

The Relationship between Hexa Helix and Marketing Performance of Food Product SMEs for Souvenirs: The Mediating Effect of Product Innovation and Integrated Marketing

DOI: 10.12776/qip.v28i3.2079

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Received: 2024-10-15 Accepted: 2024-11-05 Published: 2024-11-30

ABSTRACT

Purpose: Small and Medium Enterprises (SMEs) play an important role in the Indonesian economy, yet their marketing performance remains low due to various interrelated causal factors. This study aims to explore the Hexa Helix as an independent variable that affects the marketing performance of SMEs producing food products for souvenirs, with product innovation and integrated marketing as mediating factors.

Methodology/Approach: Data were collected from 448 respondents, who are owners and managers of SMEs in Malang Regency. Data were analysed using WarpPLS due to its flexibility in analysing mediating variables.

Findings: The results showed that the Hexa Helix significantly and positively affects the marketing performance of food SMEs for souvenirs.

Research Limitation/Implication: This study did not analyse the interactions between helices but looked at the six components as a whole. Future research can reveal the role of each actor and their interactions that determine the important role of the hexa helix. The implications for integrated marketing strategies for SMEs.

Originality/Value of paper: Previous studies placed the hexa helix or other helix as a moderating or mediating variable. This research places the hexa helix as an independent variable and proves that multi-stakeholders affect product innovation and integrated marketing in improving marketing performance.

Category: Research paper

Keywords: hexa helix; product innovation; integrated marketing; marketing performance

Research Areas: Management of Technology and Innovation

1 INTRODUCTION

Malang is the second largest tourist destination in East Java after Surabaya (BPS Jatim, 2023). The number of visitors in 2022 was 3,054,040, and 99% were domestic tourists (BPS Malang Regency, 2023). Typically, tourists buy souvenirs that represent the unique features of the place they are visiting. Malang's typical souvenirs include processed food and horticultural products (Sunaryo, et al., 2019), including tempe chips, jackfruit chips, salak chips, apple chips, and others. These products are generally produced by around 60% of SMEs engaged in the food and beverage sector (Masduki, 2020), reaching around 68% (Taneo, et al., 2021).

The marketing performance of SMEs in Indonesia is low (Tirtayasa, et al., 2021) due to several factors, such as lack of promotion, product innovation, and technology (Winbaktianur, et al., 2020), and low knowledge and access to digitalisation (Kemenkop and UKM, 2023). The main internal determinants of SME marketing performance are innovation capability and integrated marketing (Venkateshamurthy, et al., 2021; Saunila, 2019). Integrated marketing combines online and offline marketing activities (Englund, et al., 2020) aimed at increasing sales and maintaining consumer loyalty (Wu, et al., 2022).

Research on the marketing performance of SME food products for souvenirs is still very limited. Existing research is partial, for example, identifying types of food as souvenirs with a qualitative approach (Sunaryo, et al., 2019), marketing strategies with SWOT analysis (Nurdin, et al., 2023), e-commerce applications for souvenir sales (Sirait, et al., 2022), and management of culinary products as Oleh-Oleh (Saputri and Widyaningsih, 2021). The proposed research will fill this gap with a quantitative approach and more comprehensively analyse the relationship between product innovation and integrated marketing (online and offline) with the marketing performance of SME food products for souvenirs.

Hexa Helix is a multi-stakeholder cooperation that is a development of Penta Helix by adding tourists (Hendriyana, et al., 2020). Tourists are important in determining souvenir purchases (Putra, 2018). Studies on the Hexa Helix related to the marketing performance of SME food products for souvenirs are very limited. Hexa Helix strengthens the relationship between online marketing and the marketing performance of SME products for souvenirs but does not reveal offline marketing, which is more widely practised by SMEs. The integration of online and offline marketing is more effective in improving the marketing performance of SMEs (Wulandari, et al., 2019). The role of the government is very important in the Hexa Helix concept to mobilise resources (Cho and Moon, 2001) and is at the forefront as an independent variable that directly determines performance and competitiveness (Osborne and Gaebler, 1992). Therefore, this study fills the gap by analysing the Hexa Helix as an independent variable influencing product innovation and integrated marketing, impacting the marketing performance of SME food products for souvenirs. It aims to explore the relationship between Hexa Helix and SME marketing performance, with product innovation and integrated marketing as mediating variables.

Marketing performance can be measured from the financial perspective, such as sales turnover, number of buyers, profits, and sales growth (Newman, et al., 2015), as well as from the non-financial perspective, such as market share, number of buyers, and new customer acquisition (Venkateshamurthy, et al., 2021).

Research by Taneo, et al. (2023) proved that product innovation significantly affects the competitiveness of processed food SMEs in general, not for souvenirs. Research on multi-stakeholder cooperation is still limited to the Triple Helix (Aryuniasari, 2023; Noya, et al., 2023), Quadruple Helix (Hadiyanto, 2020), and Penta Helix (Sudiana, et al., 2020) and was not conducted on SME food products for souvenirs. Research by Melany, et al. (2022) found that Hexa Helix strengthens the relationship between online marketing and marketing performance of SME products for souvenirs but focused on SME products in general and did not reveal offline marketing practised by around 86% of SMEs in Indonesia. A model for strengthening branding to improve the marketing performance of SME products as tourist souvenirs with a Hexa Helix approach (Hariyanto, et al., 2022), and a model for strengthening the online marketing capacity of SMEs as tourist souvenirs with a Hexa Helix approach (Dias, et al., 2022).

Previous studies on SME products generally placed Hexa Helix as a moderator between SME capacity and marketing performance. Governments and institutions in developing countries like Indonesia play a crucial role in preparing SMEs for competitive markets. This study uniquely positions Hexa Helix as an independent variable influencing product innovation and integrated marketing, affecting the marketing performance of SME food products for souvenirs.

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Hexa Helix Innovation Ecosystem

Regions are seen as ecosystems of organisational and institutional stakeholders with socio-technical, socio-economic, and socio-political conflicts and cooperative goals. Our paper explores the Quadruple/Quintuple Helix Innovation System Model (government, university, industry, civil society, environment) as a driver of regional cooperative entrepreneurial ecosystems. These ecosystems are conceptualised as fractal, multi-level, multi-modal, multi-nodal, and multi-lateral configurations of dynamic assets. We define and discuss cooperative fractal innovation and entrepreneurship ecosystems and present examples of regional innovation policies and programs. Furthermore, multi-level innovation systems are analysed, considering knowledge clusters and innovation networks. Alternative aggregations are proposed based on spatial (geographical) and non-spatial (research-based) functional properties (Carayannis, 2017).

The Hexa Helix collaborative research aims to explore and develop halal tourism in Indonesia through the cooperation of government, community, academia, private sector, law, and mass media. The study shows that this collaboration

significantly accelerates halal tourism development. Each stakeholder plays a crucial role: the government initiates cooperation, the community promotes and develops tourism, academics provide strategic studies, the private sector creates competitive products, and the law ensures security and legal protection for entrepreneurs. The role of the mass media in promoting halal tourism is also vital in generating awareness and interest in tourists, both from within and outside the country, to visit Indonesia. To understand more about the interrelationships between helix actors, see Figure 1 (Yudithia, 2024).

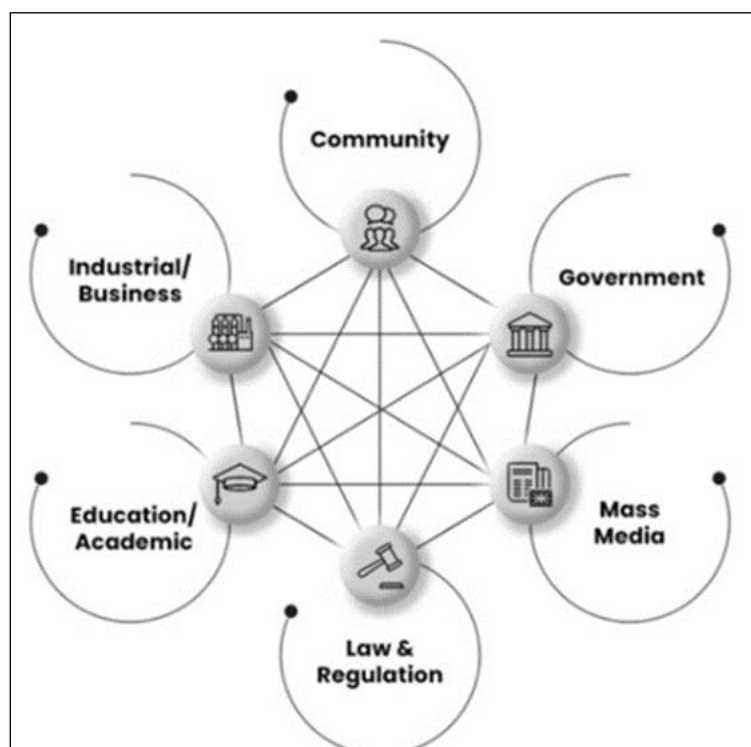


Figure 1 – The Hexahelic Collaboration Concept
Sources: Yudithia, 2024

2.2 Hexa Helix and Marketing Performance

Research on South Korea's networked research relations using the triple helix (TH) indicator of university–industry–government (UIG) relations shows varied dynamics influenced by national research policies. Data from the Science Citation Index (SCI) and its counterparts indicate rapid growth in Korean SCI publications since 1965. Collaboration patterns increased from the mid-1970s to the mid-1990s but were negatively impacted in the early 21st century by policies focusing on international publication numbers over inter-institutional cooperation. This neglect of network effects hindered Korea's national research capacity (Park, 2010).

This study uses a systematic literature review and qualitative content analysis to identify key factors enabling collaborative innovation between industry and universities. A keyword search in the Web of Science database identified 40 frequently cited papers. The results highlight seven main themes: resources,

university organisation, boundary-spanning functions, collaborative experience, culture, status centrality, and environmental context. The article elaborates on these factors and discusses their relevance to policy intervention (Sjöo, 2019).

The study on weaving SMEs in Kupang City within the Crafts and Fashion sector involved criteria such as production scale, revenue, and number of workers. This helps policymakers and stakeholders understand and create policies that foster SMEs. In the study, "tenun ikat" as a culture could be introduced to a wider market. Table 1 contains the roles and contributions of Hexa Helix actors according to (Tuthaes, 2024).

Table 1 – The Roles and Contribution of Hexa Helix Actors

Hexa Helix Actor	Role
Government	Providing regulatory support, policy frameworks, and funding for preservation efforts
Business	Offering expertise in production, marketing, and innovation
Universities	Conducting research, providing training, and promoting cultural preservation
NGOs	Advocating for community interests, providing support, and fostering collaboration
Mass Media	Disseminating information, raising awareness, and promoting cultural appreciation
Affected Community	Preserving traditional knowledge, providing feedback, and actively participating

Source: Tuthaes, 2024

Based on the elaboration above, the following hypothesis is formulated:

H1: Hexa Helix significantly and positively affects marketing performance

2.3 Hexa Helix, Product Innovation, and SMEs' Marketing Performance

The results of the model highlight that innovation culture and marketing innovation in SMEs have a positive direct relationship with product innovation. The results of this study offer a valuable perspective for researchers, implying that a culture of innovation encourages SMEs to differentiate their organisational culture and products from competitors. Thus, this study contributes to the innovation literature by enhancing the understanding of the relationship between innovation and the market performance of SMEs. This study expands the understanding of the relationship between innovation and market performance by analysing the impact of marketing innovation and product innovation (Aksoy, 2017).

The inclusion of SME actors in the Hexa Helix is illustrated as a qualitative synthesis of Quadruple Helix (QH) and Quintuple Helix Innovation (QHI) with the important objective of complementing the implementation of solutions and strategies resulting from QH and QHI collaboration so that economic recovery becomes more concrete in an increasingly clear and real economic perspective

where the national economy will experience growth through the involvement of SMEs that are reviving and growing sustainably. Based on the elaboration above, the following hypothesis is formulated:

H2: Hexa Helix positively and significantly affects product innovation

Product innovation involves changes in products or services offered by organisations (Baregheh, et al., 2012). Endah and Rahayu (2020) highlight that food product innovation must consider customer needs and adapt to environmental volatility and complexity. Successful organisations use innovation strategies to stay competitive. Product innovation includes significant improvements in technical specifications, components, and materials (OECD, 2018). Anzules-Falcones and Martin-Castilla (2020) found that food and beverage SMEs in Ecuador significantly impact corporate innovation. Although the effect on SME performance has not been fully studied, many studies have shown a positive relationship. Najib, et al. (2014) found that innovation positively affects processed food SMEs in Indonesia. Product, process, and marketing innovations are key indicators. Ali, et al. (2021) suggest that food SMEs should diversify innovation by incorporating new inputs, better features, and improved technology to strengthen their market position. Based on the elaboration above, the following hypothesis is formulated:

H3: Product innovation positively and significantly affects SMEs' marketing performance.

Previous research indicates a very strong relationship between creating new products and how well a company performs in the market. Companies focusing on product innovation will likely see better sales and customer satisfaction. This understanding encourages businesses to invest in new ideas and improvements, which can lead to long-term success (Aksoy, 2017). Product innovation and market performance relationships were found to be significantly positive, as shown by the research paper shows that introducing new products in the personal computer industry can lead to significant financial rewards. Companies that innovate, understand customer needs and navigate product development challenges are more likely to succeed in a competitive market (Bayus, 2003). Based on the elaboration above, the following hypothesis is formulated:

H4: Product innovation mediates the relationship between Hexa Helix and SMEs' marketing performance.

2.4 Hexa Helix, Integrated Marketing, and SMEs' Marketing Performance

Research by Yhonantan 2024, shows Triple Helix (Academy, Business, Government) as a moderator in the relationship between Digital Marketing and marketing performance has a positive and significant impact. In addition, this study highlights the important role of government in the triple helix framework. The Hexa helix strategy can include integrated promotions, digital marketing, and

other strategies to increase product awareness and sales (Amir, et al., 2023). The Hexa Helix can be an effective model for developing integrated marketing, as it enables broader and more innovative collaboration between various stakeholders. Based on the elaboration above, the following hypothesis is formulated:

H5: Hexa Helix positively and significantly affects integrated marketing

According to Soekandar, et al. (2015), there are currently two types of marketing, namely offline marketing and online marketing. Both types of marketing have different meanings and functions. Offline marketing is traditional marketing that is done by finding customers or clients through direct meetings with those who may be interested in becoming customers. A study conducted by Anabila (2019) Research shows a significant positive relationship between integrated marketing communication and business performance, with brand equity mediating this relationship. This study highlights the crucial role of integrated marketing communication in enhancing product performance. Based on the elaboration above, the following hypothesis is formulated:

H6: Integrated marketing is positively and significantly affect SMEs' marketing performance

The benefits associated with its usage are wide and varied. Empirically, Kwok and Yu (2012) have found that Facebook usage, for instance, increased sales of a chain of restaurants. In addition to this, other scholars have also provided evidence of the benefits of using Twitter (Wamba and Carter, 2014; Aladwani, 2015). However, user behaviours vary on both social media sites (Hughes, et al., 2012), suggesting possible differences in outcomes across the enterprises. Nevertheless, synthesising these usage outcomes shows that the overarching goal of social media usage is to enhance organisational performance in both financial and non-financial terms (Ainin, et al., 2015). These financial and non-financial outcomes ultimately result in the benefits firms obtain from using social media. Based on the elaboration above, the following hypothesis is formulated:

H7: Integrated marketing mediates the relationship between Hexa Helix and SMEs' marketing performance.

The relationship between the variables studied and the hypothesis scheme is presented in Figure 2.

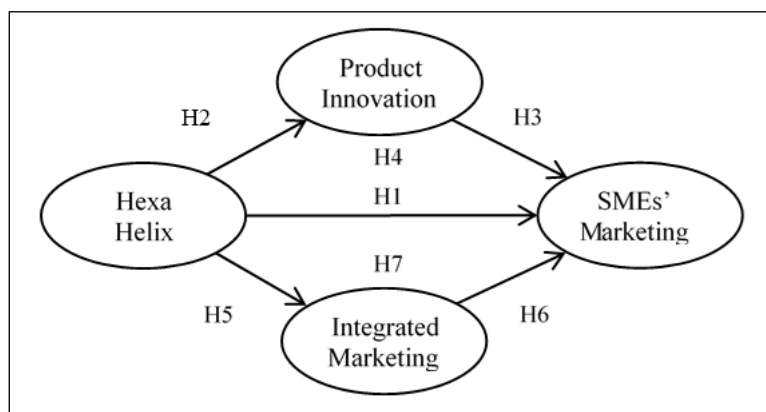


Figure 2 – Illustration of the conceptual framework outlining the relationships among the variables. (Sources: Authors' elaboration)

3 METHODOLOGY

This research aims to study and analyse the relationship between Hexa Helix and the marketing performance of SMEs with median product innovation and integrated marketing. The variables and sub-variables or dimensions, along with their indicators, are presented in Table 2. All indicators are measured using a Likert Scale with five gradations, namely 1 (strongly disagree) to 5 (strongly agree).

Table 2 – Variables, sub-variables (dimensions), and Indicators

Variable	Sub-variables (dimensions)	Indicators	References
Marketing performance of SME food for souvenirs	Financial performance	Sales turnover	Newman, et al., 2015
		Profit	
	Non-financial performance	Market share	Venkateshamurthy, et al., 2021
		Number of buyers	
		Gain new customers	
Integrated Marketing	Online Marketing	Knowledge about online media	Rokhmah, et al., 2020
		Skills in using online media	
		Speed of online service	
	Offline marketing	Written media used (posters, brochures, leaflets, banners)	Pasaribu, R. 2020
		Oral media used (radio, direct sales)	Nur, et al. 2020
		Speed of service	
Product innovation		Development of various types of products	Nur, et al. 2020
		Producing superior quality food	Tirtayasa, et al., 2021
		Produce the latest products	
		Packaging	Winbaktiar, et al., 2020
Hexa Helix	Academic	Provide training to SMEs	Putra, 2018
		Application of research results to SMEs	Bappenas, 2020
		Assist SMEs	
	Business	Open markets for SME products	Wahyudiono, et al., 2018
		Conduct knowledge transfer to SMEs	
		Become a "foster father" of SMEs	

Variable	Sub-variables (dimensions)	Indicators	References
	Community	SME planning, management, decision-making, and evaluation	
		Exploring and preserving SME products	
		Establish communication, management, and innovation.	
		Motivational driver of SMEs supporting tourism	
	Government	Subsidised loan interest	
		Tax incentives	
		Provide training	
		Deferment of principal and interest	
		Facilitate product exhibitions	
	Mass Media	Providing information to SMEs	
		Promotion of SME products	
		Check and balance between stakeholders in SME activities.	
		Facilitate the development of SME product marketing.	
	Tourist	Become a buyer of SME products.	
		Provide positive suggestions to related parties about improving product quality and other positive things	

Source: Authors' elaboration

This research uses a mixed method with embedded design where data is collected both quantitatively and qualitatively and integrated (Creswell, 1998). Quantitative data was obtained through an online questionnaire distributed to SME members of the Malang Regency SME Communication Forum (FKPU). The FKPU consists of 12 associations with a total of around 500 business units, all of which became the research sample. Respondents are business owners. The data collected after sorting, which is eligible for further analysis to answer the research hypothesis, is 448. This sample size is adequate because it is close to the population (Hair, et al., 2022). Qualitative data were collected through focus group discussions (FGDs) with representatives from the government, academics, large companies, associations, mass media, and tourists. These FGDs aimed to identify phenomena from quantitative data based on each party's perspectives.

Data were analysed using WarpPLS-SEM software to directly show the effect of mediating variables without manual calculations like the Sobel test (Hair, et al., 2021). Qualitative data will be processed through steps such as transcribing, coding, grouping into themes, and abstraction (Creswell, 1998). FGDs will strengthen the interpretation of results. A direct relationship hypothesis is accepted if the p -value < 0.05 . Mediation was tested using VAF, where values over 80% indicate full mediation, 20%-80% indicate partial mediation, and below 20% indicate no mediation effect (Hair, et al., 2022).

4 RESULTS

Assessing the overall fit of the inner model using the Model Fit and Quality Indices (Kock, 2022) confirms its strength and appropriateness for hypothesis testing. As presented in Table 3, key metrics such as the Average Path Coefficient (APC) and Average R-squared (ARS) were both statistically significant at the 1% level, highlighting the robustness of the relationships between the latent variables and demonstrating meaningful links between exogenous and endogenous variables. The Tenenhaus Goodness of Fit (GoF) index of 0.714 further validates the model's explanatory capacity, effectively capturing critical interactions. Additionally, the Average Full Collinearity VIF (AFVIF) of 2.918 exceeded the acceptable threshold, indicating the presence of collinearity among latent variables without redundancy. These findings confirm that the model is well-constructed, valid, and fully equipped for hypothesis testing, providing a solid foundation for the study's analytical framework.

Table 3 – Model fit and quality indices

Goodness of Fit	Value	Cut-off	Inference
Average Path Coefficient (APC)	< 0.001	0.05	Significant (good)
Average R-Squared (ARS)	< 0.001	0.05	Significant (good)
Average Block VIF (AVIF)	2.645	≤ 5: Acceptable ≤ 3,3: ideal	Ideal
Average full collinearity VIF (AFVIF)	2.495	≤ 5: Acceptable ≤ 3,3: ideal	ideal
Tenenhaus GoF (GoF)	0.595	≥ 0,1: small ≥ 0,25: medium ≥ 0,36 big	Big

Sources: Data processing results, 2024

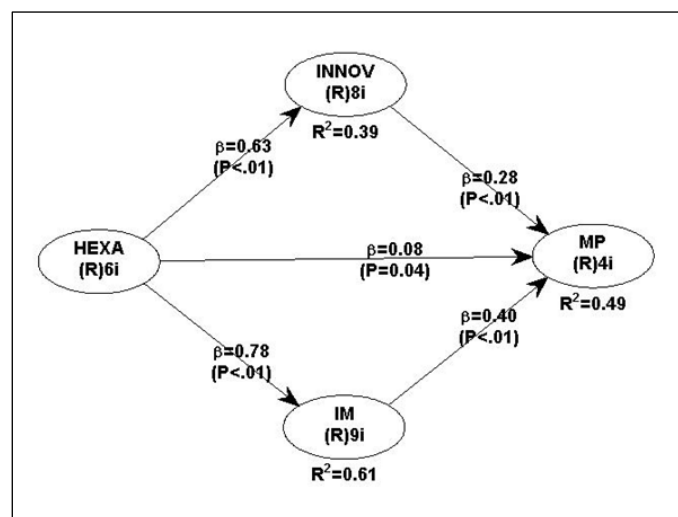


Figure 3 – WarpPLS Second-Order Analysis Result
Source: Data processing results, 2024

Table 4 – Statistical Analysis Result

Hypothesis	Path	Direct Effect		Indirect Effect		Total Effect	VAF	Hypothesis Decision
		Coeff.	P-Value	Coeff.	P-Value			
H1	Hexa Helix → MP	0.082	0.041					Supported
H2	Hexa Helix → Innov.	0.627	<0.001					Supported
H3	Hexa Helix → IM	0.780	<0.001					Supported
H4	Innov. → MP	0.285	<0.001					Supported
H5	IM → MP	0.400	<0.001					Supported
H6	Hexa Helix → Innov. → MP			0.267	<0.001	0.777	0.343	Supported (Partial Mediation)
H7	Hexa Helix → IM → MP			0.428	<0.001	0.777	0.550	Supported (Partial Mediation)

Source: Data processing results, 2024

Based on the analysis results presented in Figure 3 and Table 4. Hypothesis 1, the Hexa Helix's effect on marketing performance is modest but significant, with a path coefficient of 0.082 and a p-value of 0.041, confirming the anticipated positive influence. In contrast, Hypotheses 2 and 3 revealed much stronger impacts. The effect of Hexa Helix on product innovation is particularly robust, with a coefficient of 0.627 and a significant p-value below 0.001. Similarly, the influence on integrated marketing is even more pronounced, with a coefficient of 0.780, supporting the hypothesis with high confidence. Hypothesis 4 and 5, where product innovation and integrated marketing respectively show significant direct effects on marketing performance. The coefficient for product innovation is 0.285 and for integrated marketing, it's 0.400, both with p-values below 0.001, suggesting that both factors are important drivers of MP. The mediating roles hypothesized in H6 and H7 are also substantiated. Hypothesis 6, which proposed a partial mediation of Innovation between Hexa Helix and MP, shows a significant indirect effect of 0.267 with a total effect of 0.777 and a VAF of 34.3%, indicating that Innovation channels a substantial part of Hexa Helix's impact on MP. Similarly, Hypothesis 7 demonstrates that IM also partially mediates the relationship between Hexa Helix and MP, with an indirect effect of 0.428 and the same total effect, but with a higher VAF of 55%.

5 DISCUSSION

The Hexa Helix is a concept that involves the collaboration of six main elements: government, academia, large companies or businesses, media, community, and tourists. In the context of food SME marketing for souvenirs. Cooperation with the government can open up access to larger markets, including exhibitions and festivals, or open up market opportunities that extend to exports, thereby

increasing sales. Mass media is crucial for marketing, helping SMEs reach a wider market and build a positive image for their souvenir products. Community involvement through forums for SMEs provides strong support. Consumers often prefer products from their community that have strong cultural values.

The cooperation of the components in Hexa Helix positively impacts product innovation for souvenirs for food SMEs. The government, universities, and large companies provide support in several ways, including training and certification, to help SMEs improve product quality standards (Kahle, et al., 2021). Good quality will increase consumer confidence and improve sales results (Uzir, et al., 2021). Community, media, and traveller engagement strongly contribute positively to product innovation. This suggests that SMEs rely heavily on feedback, support, and demand driven by local communities and tourists and media exposure to guide their innovative efforts. Travelers, in particular, demand unique and diverse products, prompting SMEs to continuously innovate to meet these expectations.

The strong influence of communities, media, and tourists on innovation suggests that SMEs are more responsive to externally driven market pressures than formal support from government or academic entities (Siahaan and Tan, 2020). This suggests a bottom-up innovation dynamic where SMEs adapt and evolve in response to consumer demand and community support rather than top-down directives or academic research. Governments and universities may need to reconsider their strategies and better align their initiatives with the real-world challenges SMEs face in innovation.

The Hexa Helix significantly encourages integrated marketing strategies among SMEs. Government involvement positively impacts through programs promoting digital marketing and participation in local and international markets. Communities, media and travellers influence MSME marketing strategies (Sirait, et al., 2022). Large enterprises enhance SMEs' integrated marketing strategies through supply chains, partnerships, and knowledge transfer. Media and community support are crucial for SME visibility, with media exposure helping reach wider markets and community support providing local marketing channels. Government involvement through policy frameworks and training programs is essential for enabling SMEs to use both digital and traditional marketing channels effectively. The research shows a strong relationship between innovation and SME marketing performance, indicating that innovative SMEs see significant improvements in sales, market share, and customer loyalty. However, integrated marketing, especially through online and offline channels, is an even stronger predictor of success. Effective marketing strategies are crucial for reaching the right buyers and maximising performance. The synergy between innovation and integrated marketing leads to the greatest performance improvements for SMEs.

The study shows that while government and academia support the Hexa Helix framework, SME success in innovation and marketing is mainly driven by community engagement, media exposure, and tourism demand. Policymakers should enhance engagement with SMEs by providing practical, market-driven

support, such as digital marketing tools and community-based initiatives. SMEs should build strong relationships with local communities and media to boost innovation and marketing strategies and cater to traveller demand to improve products and market reach.

6 CONCLUSION

Hexa Helix is a multi-stakeholder collaboration that includes government, large corporations, academia, community, media, and tourists, improving SME marketing performance. The Hexa Helix is also positively related to product innovation and integrated marketing. Product innovation and integrated marketing mediate the relationship between Hexa Helix and the marketing performance of food SMEs for souvenirs. Integrated marketing plays a greater role than product innovation. This means, that combining offline and online marketing is more effective than product innovation. The Hexa Helix model provides a comprehensive framework for understanding the multi-stakeholder support required to improve MSME performance for long-term success.

The results of this study prove the validity of systems theory. Systems theory aims to explain the dynamic relationships and interdependencies between components in the system (Lai, et al., 2017). This theory is built on the structure and pattern of interaction relationships between components, and the totality of the outcome of a system is greater than the sum of its parts. The total outcome of this study is the marketing performance of food MSMEs for souvenirs, which is the final result of the interaction between product innovation and integrated marketing influenced by Hexa Helix. Systems theory supports a dynamic view of social organisation manifested through interdependent relationships among its components (Schneider and Somers, 2006).

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CONFLICTS OF INTEREST

The authors declare no conflict of interest. The funders had no role in the design of the study, in the collection, analyses, or interpretation of data, in the writing of the manuscript, or in the decision to publish the results.



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