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THE TRIPLE HELIX MODEL AND FINANCIAL PERFORMANCE: A CASE STUDY ON MSMES IN BALI

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ABSTRACT

Small and medium enterprises (SMEs) in Indonesia are growing rapidly and are the foundation of the Indonesian economy. SMEs face several obstacles in achieving optimal financial performance. This study aims to examine the role of government, academia, and industry in improving SME performance. This study considers marketing innovation and organizational innovation as pillars of SME performance. This study used 399 SMEs in Bali as the research sample. The sampling technique used was stratified random sampling. The analysis technique used was PLS-SEM. The results of this study showed a significant influence of all variables. The results revealed that external sources such as government, universities, and industry help SMEs improve financial performance by collaborating with the three components mentioned above. This study highlights that SMEs in Bali have not maximized their innovation in organizational and marketing activities due to limited resources, support, and appropriate R&D. Based on these findings, this study concludes that SMEs in Bali can improve their performance by collaborating with triple helix model agents.

Keywords: Triple Helix, Innovation, Financial Performance.

I. INTRODUCTION

Small and medium enterprises (SMEs) are one of the foundations of the global economy today, especially in developing countries (Noya et al., 2023). SMEs make up 90% of the business sector in developing countries and continue to strive to improve financial performance and sustainability (Mahyo et al., 2024). SMEs in developing countries usually rely only on internal resources and do not take advantage of external benefits. SMEs face barriers to innovation in the market because they do not have effective development, funding, and up-to-date expertise (Velazques et al., 2025). To increase creativity and improve financial performance, SMEs in developing countries are encouraged to build profitable relationships with financial and non-financial institutions (Dewandaru et al., 2021).

A theoretical framework for collaboration for innovation between businesses and outside parties has been built on the Triple Helix model (Mayho et al., 2024). The involvement of three important elements, namely academia, industry, and government, plays an important role in developing innovation. The interaction between the three elements allows for the exchange of resources, talents, and knowledge and creates synergies that encourage innovation (Al Hakim et al., 2022). The Triple Helix theoretical method) can be useful for conducting a more in-depth analysis of SMEs' opportunities to achieve optimal innovation to gain competitiveness and financial performance (Jimenez et al., 2021). This Triple

Helix concept emphasizes how important it is for various public and private elements to work together to create the growth of innovation systems (Figueiredo et al., 2023). The purpose of this research is to delve into the features of academic spin-offs and the processes that lead to the formation of new ideas for innovation.

The Triple Helix Model research in the context of SMEs in Indonesia adds a new dimension, recognizing the distinctive socio-economic factors that influence collaboration between academia, industry, and government. This study attempts to examine holistically how the Triple Helix Model addresses gaps in the literature and contributes to a more comprehensive understanding of its application and its contribution to the financial performance of SMEs. This research is expected to provide practical strategies for stakeholders to increase collaboration and improve overall business outcomes. Despite the abundance of literature on innovation, only a few studies have covered the role of government, industry, and academia in generating new ideas.

II. LITERATURE REVIEW

2.1. Triple Helix (THM) Model

THM is often used in business research studies to understand the business-based innovation process (Maziriri et al., 2021; Ebrahimi & Baloch, 2024). THM provides the foundation for innovative collaborations between government, business, and academia. In the era of knowledge-based economies, this model is characterized as a collaborative partnership between research institutions, industry, and government to drive innovation (Zakaria et al., 2023). Innovative startups, according to THM, need government assistance at several levels. The government is the central entity that sets rules and regulations for the implementation of economic activities. Similarly, government participation involves monetary incentives as well as physical representation through incubators and research parks (Espuny et al., 2025).

Second, educational institutions should advocate for policies and resources that will help students succeed (Daradkah et al., 2023). In terms of beneficiaries and dynamic resources, it has been noted that university collaboration techniques differ substantially (Figueiredo et al., 2023). Third, industry and finance, or more broadly institutions working in commercial settings, can supply essential resources for the growth and development of academic spin-offs (Viale & Cucchiarini, 2025).

2.2. Cooperation between SMEs and Universities

Universities and other research institutions offer formal R&D collaboration, technology transfer, tailored training in relation to skilled workers, and innovative knowledge for business (Oe & Takemoto, 2023). The university will benefit from collaborating with Triple Helix agents to advance the university's role as a key source of innovation. The best approach to achieving innovation is through collaboration with academic institutions (Kolade et al., 2022; Noya et al., 2025). Cooperation with higher education and public research organizations has been identified as a key foundation for new knowledge for SMEs in developing countries that provides market trends through effective communication and R&D that assists SMEs in bringing innovation in several departments (Said & Abdullah, 2024). To spur innovation, several institutions have engaged in knowledge transfer with business and development incubators to innovate organizational practices and marketing strategies (Arman & Al-Qudsi, 2024).

Cooperation with universities increases the success of SMEs in terms of innovation. When a company needs a source of cutting-edge technological expertise for innovation, university partners are more likely to be chosen (Rantala et al., 2021). The university's business incubator program is one of the key policy strategies to encourage innovation, according to (Noya et al., 2025). The hypotheses developed are:

H1: collaboration between SMEs and academics has a positive influence on innovation

H2: collaboration between SMEs and academics has a positive influence on innovation

2.3 SME Collaboration with Industry

The term "industry" describes a group of businesses that engage in similar market-driven activities (Erosa, 2012). Collaboration is necessary for businesses to access sources of expertise, new technologies, and/or underdeveloped markets within their industry sectors (Feola et al., 2019). Information through corporate collaboration has beneficial benefits on the innovation performance of organizations, which is relevant to the rising economy (Zakaria et al., 2023). Inter-company connections can enhance innovation by identifying joint requirements and prototyping through equipment sharing, information and knowledge exchange, product/process development, and consulting services (Ebrahimi & Baloch, 2024). The hypotheses developed are:

H3: collaboration between SMEs and industry has a positive influence on innovation

H4: collaboration between SMEs and industry has a positive influence on innovation

2.4. SME Collaboration with the Government

The government plays a role in encouraging increased cooperation between businesses and universities (Zakaria et al., 2023). The SME sector is supported by the government in a variety of ways, including tax relief, loans, social assistance, and financial support to date (Alkahtani et al., 2020). Research by Bayai et al., (2024) found a relationship between the effectiveness of informal local government officials and innovation for SMEs. It has been asserted that things like credit, training, services, loans, paying taxes, etc. cannot improve the performance of an organization, but in fact play an important role in achieving sustainable performance (Alkahtani et al., 2020). In addition, the government has supported laws, programs, resources, and initiatives for joint ventures between universities and businesses. Government monetary benefits in particular are considered to be a key driver of innovation in both developing and developed countries (Alkahtani et al., 2020). The hypothesis of this study is:

H5: SME collaboration with the government has a positive influence on organizational innovation

H6: SME collaboration with the government has a positive effect on marketing innovation

2.5. Organizational Innovation

Organizational innovation is consistently defined as the adoption of ideas or behaviors that are new to the organization (Noya et al., 2023). Organizational innovation increases the success of companies through improving the quality of work, sharing information, learning capacity, including the use of newly developed technologies (Al Hakim et al., 2022). Research by Velazquez et al., (2025) found that innovation has a positive significant relationship with better company

performance because it provides companies with a sustained competitive advantage with the application of ideas, practices, technologies, etc. Employee flexibility will increase with the adoption of the new decentralized organizational paradigm, resulting in higher job satisfaction and output (Maziriri et al., 2021). The company will be able to concentrate on what works best by using a new organizational structure in its external relationships, which will delegate other activities to partners who can carry them out more affordably and/or successfully (Ebrahimi & Baloch, 2024). The hypothesis of this study is:

H7**:** Organizational innovation has a positive influence on performance

2.6. Marketing Innovation

A company's capacity to approach the market, utilize communication channels efficiently, and provide goods and services to attract new or existing clients is referred to as marketing innovation (Yhonathan & Widyaningrum, 2024). It has a close relationship with business operations that involve the commercialization of products. Although innovation activities offer more benefits to customers than existing products with fundamentally different core technologies (Wijiharjono, 2021), they can create considerable uncertainty for businesses and consumers that can negatively impact the success of the product (Espuny et al., 2025). With marketing innovations, it is possible to reverse the relatively lower returns of incremental products caused by potentially perceived marginal consumer benefits (Al Hakim et al., 2022) and the failure to establish a competitive position due to possible imitation and loss of price advantage (Espuny et al., 2025). By giving buyers the impression that new products are innovative, marketing innovations can make additional items more competitive (Alkahtani et al., 2020). The hypothesis of this study is:

H8: Marketing innovation has a positive influence on performance.

III. RESEARCH METHODS

3.1. Research Instruments

The first component of the questionnaire asks questions about respondents' demographics, while the second part asks questions about constructs. This study resizes from previous research in the same context for content validity. This study adapted the scale of 5 university collaboration items, 5 industrial collaboration scale items and 5 government collaboration scale items from the study (Alkahtani et al., 2020). 5 items of the scale of marketing innovation are adapted from (Wijiharjono, 2021), 5 items of the scale of the company of performance are adapted from (Espuny et al., 2025), 9 items of the scale of organizational innovation are adapted from (Said & Abdullah, 2024). In addition, this study uses the 7-point Likert scale recommended by previous research (Mahyo et al., 2024).

3.2. Research Sample

The population in this study is MSMEs in the province of Bali with a total of 122,941 MSMEs. The determination of the number of respondents was carried out using the Slovin formula using alpha 5 percent, namely

$$n = \frac{N}{1 + N(e^2)}$$

Where:
n = Sample size
N = Population size
e = Error tolerance

The calculation using the slovin formula obtained a result of 398.7 rounded to 399 MSMEs as respondents. The sampling technique used to select samples is stratified random sampling , which is a sample that is selected according to the percentage of the number of MSMEs in Bali.

IV. RESULTS AND DISCUSSION

4.1 Confirmatory Factor Analysis (CFA)

To test the validity and consistency of the variables of the research framework, a CFA analysis was carried out through AMOS. The results showed that the value of CMIN/DF, 1.393: CFI, 0.989: RMSEA, 0.031: PClose.1,000. All CFA values are below the threshold indicating that the model is good.

4.2 Convergent Validity and Reliability

The results of Convergent validity are shown in Table 1. Cronbach's alpha value ranges from 0.884 to 0.920, CR values range from 0.882 to 0.921 and AVE values range from 0.669 to 0.771. The results revealed that all values were below the acceptance range therefore there were no convergent validity and reliability issues.

Table 1
Convergent Validity and Reliability

Variable	Item	Loadings	Cronbach alpha	CR	AVE
Academic/University Collaboration	KA1	.888	.901	.902	.669
	KA2	.878			
	KA3	.787			
	CHAPTER 4	.896			
	KA5	.890			
Industry Collaboration	KI1	.874	.920	.909	.790
	KI2	.865			
	KI3	.873			
	KI4	.791			
	KI5	.805			
Government Collaboration	KP1	.871	.901	.912	.701
	KP2	.887			
	KP3	.790			
	KP4	.802			
	FP5	.788			
Marketing Innovation	IP1	.771	.890	.901	.721
	IP2	.792			
	IP3	.732			
	IP4	.777			
	IP5	.891			
Organizational Innovation	IO1	.887	.889	.921	.771
	IO2	.776			
	IO3	.862			
	IO4	.761			
	IO5	.776			
	IO6	.790			
	IO7	.821			
	IO8	.888			
	IO9	.789			
Financial Performance	KK1	.771	.884	.882	.720
	KK2	.776			
	KK3	.872			
	CD4	.773			
	KK5	.778			

Source: data processed (2025)

4.3 Discriminant Validity

In addition, the study tested the validity of the discriminator, which showed the magnitude of the empirical variation among the research constructs. Table 2 shows the square root of AVE and the association matrix, which shows the accuracy of the discriminant validity.

Table 2
Discriminant validity

	OR	IP	CD	YES.	CD	TO
OR	0.839					
IP	0.458***	0.879				
CD	0.375***	0.591***	0.921			
YES.	0.359***	0.453***	0.372***	0.873		
CD	0.493***	0.536***	0.545***	0.545***	0.857	
TO	0.471	0.577	0.624	0.449	0.568	0.897

Source: data processed (2025)

Based on Table 2, it shows that the value of the discriminant validity of each variable/construct is greater than the value of other variables/constructs.

4.4 Structural Model Analysis

After ascertaining the results of the accurate measurement model, the study further examined the structural model analysis conducted through AMOS. This study conducted a pathway analysis for hypothesis testing through AMOS. The findings of the fitness model showed that CMIN/DF= 1,488, PCLOSE= 0.829, RMESA= 0.028, and CFI= 1,000 were good fitness models. The SEM results showed that the relationship between UC and MI was (β=.219, P=.000), UC with OI (β=.260, P=.000) IC with MI (β=.230, P=.000) IC with OI (β=.312, P=.000) GC with MI (β=.328, P=.000), GC with OI (β=.301, P=.000) was significantly related. In addition, MI (β=.223, P=.000) and OI (β=.456, P=.000) are also significant predictors of a company's performance indicating that H1, H2, H3, H4, and H5 are accepted.

4.5 Discussion

Collaboration between parts in the triple helix model (THM) with SMEs is a discussion to recognize the role of various parts of THM in improving company performance. By blending aspects from academia, business, and government to create a new organizational and institutional framework for the creation, transmission, and use of knowledge, THM is an ideal catalyst for innovation and economic development in SMEs in Bali. This view includes emerging creative updates in each of the three institutional domains of university, industry, and government. Given the status of these entities in the performance of companies, the current study aims to investigate the role of government, academia, and industry in bringing innovation in an organization that will improve the company's performance.

This study uses THM as a theoretical basis that shows the role of three different external entities in bringing innovation in a decisive way. The empirical findings of this study reveal that in Indonesia, especially Bali, the government plays an important role in implementing innovations in different corporate processes, operations, and communication techniques. Empirical analysis of the study reveals that the government in Indonesia, especially in Bali, can motivate SMEs to be innovative by collaborating with regulatory authorities and

institutions. Government funding motivates organizations to take risks, revise their operations, and stay competitive in the market by encouraging innovative practices.

Furthermore, the results reveal the positive role of academics in innovative practices. The findings of the study prove that academics have an important role in the innovative practices of companies. Academics provide expertise that propels organizations toward new practices. This collaboration between academics and SMEs benefits both parties. It also reduces the high cost of employees as the new graduates are already motivated to do some innovative things that will enhance their experience as well as facilitate the company to provide some incentives, training of their current employees to bring the innovation organization to improve the performance of the company.

Furthermore, the results of the study also provide insights into how industry collaboration with SMEs helps them in organizational and marketing innovation. The results of the study prove a significant positive relationship between industry and SMEs in Bali. The findings of the study show that when SMEs build strong and healthy relationships with suppliers, vendors, and other industry agents, it helps them in bringing innovation within the organization. In addition, current research also examines the relationship between organizational and marketing innovation and company performance and reveals that innovation in the company is considered a positive influence on company performance. More importantly, the findings of this study prove that both innovations are equally important for better performance because marketing innovations capture new customers and communicate with them differently compared to their competitive companies and organizational innovation changes company norms, cultures, operations, and processes that make for a healthy internal environment of the company.

V. CONCLUSION

In the context of a dynamically evolving business environment, innovation is emerging as an important aspect for the company's expansion. This tripartite collaboration summarized by THM involving government, industry, and academic entities serves as a conceptual framework that drives innovation. While THM has found widespread application in previous scientific efforts, this study uniquely addresses its weaknesses as it relates to describing its impact on corporate performance through the role of innovation.The empirical proof of this study proves a significant positive correlation between each variable and the company's performance, thus confirming the validation of all formulated hypotheses. These empirical findings underscore the important role of government collaboration with Small and Medium Enterprises (SMEs) in fostering organizational and marketing innovation through financial support in the form of grants and grants. In addition, academics emerge as consequential contributors to the company's success in innovative pursuits, leveraging the resources of universities and higher education institutions to increase research and development (R&D) costs and harnessing the innovative potential of new graduates. In the competitive landscape of contemporary business, SMEs face the constraints arising from limited budgets when competing with larger multinational entities. Collaborative engagement with industry peers mitigates these challenges by facilitating funding, knowledge sharing, and fostering effective inter-organizational communication. This collaborative synergy, in turn, improves decision-making capabilities and improves overall performance.

This research has several limitations that are the basis for this research to provide several future recommendations. The first limitation of this study is that this study focuses on the collaboration of SMEs with THM agents for better company performance but how this relationship can be built is overlooked in this study. Future researchers should study how different sectors of SMEs can create strong positive relationships with THM agents. Second, the study focuses only on organizational and marketing innovation from the perspective of overall company performance. Therefore, researchers must further examine the role of other types of innovation such as product innovation, innovation processes to have better performance. In addition, a third limitation of this study is that current research considers the company's overall performance, but future research should also investigate how different performances can be improved with these innovations. These studies were conducted in a limited time duration which limits their generalization, therefore, future research should expand the sample size and the time duration to conduct longitudinal studies that will provide more comprehensive research results.

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