing products through online retail applications instead of physical stores. Through collaborative screening and adaptive personalization, online retailers utilize email and displays to engage customers and suggest products. Monetary promotions are marketing events intended to incentivize customers to purchase products at a discounted price, while email and display ads can entice them to visit websites. Non-monetary promotions, such as free shipping, are considered effective marketing strategies.

Digital technology encompasses various things, like the internet, social media, and mobile phones. Currently, cell phones are a widely used means of communication. These devices have become a new marketing channel, facilitating company customer contact. An array of online marketing measures and data is available for companies to aid in efficient distribution. Digital platforms are data-generating sources, providing valuable information for marketing strategy decision-making. Companies can utilize digital platforms to market effectively, that is marketplace, payment, search, repository, communication, and community. Each platform differs in its characteristics. Snapchat is often considered the most dynamic and intimate platform that offers users information.

Applying digital marketing can enhance marketing performance in MSMEs (Kalei, 2020), ultimately improving business performance (Thaha, 2020). The implementation of digital marketing involves management principles, initiation, and execution. Perceived advantages and customer demand influence its adoption. MSMEs will utilize digital marketing if it offers more benefits than current methods of the culture and existing IT infrastructure (Shaltoni *et al.*, 2018). MSMEs have yet to utilize the potential of new digital tools, therefore missing out on existing opportunities (Taiminen & Karjaluo, 2015).

Market Development. Research on market development has a long tradition. Market development is an alternative to expansion. Market development is a process of expanding

reach to different segments or markets utilizing existing products (Kotler & Armstrong, 2016) with the aim of (1) increasing sales and profitability, (2) growing the company, (3) being more innovative, (4) meeting the economic scale, (5) acquiring new knowledge, and (6) reducing dependence on local markets. The market development strategy is carried out by utilizing all potential business strengths to improve product quality, increase added value that is different from competitors, improve the quality of human resources, set competitive prices, increase creative promotions, and expand partnership networks and international marketing (Mardatillah & Rosmayani, 2022).

The effectiveness of the actions taken in market development depends on the company's persuasive ability and customer flexibility (Czarniewski, 2014). Mbithi Muturi and Rambo (2016) showed that the expansion of the geographic area significantly affects sales volume, while the development of market segments has no significant effect. Problems in formulating and implementing MSME marketing strategies in the mobile internet era include a need for more understanding of marketing concepts and a lack of professional and good use of mobile internet marketing (Jin, 2018).

Market penetration and development strategies significantly impact a company's performance, cost leadership, and competitive advantage (Alkasim, Hilman, & Bohari, 2018). Modern marketing management requires companies to focus on customer relationships and expanding into developing markets (Czarniewski, 2014). Rofiq and Pramono, (2019) discovered that market orientation is affected by flexibility, strategic planning, and internal and external environment. The support of an effective and coordinated export promotion agency is needed to increase international competitiveness (Appiah *et al.*, 2019).

Conceptual Framework. Marketing 4.0 is a marketing approach that combines online and offline interactions to adapt to the shift to the digital economy to expand consumer reach (Musnaini *et al.*, 2020) and maximize the potential of digital marketing activities (Komalasari *et al.*, 2021). Marketing 4.0 is characterized by the fact that the customer wants to be part of the product development and wants to share his information, opinions, and experiences about the product (Kolářová & Kolářová, 2020). Marketing 4.0 emphasizes connectivity and technology, where sellers do not promote products to specific customer groups, but instead create communities that include existing, potential, and themselves customers (Gau, 2019).

The concept emphasizes the need for marketers to embrace the digital shift and leverage technologies such as the Internet of Things, cloud computing, big data analytics, and artificial intelligence in their strategies. Marketing 4.0 factors can also affect customer satisfaction or decision-making factors for customers to buy online (Winarko *et al.*, 2022). Marketing 4.0 focuses on "acting" and "advocating" in the 5A customer path ((Yasar & Korkusuz Polat, 2022). The application of Industry 4.0-enabled technologies is a key aspect of market strategy in context. The types of digital marketing are websites, social media marketing, search engines, email marketing, and online advertising (Wati *et al.*, 2020). New and cheaper digital promotional activities such as Google Ads, YouTube, SEO, social media advertising, digital content production, personalized discounts, etc. brought by Marketing 4.0 are considered attractive and powerful by consumers (Yeğin & Ikram, 2022).

Marketing strategies need to adapt to the interconnected nature of online networks, including online marketplaces, social media, and search engines, to optimize customer engagement and loyalty. Therefore, Marketing 4.0 is a response to the development of the digital economy and the need for businesses to integrate online and offline marketing strategies to reach and engage customers effectively. Training in the use of marketing is needed, so that

entrepreneurs can increase their knowledge about digitalization and Marketing 4.0 tools, accompanied by examples of businesses that successfully implement it will increase the desire of entrepreneurs to implement change (Petrů et al., 2020).

Moreover, few studies have focused on market development and penetration without utilizing marketing 4.0. Whereas information and communication technology creates new conditions for market interaction; namely, producers can obtain information about products that customers want so that segmenting, targeting, and product positioning (STP) can be carried out from the start as well as the marketing mix (co-creation, currency, communal activation, and communication/4C) that need to be prepared to achieve 5A (aware, appeal, ask, act, advocate).

METHOD

These studies were conducted to identify, determine, and design a market development strategy to ensure increased demand for mangoe production centers in West Java, Indonesia. For this purpose, specify sources of qualitative data collected and analyzed in this study. The data was collected from June to September 2022 with farmers, intermediaries, and entrepreneurs of mangoes products, and the Department of Agriculture, the Office of Cooperatives, and MSMEs of Indramayu regency.

In-depth interviews and participant observations were used to elicit further data (Hirose & Creswell, 2023). Observations were conducted by visiting mango plantations, factories, and stores for mango products and their derivatives. Then, in-depth interviews were conducted with owners and managers, recorded, and documented. The researcher employed descriptive qualitative methodology data analysis using Atlas.ti as a qualitative data analysis tool. Observations were conducted to obtain information on marketing, current digital technologies, and opportunities for market development by using future digital technologies in the Indramayu regency.

Data analysis was performed intuitively and interactively and focused on obtaining information to answer the research questions. The limitation of qualitative research lies in the interpretation of the results of the interviews. Therefore, field observations and literature reviews were required to ensure that the research findings were free of bias, prejudice, and misinterpretation. In addition, the methods and procedures selected were documented and consistently applied.

RESULTS AND DISCUSSION

Results

Mango plantation in the Indramayu Regency involves various cultivars affecting the harvest period, handling, and target market share. The plantation methods farmers utilize also vary, with some owning the land and trees while others renting or leasing them. Farmers engage in co-creation efforts for land preparation, fertilization, insecticide application, mango preservation, and harvesting.

The marketing of Indramayu mangoes is primarily regulated by intermediaries who sell them to exporters, modern or traditional markets, or producers of mango derivatives. Since farmers have weak bargaining power, they end up transferring their mango yields to the intermediaries without appropriate grading or standardization. To obtain better prices,

intermediaries label the grade A mangoes, giving the impression to consumers that they are of high quality. The greater the consumers' willingness to pay, the higher the added value.

The implementation of marketing 4.0 for farmers, intermediaries, and entrepreneurs of mango and its derivative products in Indramayu regency is still in its early stages; hence, assistance needs to be provided primarily for intermediaries and entrepreneurs of mango derivatives in the hope of having an updated website. Currently, information technology is passive, only as a means of communication.

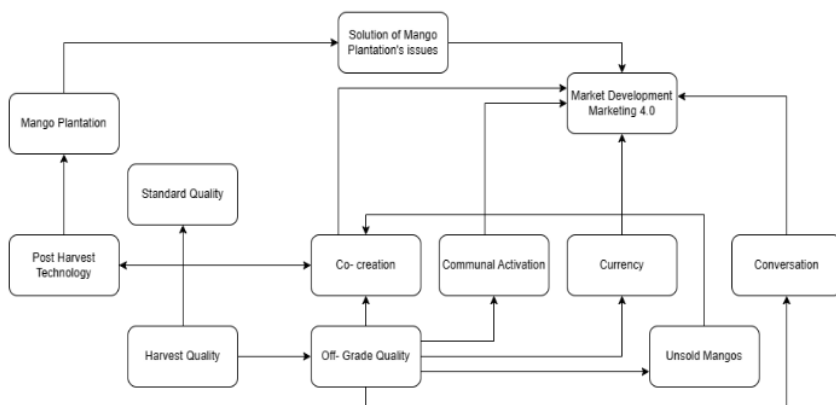


Figure 1. Data Analysis Results

For the resulting plot, see Figure 1. The result of the analysis using Atlas.ti showed that mango farmers in Indramayu Regency prioritize maintaining their mango orchards to improve the quantity and quality of their products to meet customers' needs. Post-harvest handling is carried out by intermediaries, starting from sorting, distribution, branding, packing, and shipping. Indramayu regency has no adequate post-harvest technology support, so prices often fall during harvest because supply exceeds demand.

Market development can employ Marketing 4.0's 4C strategy (co-creation, conversation, communal activation, and currency) to assist intermediaries in understanding the desires and demands of the market segment and in providing products that meet their needs in terms of quantity, quality, price, and timing. Co-creation requires products that meet the standards of the target market. Therefore, mangoes are classified into grades A, B, C, and off-grade. Since Marketing 4.0 facilitates communication regarding customer preferences, pricing, delivery arrangements, and payment methods, customers can submit complaints to achieve satisfaction and advocate for other potential customers as well.

Table 1
Marketing 4.0 Concepts in Indramayu Mango Marketing

No.	Marketing Mix	Description
1.	Product (co-creation): - Variety - Quality	1. Healthy lifestyle trends. Consumption of fruit requires adequate food and increases immunity due to the high Vitamin C content. 2. Mango is a popular tropical fruit.

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- | | |
|---|---|
| <ul style="list-style-type: none"> - Design - Features - Brand name - Packaging - Services | <ol style="list-style-type: none"> 3. Products vary according to consumer/interested consumer demands and tastes, which may vary according to targeted market segments based on geographic factors and social status. 4. Conduct product research and development to sell new mango varieties. 5. Agricultural technology makes it possible to plan harvest times despite high costs, better quality, and novel products. 6. High-quality products (<i>magnifera indica</i> L. var. Gedong Gincu and Harumanis are the most important varieties in the national and international market). 7. The market demands high-quality, standardized products at affordable prices. 8. Products are always available (mango derivatives can be used as an alternative for customers in the off-season). 9. Separation of mango quality by quality grade. 10. Inclusion of the brand as a guarantee of quality. 11. Packaging tailored to the destination. 12. They not only sell mangoes and mango seeds but also offer mango picking and teaching tours and their follow-up products. 13. Satisfactory service. 14. Service guarantee for damaged products due to shipping. 15. Good quality products from other countries. 16. Derivative products were made using low-quality mangoes and those that were not sold fresh. 17. Derivative products were made so that mangoes could be enjoyed out of season. 18. Crop failure is always a threat (wind, rain, and fruit flies). 19. In addition to selling mango and mango seeds, picking tours and mango education were offered. |
| <p>2. Price (currency):</p> <ul style="list-style-type: none"> - List price - Discounts - Allowances - Payment period - Credit terms | <ol style="list-style-type: none"> 1. Prices are based on the desired customer group, location, shipping costs, and handling of the product. 2. The prices offered are affordable and in line with potential customers' affordability. 3. Discounts for multiple purchases, faster payments, and loyal customers. 4. The payment method was fair. 5. Consumer confidence allows the sale of mangoes at high prices and high demand. 6. Affordable prices. 7. Limited capital (payments are received from intermediaries). 8. Non-standard products (good quality products mixed with poor quality products, decreasing consumer confidence). 9. Seasonal products (products are abundant in season and unavailable in the off-season). 10. Prices drop during harvest season. 11. Intermediaries own bargaining power. 12. Trade barriers. 13. Post-harvest technology limitations |
| <p>3. Place (communal activation):</p> <ul style="list-style-type: none"> - Channels - Coverages | <ol style="list-style-type: none"> 1. Farmers or intermediaries can make sales. 2. Larger market coverage. 3. Look for profitable new market opportunities. 4. Different markets require different treatments. |
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- Locations
 - Inventories
 - Transportations
 - Logistics
5. Adequate post-harvest technology support.
 6. Cold storage to extend shelf life.
 7. Cooperation with shipping companies.
 8. More appropriate costing of production volume, demand, and delivery.
 9. Shift to online marketing channels.
 10. A new representation and distribution model (5A) where potential customers learn about products with product variations (aware), are attracted (appeal), ask about the product (ask), make a purchase (act), and recommend the product to other potential customers (advocate).
 11. The market demands high-quality, standardized, and affordable products.
 12. Global trade is wide open.
 14. It is passed down from generation to generation.
- 11
4. Promotion
- (conversation):
- Advertising
 - Personal selling
 - Sales promotion
 - Public relation
1. Invest more in online and social media marketing.
 2. They added a new distribution representation and 5A Model. Prospective customers were introduced to the product variants (aware), feel interested (appeal), inquire about the product (ask), place purchase orders (act), and recommend products to other potential customers (advocate).
 3. Enhance the investment in online and social media marketing.
 4. Distribute rebate cards, incentives, and complimentary samples.
 5. They are taking advantage of celebrities for product launches.
 6. Send personalized mail/email to customers.
 7. Marketing through intermediaries and payments was obtained.
 8. Promotion through the Internet and physical marketing.
 9. Marketing through intermediaries and payments is obtained when goods are sold, paid for, or sold in traditional markets/roadside stalls.
 10. Different consumer preferences.
 11. Promoting through social media.
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While very few farmers/intermediaries/entrepreneurs have a website to showcase their products, they have become pioneers or role models for other entrepreneurs. The application of information technology for mango entrepreneurs is supported by the involvement of the millennial generation, which is technology savvy. To illustrate, *magnifera indica* L. var. *Agrimania* and mango derivatives owned by dr. Liana is an instance (the mangoes have the highest price in the Indonesian market because the demand exceeds the supply). Customers and potential customers can view the products offered, including brand, quality level, features, design, and packaging. Additional products can be provided with shipping and technical payment methods, after-sales service, warranties, and other product support.

The mango derivative products created from off-grade mangoes can also incorporate Grades A and B (top quality) for year-round consumption. The primary market segment for mango derivative products comprises tourists visiting the Indramayu regency. Marketing 4.0 broadens the reach of mango markets and their derivatives beyond Indramayu, rendering them accessible to a broader audience.

The website allows entrepreneurs to inform their products, giving rise to 5A for potential customers: (1) awareness, which is understanding the types of products offered, prices, how to obtain/deliver/make payment, quality assurance, and responses from other buyers, (2) appeal,

which is the interest and enjoyment in obtaining information from the website, (3) ask, which is asking about everything needed to know so that two-way communication occurs, (4) action, which is making a purchase, (5) advocate, which is giving a positive response to the purchase and consumption of products that have been made. This potential proves that having a website that is constantly updated is crucial. The 5A distribution model expands upon the AIDA advertising mix, adding attention, interest, desire, and action. The main advantage of 5A is its promotion of advocacy, enabling advertising to persist even after a customer has purchased while simultaneously stimulating demand from other potential customers. Certain tasks are required to achieve this.

The present findings confirm that some things must be taken to ensure marketing 4.0 optimal functionality. They require (1) a device that enables comprehensive internet connectivity, (2) continually improving e-marketing services, (3) complete and accurate information that meets customer expectations, (4) expedited technology-informed service, (5) T-equipped service across all departments, (6) prompt response system, (7) secure and confidential systema secure and confidential platform, (8) a customer-friendly electronic payment system, (9) convenient system access, (10) assured data privacy (11) a wide range of services, and (12) electronic customer complaint management.

Discussion

The starting point of marketing 4.0 is co-creating products that align with the target market. Sorting of mangoes based on quality is done chiefly by intermediaries who control mango marketing in the Indramayu regency. Ramadhani and Rasmikayati (2017) noted that this phenomenon also occurs in the Majalengka regency. Farmers are accountable for creating high-quality products; some, like *magnifera indica* L. var. *Agrimania* in Indramayu has its own website. The research results are congruent with Rasmikayati's (2018) study, which indicates that farmers with more trees (> 60 trees) are more rigorous and aggressive in both their farming and mango marketing practices. The farmers' land tenure status also positively correlates with income (Rasmikayati, 2018).

The results indicate that small-scale farmers lack confidence when entering modern markets due to low production capacity, insufficient skills and information for market access, and limited business scale. Prominent farmers are zealous in promoting their yields through modern channels, namely supermarkets, exporters, and marketplaces, due to the higher prices expected to boost their well-being. Small-scale farmers need a stronger bargaining position since intermediaries deliver their mango yields without grading or standardization. Intermediaries label and package the product to convince consumers that it is of high quality, resulting in better pricing. The higher the willingness of customers to pay, the greater the added value achieved. These discoveries support Ashari *et al.*'s (2021) research, which suggests that small-scale farmers need a stronger negotiating position.

However, in line with the ideas of marketing 4.0, it can be concluded that The growth of modern markets, facilitated by information technology, creates cyberspace marketplaces that challenge traditional marketing strategies (Priyono, 2013). Farmers, intermediaries, and entrepreneurs are pivotal in strengthening distribution infrastructure and expanding market reach. Optimization of supply chain management is essential to widen low-cost distribution networks (Sheetal *et al.*, 2012). An innovative technological approach is necessary for the Indramayu Regency to gain a comparative advantage and establish a highly competitive and efficient mango plantation (Manolova, 2021).

Co-creation enables farmers and entrepreneurs to know the products that potential customers want so that the segmentation, targeting, and product positioning (STP) can be carried out correctly. In addition, co-creation, currency, communal activation, and communication (4C), the 4.0 marketing mix, can be developed based on the established STP. For example, labeling and packaging must be considered for export shipments or supermarkets to ensure product quality (Deliana *et al.*, 2017). Research has shown that the packaging content ranges from 10 kg for shipments between cities to 5 kg and 2 kg for the final consumer. Prices can be determined by considering product quality, delivery location, and the packaging (currency) the customer desires (currency). The extensive use of the internet allows entrepreneurs to establish business partnerships with customers, disseminating information through a network – a form of digital marketing (Cronin-Gilmore, 2012). Upholding trust, good reputation, and honesty is essential to maintaining the established partnership (communal activation) and ensuring quality assurance.

Digital marketing strategies are essential for generating positive customer responses through advertising (Zambrano *et al.*, 2022). Promoting the National Mango Board has notably boosted mango demand and consumption in the US (Ward *et al.*, 2019). Efforts to promote Indramayu mango products, as suggested by (Caltrider, 2011) involve (1) creating brand strategies and logos, (2) implementing promotions to increase consumption, (3) developing industrial marketing programs to offer support to groups, and (4) forming marketing strategies to enhance product visibility for buyers, wholesalers, and export markets.

Marketing Strategy 4.0 (Komalasari *et al.*, 2021) has five components: developing digital assets, increasing website traffic, optimizing social media profiles, implementing email marketing campaigns, and distributing messages. However, it is important to note that the strategy's effectiveness requires additional support, even after its implementation. The marketing strategy 4.0 comprises five components: developing digital assets, increasing website traffic, optimizing social media accounts, executing email marketing campaigns, and broadcasting messages (Komalasari *et al.*, 2021). However, the strategy's effectiveness requires additional support even after it has been implemented.

The Indonesian mango industry requires government assistance to renovate packaging facilities throughout production centers and provide low-interest loans to entrepreneurs and small-scale farmers. These initiatives strive to bolster plantation management and export networks, resulting in the prosperity of mango farming mechanisms. This inference corresponds to the outcomes of (Mahmudah, 2020), which indicate that Indonesian mangoes are uncompetitive and must augment their capacity to fulfill standard product requirements.

The study presents a catalog of actionable marketing mixes using Marketing 4.0 to support the growth of the Indramayu mango market and related products and other regional mangoes. Comprehending Marketing 4.0 more precisely can facilitate better marketing verdicts, encouraging market progression and conceivably higher demands culminating in increased prices. This analysis suggests practical marketing maneuvers that can be employed in Marketing 4.0 promotional initiatives. The results are consistent with Nadja *et al.*, (2019) finding that incorporating information technology in product marketing assists in growth strategies.

CONCLUSION

Indramayu mangoes are primarily marketed by intermediaries through offline media and are passed down from generation to generation, while farmers are responsible for mango production. Simultaneously, the COVID-19 pandemic has restricted the movement of people,

disrupted marketing channels, and dropped prices of mangoes. That causes mangos not to be harvested because the cost is higher than the selling price. After all, online media helps farmers and intermediaries in marketing and solves the economic aspect problem of Indramayu mangos. Finally, the use of digital technology in marketing is still at an early stage and is limited to WhatsApp groups and websites. Marketing 4.0 has led to greater marketing reach for Indramayu mangoes. However, facilities and infrastructure still need to be improved for market development to contribute to higher sales.

Research Contribution

Theoretical contribution. Based on theoretical and empirical findings, ¹³ the results of this study contribute to providing knowledge about the application of marketing 4.0 which combines offline and online interaction between entrepreneurs and consumers of Indramayu mangoes so that market development can be achieved effectively. This research details the 4C (co-creation, currency, communal activation, and communication) concept that can be developed in other types of products to reach a wider marketing area.

Practical Contribution. This research can be utilized by Indramayu mango entrepreneurs to improve online interactions that have been carried out with other digital marketing tools and make both existing and potential customers sources of information to obtain a wider market segment by applying the 5 principles (aware, appeal, ask, act, and advocate).

Limitation. This research is limited to Indramayu mango products and their derivatives, with the analysis unit of Indramayu mango farmers and mango entrepreneurs, and using qualitative analysis. This research can be extended to other types of mangoes because Indonesia has many variants of mangoes and their derivatives produced by several other districts. In addition, further research can be carried out using quantitative methods to strengthen the application of Marketing 4.0 in efforts to develop the mango market both in Indonesia and the export market.

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