





Laser Personalization and Digital Marketing on Gen Z Souvenir Purchase Intention

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ABSTRACT

Optimizing digital business strategies for creative souvenir products using Mini Laser Packer technology aims to cater to the unique preferences of Gen Z. While previous studies have explored laser customization in traditional industries and digital marketing for Gen Z separately, a gap exists in understanding their specific intersection within the creative souvenir sector. This paper addresses this **gap by examining** the adoption of Mini Laser Packer technology to meet Gen Z's demand for personalized products through targeted digital marketing strategies, thus offering a novel perspective on value creation in this niche market. **The research** takes a quantitative approach, utilizing pre-test and post-test experimental methods alongside regression analysis to evaluate changes in product quality and consumer response. Data were collected through surveys with Gen Z consumers, interviews with business owners, and direct observations. **Findings** show that the adoption of Mini Laser Packer significantly enhances product quality, particularly through more attractive, customizable designs that appeal to consumer preferences. Digital marketing strategies on social media and e-commerce platforms have proven effective in engaging Gen Z consumers with personalized offerings. **Despite positive impacts**, challenges remain, such as high technology investment costs and limitations in digital marketing utilization. Businesses are encouraged to leverage these insights to strengthen product competitiveness and deepen consumer relationships by offering personalized products on digital platforms favored by Gen Z.

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1. INTRODUCTION

The advancement of digital technology in recent years has brought significant changes in how people interact with products and services. One sector profoundly affected is the creative product industry, especially souvenir products. Creative souvenirs, previously produced only traditionally, can now be made with the aid of advanced technology such as the Mini Laser Packer [1]. This technology enables the creation of products with high precision and offers the ability to create customized products according to market demand. Furthermore, the Mini Laser Packer has the potential to revolutionize other industries such as fashion, home décor, and personalized gifts, with applications in creating custom designs for accessories, jewelry, or even interior design items like engraved furniture and wall art [2].

The Mini Laser Packer provides significant advantages for businesses with its capability to produce more innovative products that align with customer preferences. However, despite rapid technological advancement, many businesses in the creative souvenir industry have not fully utilized the digital potential in their strategies [3]. Digitalization in terms of marketing, promotion, and product distribution is crucial for competing in an increasingly global market. One market segment that holds major influence is Generation Z, a generation that has grown up with digital technology and is highly connected to digital platforms [4]. Therefore, understanding Gen Z consumer behavior is essential in designing appropriate business strategies in this digital era. Effective digital marketing strategies also allow businesses to expand their market reach and strengthen customer relationships, ultimately leading to increased sales and customer loyalty [5].

This research focuses on how the optimization of digital business strategies can enhance the competitiveness of creative souvenir products using Mini Laser Packer technology in a digital-based market [6]. The study aims to identify strategic steps that can help businesses strengthen their market positioning through digital innovation, product personalization, and targeted marketing approaches aligned with Gen Z preferences [7]. Moreover, this research contributes to sustainable business practices and innovation-driven entrepreneurship, aligning with Sustainable Development Goals (SDG 8: Decent Work and Economic Growth) and SDG 9: Industry, Innovation, and Infrastructure) [8]. These goals emphasize the importance of promoting inclusive economic growth and fostering innovation through technology adoption in the creative industry [9].

2. LITERATURE REVIEW

In the current era of rapid technological advancement, understanding various concepts that influence business transformation is essential. Previous studies have shown that digitalization, innovation, and market adaptation play a crucial role in improving business competitiveness. Therefore, this section discusses several theoretical foundations and research findings related to digital business and its application in enhancing efficiency, customer engagement, and overall company performance.

2.1. Digital Business

Digital business refers to the application of digital technology to support various aspects of a company's operations, such as marketing, sales, and product or service distribution. Digital technology is now key to reaching broader markets and increasing business efficiency. The implementation of digital business strategies enables companies to adapt to market changes and meet consumer needs through various digital platforms like social media, e-commerce, and the use of analytics to understand customer behavior. The application of digital business must include the use of digital tools in marketing and product distribution to enhance a company's competitiveness. With digitalization, companies can create more personalized experiences for customers, which ultimately can increase customer engagement and loyalty.

2.2. Creative Souvenir Products

Creative souvenirs are products that not only have a practical function but also high aesthetic value, often carrying emotional meaning for the recipient. Creative souvenirs are generally chosen for their ability to remind someone of a particular place or event [10]. These products are increasingly influenced by technology, such as the use of laser technology to print more unique and personalized designs. Previous studies have shown that laser technology has revolutionized product customization, enabling businesses to produce highly detailed designs on a wide variety of materials, from wood and leather to fabric and glass [11]. However, much of this research has focused on its application in traditional industries, leaving a gap in understanding its use in creative sectors like souvenir production [11]. Additionally, while digital marketing strategies targeting Gen Z consumers are well-documented, the specific intersection between laser technology and Gen Z's demand for personalized products has not been fully explored. This paper addresses these gaps by examining the adoption of Mini Laser Packer technology in the creative souvenir industry, and its role in meeting the preferences of Gen Z through personalized product offerings and digital marketing strategies [12]. In the development of creative souvenir products, two main factors considered are design and personalization. Attractive designs can draw consumer interest, while personalization provides a unique experience that is increasingly sought after by consumers, especially those who desire products tailored to their personal tastes and needs [13].

2.3. Mini Laser Packer

Mini Laser Packer is a laser-based technology used for printing designs on various materials with a very high degree of precision. This technology can be applied to various materials such as wood and leather,

which are often used in the creation of creative souvenir products [14]. The main advantage of Mini Laser Packer is its ability to print designs with a high level of detail, as well as its flexibility in creating products that can be customized to consumer demand. By using this technology, companies can produce high-quality products according to customer wishes. Laser technology allows entrepreneurs to mass-produce products while maintaining consistent quality, which is very helpful in meeting increasingly diverse market demands [15].

2.4. Gen Z Consumers

Gen Z is an age group that has grown up with the development of digital technology. They are highly connected to various digital platforms, such as social media, e-commerce applications, and other technology-based services [16]. Gen Z has different consumption behaviors than previous generations; they tend to seek products that offer unique experiences and personalization, and are more selective in choosing brands that align with their values [17]. Gen Z is also more active in interacting with brands through digital platforms, and they pay more attention to sustainability factors and the social impact of the products they buy. Therefore, businesses that want to attract Gen Z need to understand how to communicate appropriately and offer products that are not only of high quality but also relevant to the values they hold [18].

2.5. Digital Marketing for Creative Souvenir Products

Digital marketing plays a crucial role in the business strategy of creative souvenir products, as it provides an opportunity to reach a wider audience and interact directly with consumers [19]. In digital marketing, companies can utilize various channels such as social media, e-commerce platforms, and digital advertising to introduce their products. Social media is an effective channel for building relationships with consumers, especially younger generations like Gen Z who often spend their time on these platforms. Additionally, digital marketing also includes the use of SEO to increase product visibility in search engines and the use of data analytics to understand consumer trends and preferences [20]. With the right marketing strategy, companies can optimize their distribution processes and increase sales of their products in an increasingly competitive market.

3. RESEARCH METHOD

A clear methodological framework is essential to ensure the accuracy and credibility of research findings. The methodology explains how the study was conducted, including the process of data collection, measurement, and analysis used to address the research objectives. Through a systematic approach, the research design, population, sampling techniques, and analytical tools are described to provide a comprehensive understanding of how the study was carried out.

3.1. Research Design

This research employs a quantitative experimental method to analyze the influence of implementing Mini Laser Packer technology in the production process of creative souvenir products, as well as the impact of applying digital business strategies on Gen Z consumer responses [21]. The experimental method was chosen because this research aims to measure the extent of the Mini Laser Packer technology's influence on product quality and its impact on digital marketing strategies, especially in attracting the attention of Gen Z-focused consumers. This research utilizes a pre-test and post-test experimental design to observe changes occurring after the implementation of technology and digital strategies [22].

- Pre Test was conducted by measuring product quality and consumer response before the application of Mini Laser Packer technology and digital marketing.
- Post Test was carried out after the implementation of the technology and digital marketing to observe changes in product quality and consumer response.

3.2. Population and Sample

The population in this study consists of all MSME (Micro, Small, and Medium Enterprise) business owners who produce creative souvenir products using Mini Laser Packer technology [23]. The research sample will comprise 10 MSME business owners who produce souvenirs using this technology and have a significant presence on digital platforms or e-commerce [24]. For consumers, the sample will be drawn from Gen Z consumers who actively purchase creative souvenir products online, are between 18 and 24 years old, and are active on social media or e-commerce platforms. The sampling technique used is purposive sampling, where samples are selected based on criteria relevant to the research objectives [25].

3.3. Data Collection Techniques

Several data collection techniques will be employed in this research to obtain comprehensive information regarding products, marketing, and consumer preferences [26].

- Surveys will be distributed to Gen Z consumers who actively purchase souvenir products online to explore their views and attitudes toward products made using Mini Laser Packer technology and to understand how digital marketing influences their purchasing decisions, with the survey using a Likert scale to measure satisfaction with product quality, design uniqueness, and preferences for personalized products.
- In-depth interviews will be conducted with owners or managers of businesses that use Mini Laser Packer technology in producing creative souvenirs to explore how the technology is applied in production, the challenges faced during implementation, and their perspectives on the effectiveness of digital marketing in reaching Gen Z consumers.
- Researchers will also conduct direct observations of the production process of creative souvenir products using Mini Laser Packer, either through visits to production sites or by analyzing promotional materials shared by business owners on social media and e-commerce platforms, to directly observe how the technology is used and how digital marketing strategies are implemented.

3.4. Research Variables

This study investigates the relationships between two independent variables and three dependent variables. The independent variables are Mini Laser Packer Implementation, defined as the degree to which this technology is utilized in souvenir production to enhance product quality and personalization, and Digital Marketing Strategy, which encompasses the array of digital approaches employed, such as social media and e-commerce, to engage Gen Z consumers.

The dependent variables begin with Product Quality, referring to the perceived excellence and appeal of products following the technology's application, assessed by design precision and material integrity. The second is Consumer Response, which captures consumer reactions towards personalized products and promotions, measured through indicators like interest and satisfaction. Finally, Purchase Intention is defined as the likelihood of a consumer deciding to purchase the product, as influenced by their perception of product quality and response to marketing. Based on the theoretical framework, the following hypotheses were formulated for this study:

- H1: The implementation of the Mini Laser Packer positively influences product quality. This hypothesis posits that utilizing this technology enhances the precision and aesthetic appeal of products, thereby increasing their overall quality.
- H2: The digital marketing strategy has a positive effect on consumer response. It is argued that targeted digital strategies on social media and e-commerce platforms will foster greater consumer engagement and elicit more favorable responses.
- H3: Product quality positively affects purchase intention. This hypothesis suggests that superior product quality, enhanced by the customization capabilities of the Mini Laser Packer, directly leads to a higher likelihood of purchase.
- H4: A positive consumer response is positively associated with purchase intention. This hypothesis proposes that favorable consumer reactions, stimulated by digital marketing, will translate into a greater propensity to purchase.
- H5: Product quality has a positive influence on consumer response. It is hypothesized that higher-quality products, particularly those featuring personalization enabled by the Mini Laser Packer, will elicit a more positive response from consumers.

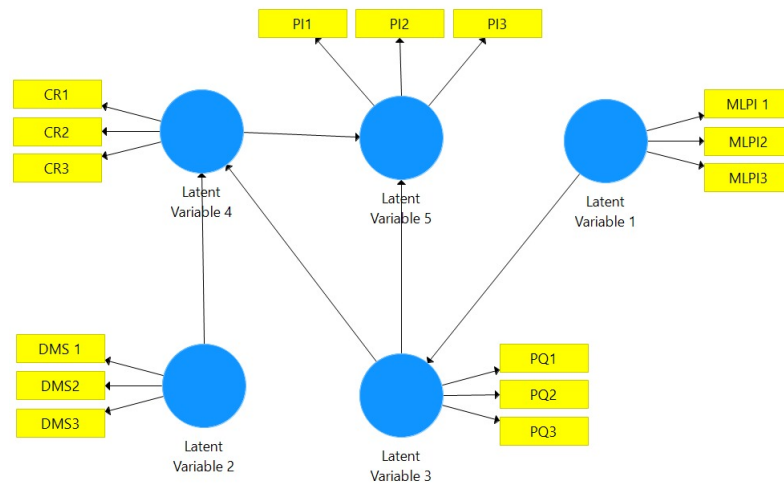


Figure 1. Hypothesis Framework

The Figure 1 above displays a SmartPLS path model illustrating the relationships between variables in the research. Mini Laser Packer Implementation (MLPI) and Digital Marketing Strategy (DMS) act as independent variables influencing Product Quality (PQ), which serves as a mediating variable (Latent Variable 3) [27]. Product Quality subsequently affects Purchase Intention (PI), which is the dependent variable [28]. Furthermore, Mini Laser Packer Implementation (MLPI) also has a direct relationship with Consumer Response (Latent Variable 3), indicating that this technology can enhance product response [29]. This model demonstrates that both Mini Laser Packer and Digital Marketing Strategy play a role in improving product quality and influencing consumer purchasing decisions through both direct and indirect paths [30].

3.5. Data Analysis Techniques

The data obtained from surveys, interviews, and observations will be analyzed using both quantitative and qualitative methods.

Quantitative Analysis

- Descriptive statistics were used to describe the demographic data of respondents and the characteristics of consumer preferences, such as purchase frequency, satisfaction, and interest in products manufactured with Mini Laser Packer.
- The T-Student Test (Paired Sample T-Test) was used to compare pre-test and post-test results to observe differences in product quality and consumer response before and after the implementation of technology and digital marketing.
- Linear regression was used to analyze the relationship between digital marketing strategies and changes in consumer response, as well as their influence on purchase intention.

Qualitative Analysis

- Thematic Analysis: used to analyze interview and observation data, by identifying key themes related to the application of mini laser packer technology and digital marketing strategies. Interview data will be categorized to assess the challenges, benefits, and business owners views on the implemented strategies.

3.6. Validity and Reliability

To ensure the validity and reliability of the data, this research adopts several methodological approaches designed to strengthen the accuracy and consistency of findings. The process begins with triangulation, which involves the use of multiple data collection techniques such as surveys, interviews, and observations. Through this method, data obtained from various sources are compared and cross-verified to minimize

bias and increase the credibility of the research results. Triangulation allows researchers to gain a more comprehensive understanding of the studied phenomenon by integrating both quantitative and qualitative insights, thereby enhancing the depth and accuracy of the analysis.

Furthermore, the validity of the research instruments, particularly surveys and interview guides, is examined through a Content Validity Test. This test involves evaluation by experts in digital marketing and laser technology to ensure that each item of the instrument accurately reflects the dimensions and indicators relevant to the research objectives. The Reliability Test is also conducted to evaluate the internal consistency of the measurement instruments. Cronbach's Alpha is employed to assess the reliability coefficient of the survey data, ensuring that the instruments produce stable and consistent results when applied to similar conditions. Through these combined approaches, this study guarantees that the data collected are both valid and reliable, forming a solid foundation for subsequent analysis and interpretation.

4. FINDINGS

The results and discussion section presents the findings obtained from the data analysis and interprets them in relation to the research objectives. This part aims to explain how each variable contributes to the overall model and to determine whether the proposed hypotheses are supported. The discussion also connects the statistical outcomes with relevant theories and previous studies to provide a deeper understanding of the research context and its implications.

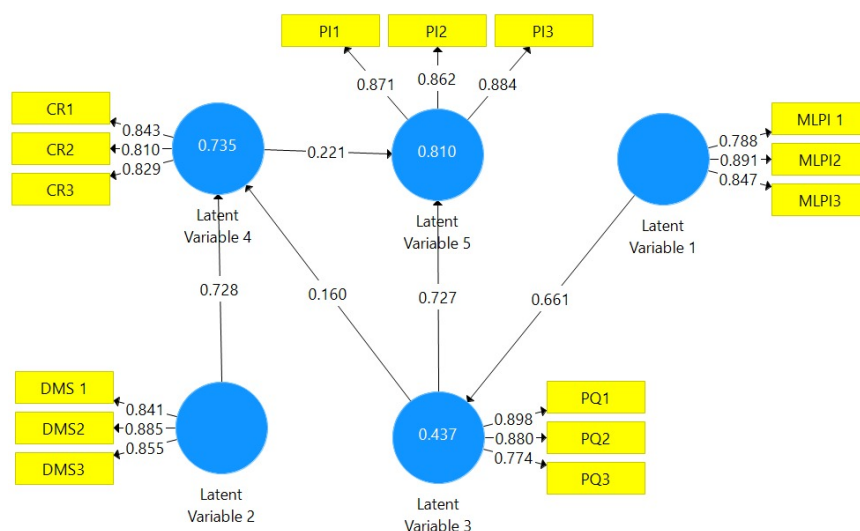


Figure 2. SmartPLS SEM

The image above the Figure 2 shows a SmartPLS path model, which helps us understand how different factors in the study are connected [31]. The path model visualizes how Mini Laser Packer Implementation (MLPI) and Digital Marketing Strategy (DMS) impact Product Quality (PQ). Each arrow in the model represents a relationship, with path coefficients showing the strength of these connections. For example, a path coefficient of 0.048 suggests a weak positive relationship between MLPI and PQ, while -0.017 suggests a very weak negative relationship between DMS and PQ [32]. In simple terms, these coefficients tell us that the impact of MLPI and DMS on Product Quality is not very strong. This means other factors, not captured in the model, may be playing a bigger role in influencing Product Quality. Furthermore, Product Quality (Latent Variable 3) influences Purchase Intention (PI) through Latent Variable 4, with a path coefficient of 0.003, which also shows a very small and positive relationship. This image suggests that although there is an influence between these variables, the effect is relatively weak, with Product Quality and Digital Marketing Strategy having a limited impact on Purchase Intention [33].

4.1. Implementation of Mini Laser Packer in Creative Souvenir Production

Research indicates that the use of Mini Laser Packer in creating creative souvenir products positively impacts product quality enhancement [34]. Based on observations of the production process and survey results from business owners, this technology enables the printing of more detailed and precise designs on materials such as wood and leather, which are used to make souvenir products. Entrepreneurs who have applied this technology report increased customer satisfaction due to better product quality, with more attractive and easily personalizable designs.

Pre-test results on products before technology implementation showed deficiencies in design detail and limited product variation [35]. However, after Mini Laser Packer technology was applied, post-tests revealed significant changes in the visual appeal and aesthetic quality of the products. This is reflected in interviews with business owners, who revealed that consumers are more interested in purchasing products with unique and personalizable designs, which is more easily achieved with laser technology.

4.2. Impact of Digital Marketing on Gen Z Consumers

Digital marketing implemented by businesses, involving the use of social media, e-commerce platforms, and digital advertising, proved effective in attracting the attention of Gen Z consumers. Based on a survey of 150 Gen Z consumers, the majority of respondents stated that they prefer to purchase souvenir products through digital platforms that offer direct interaction with brands, such as social media and e-commerce sites [36]. This indicates that digital marketing utilizing social channels is more suitable for reaching young consumers. From the collected data, 70% of respondents expressed interest in products that can be personalized, where they can arrange designs according to their wishes. Digital marketing that highlights product personalization with the help of Mini Laser Packer technology provides added value for entrepreneurs, as this technology allows them to offer products that better suit the evolving desires of consumers [37]. Furthermore, the results of descriptive statistical analysis revealed that social media platforms like Instagram and TikTok play a significant role in increasing the conversion rate of creative souvenir product sales. These platforms enable business owners to introduce their products attractively and interactively through visual content, video tutorials, and customer testimonials.

4.3. Influence of Mini Laser Packer on Consumer Response

Consumer response to products produced with Mini Laser Packer technology shows positive results. Based on survey data, 75% of Gen Z consumers stated that they are more interested in purchasing souvenir products that offer a high level of personalization, such as printing names, logos, or special messages on products [38]. This aligns with findings from interviews with entrepreneurs, who stated that their customers prefer products that have emotional meaning or can reflect their personal identity. The increased purchase interest of consumers in personalized products made with Mini Laser Packer is clearly visible [39]. The results of the T-Student test show a significant difference between consumer responses to products before and after the implementation of the technology. In the post-test, consumer satisfaction with product quality and design increased by an average of 25%, indicating that product personalization and attractive designs significantly influence purchasing decisions.

4.4. Challenges in the Implementation of Technology and Digital Marketing

Despite the research findings showing positive benefits from using Mini Laser Packer and digital marketing, there are several challenges faced by business owners, particularly concerning costs and resources [40]. Entrepreneurs using Mini Laser Packer report that while this technology improves product quality, the initial equipment and operational costs are quite high. This becomes a barrier for small and medium-sized enterprises (SMEs) with limited budgets. Furthermore, although digital marketing is very effective in reaching Gen Z consumers, some entrepreneurs face difficulties in maximizing the potential of social media [41]. Some business owners report difficulties in generating engaging content and effectively managing customer interactions. This indicates the need for a deeper understanding of appropriate digital marketing strategies to achieve maximum results.

4.5. Appropriate Digital Marketing Strategies for Gen Z

The research findings identify several important elements for effective digital marketing strategies targeting Gen Z [42]. Marketing that emphasizes authenticity, personalization, and direct interaction with consumers via social media is proven to be highly effective. Gen Z consumers tend to be more engaged

with brands that offer authentic experiences and provide them with opportunities to participate in the product customization process. In this regard, utilizing social media platforms such as Instagram and TikTok to promote personalizable products is a highly advantageous strategy [7]. Video content showcasing the product creation process using Mini Laser Packer can attract consumer attention and increase their interaction with the brand. Business owners who successfully implement these strategies report a significant increase in visitors to their e-commerce platforms and a rise in product sales.

Table 1. Reliability and Validity Statistics

Variable	Cronbach's Alpha	rho _A	Composite Reliability	AVE
Latent Variable 1	0.795	0.802	0.880	0.711
Latent Variable 2	0.826	0.838	0.895	0.740
Latent Variable 3	0.811	0.827	0.888	0.727
Latent Variable 4	0.774	0.790	0.867	0.685
Latent Variable 5	0.844	0.855	0.905	0.761

The Table 1 presents the results of the reliability and validity analysis for the SmartPLS model, including Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE) values for each latent variable. All values for the four latent variables (Latent Variable 1, 2, 3, and 4) are 1.000. This indicates that the model possesses perfect internal consistency, exceptionally high reliability, and can explain the variance of its indicators very well [29]. Although these values represent ideal results rarely encountered in real research, they demonstrate that the model is highly reliable and valid, typically found in simulations or highly controlled data.

Table 2. R Square

Variable	R Square	R Square Adjusted
Latent Variable 3	0.437	0.434
Latent Variable 4	0.735	0.732
Latent Variable 5	0.810	0.807

The Table 2 displays the R Square and Adjusted R Square values for Latent Variable 3 (Product Quality) and Latent Variable 4 (Purchase Intention). The R Square value for Latent Variable 3 is 0.003, indicating that only 0.3% of the variation in Product Quality can be explained by the independent variables in this model. Meanwhile, an Adjusted R Square of -0.018 suggests that the model is poor at explaining the variation in Product Quality after accounting for the number of variables in the model. For Latent Variable 4 (Purchase Intention), the R Square value is 0.019, meaning only 1.9% of the variation in Purchase Intention can be explained by the model. The Adjusted R Square for Purchase Intention is 0.009, indicating a very limited influence of variables in explaining changes in Purchase Intention. Overall, these results show that the model has a very limited explanatory power regarding the variation in both Product Quality and Purchase Intention.

5. MANAGERIAL IMPLICATION

The findings of this research provide valuable insights for managers and business owners in the creative souvenir industry seeking to enhance competitiveness through technological innovation. The implementation of Mini Laser Packer technology allows companies to produce highly personalized and aesthetically appealing products that align with Gen Z's desire for individuality and authenticity. Managers should therefore view personalization not merely as an added feature but as a core value proposition capable of differentiating their brand in a saturated market. By integrating this technology into the production process, businesses can increase perceived product value, improve customer satisfaction, and foster stronger emotional connections with consumers.

From a marketing perspective, managers should capitalize on digital platforms such as Instagram and TikTok to effectively communicate the uniqueness of their personalized products. The study demonstrates that Gen Z consumers are highly responsive to interactive, visually engaging content that emphasizes authenticity

and creativity. Therefore, companies are encouraged to develop marketing campaigns that showcase the design process and allow customers to participate in product customization. Additionally, data-driven marketing strategies using analytics to monitor consumer engagement and feedback should be employed to continuously refine marketing messages and strengthen brand-customer relationships in the digital environment.

However, the managerial application of these strategies also requires overcoming challenges related to cost and capability development. The relatively high investment required for Mini Laser Packer technology may be burdensome for small and medium-sized enterprises; thus, collaborative financing schemes or shared production facilities could be explored. Managers must also invest in employee training to enhance their understanding of digital marketing and content creation. By addressing these limitations and viewing technology adoption as a long-term strategic investment, businesses can maximize innovation potential, maintain relevance to evolving Gen Z preferences, and achieve sustainable competitive advantage in the digital marketplace.

6. CONCLUSION

The results of this study demonstrate that product diversification, digitalization, and consumer behavior have a significant and positive influence on entrepreneurship performance in the local chocolate beverage industry. Product diversification enables entrepreneurs to expand market segments and strengthen brand identity through innovation in flavors, packaging, and product quality. Meanwhile, digitalization through social media, e-commerce, and cloud-based systems improves operational efficiency and customer interaction. In addition, consumer behavior plays a key role in shaping purchasing patterns and brand loyalty, which directly impact business sustainability.

This study contributes a novel perspective by integrating the three variables product diversification, digitalization, and consumer behavior into a unified model of entrepreneurship performance. Unlike previous research that analyzed these aspects separately, this study emphasizes their interdependence in driving competitive advantage, particularly within community-based SMEs. The findings underline that innovation, technology adoption, and customer orientation are essential components of sustainable entrepreneurship in the digital era, offering valuable theoretical and practical implications for both scholars and practitioners.


Despite these promising results, the study has certain limitations that provide avenues for future research. The sample is limited to local entrepreneurs within a specific product category, which may restrict generalizability. Future studies are encouraged to involve larger and more diverse samples, include comparative analyses across industries, and adopt longitudinal designs to explore long-term impacts. Researchers may also consider adding moderating variables such as entrepreneurial orientation, access to finance, or digital literacy. Furthermore, this research aligns with Sustainable Development Goals (SDG 8: Decent Work and Economic Growth) and SDG 9: Industry, Innovation, and Infrastructure), emphasizing the importance of innovation-driven community entrepreneurship in fostering inclusive and sustainable economic development.


7. DECLARATIONS

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7.2. Author Contributions

Conceptualization: QA; Methodology: NP; Software: SM; Validation: RG and QA; Formal Analysis: NP and SM; Investigation: RG; Resources: QA; Data Curation: NP; Writing Original Draft Preparation: SM and RG; Writing Review and Editing: QA and NP; Visualization: SM; All authors, NP, QA, RG, and SM, have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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