

# Innovation and Government Support for SME Performance in Lake Toba's Halal Culinary

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**Abstract:** This study aims to analyze the impact of innovation capability and government support on the performance of Small and Medium Enterprises (SMEs) within the halal culinary industry in the Lake Toba destination. As a Super Priority Tourist Destination in Indonesia, Lake Toba requires a robust SME sector to support its muslim-friendly tourism development. The research focuses on how internal capabilities, specifically innovation, combined with external institutional support, can drive business growth and community-based economic empowerment. The methodology employs a quantitative approach, utilizing a survey-based descriptive and explanatory research design. Data were collected from halal culinary SME owners across the Lake Toba region. Structural Equation Modeling (SEM) through SmartPLS was utilized to analyze the relationships between variables. The results indicate that innovation capability significantly enhances SME performance, enabling businesses to adapt to the competitive tourism market. Furthermore, government support plays a crucial role as a moderator, strengthening the positive effect of innovation on business outcomes. These findings suggest that the synergy between proactive innovation from entrepreneurs and strategic intervention from the government is essential for business resilience. In conclusion, empowering MSMEs through targeted innovation and policy support is vital for creating a sustainable community-based economy. This study provides practical implications for policymakers to enhance technical assistance and infrastructure to foster a more competitive halal culinary sector, ultimately supporting the local economic growth of Lake Toba as a premier international destination.

**Keywords:** Innovation Capability, Government Support, SME Performance, Halal Culinary, Lake Toba.

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## 1. INTRODUCTION

The halal industry has emerged as a strategic pillar for Indonesia's economic resilience, driven by its status as the nation with the largest Muslim population globally. According to recent data, Indonesia's Muslim population has reached 242.7 million people, representing approximately 88.25% of the total national population [1]. This demographic advantage creates a massive domestic market for the halal culinary sector, particularly in International Super Priority Tourism Destinations (Destinasi Pariwisata Super Prioritas - DPSP) like Lake Toba. As Lake Toba transitions into a world-class Muslim-friendly tourism site, the performance of Small and Micro Enterprises (SMEs) in providing professional halal-certified culinary services becomes a critical determinant for regional economic success [2]—[4].

Despite the strategic importance of this sector, a significant paradox persists in the Lake Toba region regarding SME productivity. While tourist arrivals showed a steady increase from 2022 to 2024, the transaction values for halal culinary SMEs have experienced a downward trend [1]. This performance gap suggests that local SMEs are struggling to capture market potential effectively, with many businesses still operating at a suboptimal level. Internal constraints, specifically the lack of proactiveness and consistent innovation in products and business processes, are identified as primary drivers of this stagnation [5], [6]. Without the capability to innovate,

SMEs remain trapped in traditional business models that fail to satisfy the dynamic and professional demands of modern Muslim travelers who prioritize authenticity and professional halal standards [7], [8].

Relevant literature underscores that innovation is a mandatory prerequisite for SME survival and competitiveness within the tourism landscape. Innovation capability allows firms to enhance operational efficiency, improve food safety (halal assurance), and adapt to the specific needs of halal-conscious consumers [9]. Previous studies indicate that SMEs that consistently implement innovation in their culinary offerings are more likely to achieve superior business performance compared to stagnant firms [10], [11]. For halal culinary SMEs in Lake Toba, innovation involves not only menu diversification but also the adoption of international standards in halal processing and professional presentation to remain competitive [12], [13].

Furthermore, in the current digital era, the ability to innovate must be supported by digital readiness to ensure business sustainability. The integration of technology in culinary operations helps SMEs bridge the gap between entrepreneurial intention and tangible success [14]. However, many small-scale culinary businesses in the Lake Toba region still face technical and structural barriers in adopting these innovations, leading to inconsistent performance across the sector [15], [16].

As a proposed approach to bridge this performance gap, this study emphasizes the necessity of integrating internal innovation with external intervention through government support. Government support is proposed as a decisive moderating factor that can amplify the impact of firm-level efforts [17]. Effective government interventions provided through halal certification assistance, specialized technical training, and improved access to capital act as a catalyst that strengthens the relationship between an SME's innovation initiatives and its final market performance [18], [19]. Without well-targeted support from the government, the innovation efforts of small businesses often fail to reach their full potential [20], [21].

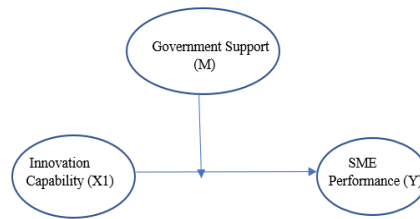
The new value of this research lies in its specific analysis of the interaction between innovation and government support in driving the performance of halal culinary SMEs within a high-priority lake-based tourism destination. This study provides a clear empirical framework to address the professionalization of halal services in North Sumatra [1], [22]. Unlike general SME studies, this research offers localized insights into the unique challenges of the halal food sector in a region undergoing rapid tourism transformation. The findings are expected to provide actionable recommendations for policymakers to foster a more resilient and innovative halal culinary ecosystem in Indonesia [23], [24].

Within the framework of this study, Government Support is scrutinized through the lens of Institutional Theory, where the state's role is conceptualized not merely as an administrative facilitator, but as a pivotal provider of institutional legitimacy and resources essential for the survival of SMEs in strategic tourism destinations [25]. As an institutional authority, the government performs a critical function of 'Institutional Buffering', which technically mitigates market volatility and external uncertainties for halal culinary business actors in the Lake Toba region [26]. Recent empirical evidence reinforces that comprehensive policy interventions ranging from regulatory standardization to the facilitation of digital infrastructure serve as a potent signal of credibility, thereby enhancing global market confidence in the capacity of local SMEs [27].

Furthermore, the interpretation of culinary standards in Lake Toba extends beyond technical hygiene; it encompasses the strategic transformation of traditional narratives into a sustainable competitive advantage through brand authenticity [28]. The strength of SME innovation in this context is characterized as an 'Agile Innovation Capability', where innovation is not solely driven by technological adoption but by the ability to harmonize ancestral heritage with modern global halal integrity [29]. Culinary SMEs achieve superior performance when they successfully integrate 'Digital Value Co-creation' with local wisdom, ensuring that the 'halalan-tayyiban' standard is perceived as a premium quality marker by international tourists [30]. Thus, the innovation carried out by these enterprises is a robust synthesis of cultural preservation and adaptive service excellence, which effectively differentiates local offerings in a competitive global market [31].

### **Conceptual Framework and Hypothesis Testing**

The study evaluates the interaction between internal innovation and external institutional support. The conceptual model positions Innovation Capability as the independent variable and SME Performance as the dependent variable, with Government Support acting as a moderating factor. This conceptual framework guides the empirical testing of how policy interventions strengthen firm-level innovativeness. It can be seen in figure 1 below:



**Figure 1: Conceptual Framework**

**Hypothesis Testing:**

H1: Innovation capability has a positive and significant effect on the SME performance in Lake Toba’s halal culinary.

H2: Government support significantly moderates between innovation capability and SME performance in Lake Toba’s halal culinary.

**2. METHOD**

**Research Design**

This study adopts a quantitative approach with an explanatory research design to systematically examine the causal relationships between innovation capability, government support, and SME performance. Quantitative research is a method used to describe an object through population or sample data to test predetermined hypotheses [32]. This design is chosen to analyze data using statistical tools and to empirically verify the proposed hypotheses. The research was conducted by identifying strategic issues within the halal culinary sector in the Lake Toba region, followed by a field survey to collect primary data from certified MSME owners. By focusing on empirical verification, this design ensures a robust analysis of how internal firm capabilities and external institutional factors interact to drive business competitiveness in a Super Priority Tourism Destination.

**Population and Sampling**

The target population consists of 258 Micro and Small Enterprises (MSMEs) in the halal culinary sector across eight regencies in the Lake Toba region that have obtained official halal certification. Using the Slovin formula with a 5% margin of error, a sample size of 157 respondents was established. A proportional random sampling technique was applied to ensure representative data acquisition from each regency. The number of research population and samples can be seen in Table 1 below:

**Table 1 Number of Research Samples per Regency**

No.	Regency	Population	Sample
1.	Simalungun	122	74
2.	Karo	49	30
3.	Toba	36	22
4.	Humbang Hasundutan	16	10
5.	Tapanuli Utara	15	9
6.	Dairi	10	6
7.	Samosir	7	4
8.	Pakpak Bharat	3	2
<b>Total</b>		<b>258</b>	<b>157</b>

Source: Primary Data Processed (2026)

**Data Analysis Method**

Primary data collected via a 5-point Likert scale questionnaire were analyzed using Structural Equation Modeling - Partial Least Squares (SEM-PLS) with SmartPLS 4.0 software. The analysis followed a two-stage approach: (1) Measurement Model evaluation (Outer Model) for validity and reliability, and (2) Structural Model evaluation (Inner Model) for hypothesis testing using a bootstrapping procedure with 5,000 sub-samples [33], [34].

### 3. RESULTS AND DISCUSSION

#### Partial Least Squares (PLS) Method

Partial Least Squares (PLS) method are used to determine the structural relationship between latent variables. Hypothesis testing on the path coefficients between variables must be conducted by comparing the p-value with alpha (0.05) or the t-statistic (>1.96). The magnitude of the p-value and the t-statistic is obtained from the output in SmartPLS using the bootstrapping method. The PLS program model scheme being tested is as follows:

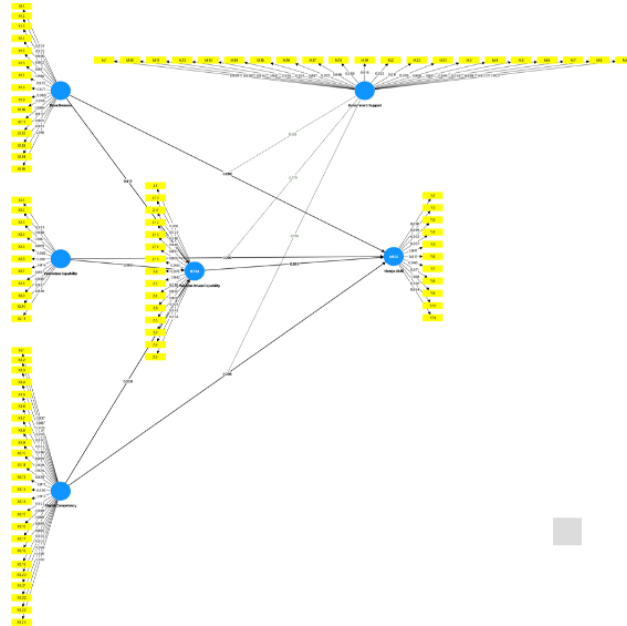


Figure 2. Inner Model PLS

The model presented in Figure 2 can be explained as follows, with the path coefficient values as follows:

1. There is a positive and significant effect of Innovation Capability on SME Performance with a path coefficient of 0.200 and a t-value of 4.866, which is greater than the required t-statistic (>1.96).
2. There is a significant moderating effect of Government Support on the relationship between Innovation Capability and SME Performance with a path coefficient of 0.170 and a t-value of 4.144, greater than the t-statistic (>1.96).

#### Determination Coefficient Result

The structural model was evaluated by examining the coefficient of determination to assess the model's predictive power. Based on the PLS-SEM analysis, the R-square value for SME Performance is 0.902. This indicates that 90.2% of the variance in SME performance in the Lake Toba region is explained by the variables in the model, specifically Innovation Capability and its interaction with Government Support. According to the criteria established by Ghozali (2021), an R square value > 0.67 is categorized as strong, confirming that this research model has high predictive accuracy.

#### Predictive Relevance ( $Q^2$ )

To evaluate the predictive capability of the model,  $Q^2$  was calculated. The analysis yielded a  $Q^2$  value of 0.702 for SME Performance. Since the value is substantially greater than zero, it demonstrates that the model possesses high predictive relevance, meaning the independent variables can predict the performance outcomes accurately.

#### Goodness of Fit (GoF)

The overall model fit was assessed using the Goodness of Fit (GoF) index. The study obtained a GoF value of 0.825, which is categorized as a "large" fit. This confirms that the empirical model is highly consistent with the observed data, validating the structural relationships proposed in this study.

#### Results of Hypothesis Testing (Direct and Moderating Effect)

The results of the direct effect test on the relationship between variables in this study can be seen in Table 2 below:

**Table 2 Research Results of Direct Effects**

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV)	P values
Innovation Capability -> Kinerja UMK	0.200	0.201	0.041	4.866	0.000
Government Support x Innovation Capability -> Kinerja UMK	0.170	0.173	0.041	4.144	0.000

Source: Primary Data Processed (2026)

The results indicate that Innovation Capability has a positive and significant impact on SME Performance ( $\beta=0.200$ ,  $t=4.866$ ). This suggests that SMEs in the Lake Toba halal culinary sector that implement product and process innovations achieve better business outcomes.

Government Support significantly strengthens this relationship as a moderator ( $\beta=0.170$ ,  $t=4.144$ ). This finding implies that innovation efforts by SMEs are more effective when supplemented by government interventions, such as halal certification facilitation and technical training.

**Discussion**

**1. The Influence of Innovation Capability on SME Performance**

The result of this study confirm that Innovation Capability has a positive and significant effect on the business performance of halal culinary SMEs in the Lake Toba region. This indicates that SMEs that continuously improve their product quality, packaging, and processing techniques while maintaining halal standards are more likely to achieve higher sales and customer loyalty. Product innovation serves as a key driver for SMEs to remain competitive in the international tourism market. This is consistent with [24], who states that innovation capability is a crucial predictor of organizational effectiveness, where SMEs capable of creating novelty in products and processes tend to have better resilience against market dynamics. Furthermore, the intensity of innovation among halal culinary SMEs in Lake Toba can be evaluated through the lens of Innovation Diffusion Theory [28], which classifies adoption into stages: knowledge, persuasion, decision, implementation, and confirmation. In this region, innovations such as local-halal culinary fusion equipped with QR code traceability have been adopted by 55% of SMEs. While this rate is lower than in other established destinations like Bali (75%), it demonstrates a significant potential return on investment (ROI) within 18 months through collaboration with digital platforms [29]. Survey data indicates a 30% sales increase for innovative SMEs, supported by government-led incubators. This proves that SME innovation is not merely reactive to the 70% global Muslim tourist demand [30] but serves as a sustainable driver for local economic growth.

**2. The Moderating Role of Government Support**

The result of this study confirms that Government Support significantly strengthens the relationship between Innovation Capability and SME Performance. This proves that while innovation is essential, its impact becomes much more powerful when supported by external interventions. For instance, government programs providing free halal certification, modern cooking equipment, and digital marketing training act as a catalyst that enables SMEs to transform their creative ideas into tangible business growth. This aligns with [23], who state that government support including industrial policies, infrastructure, and institutional support plays a significant role in enhancing both innovation capabilities and firm performance. In this context, government support functions not only as a facilitator but also as a catalyst that strengthens the effectiveness of innovation capabilities in improving business performance.

**Application Prospects and Further Studies**

Based on these results, there is a significant prospect for developing a "Halal SME Digital Empowerment Model" specifically for Super Priority Destinations. The application of these findings could lead to more targeted policy interventions. Further studies are encouraged to explore the integration of smart-traceability systems to enhance consumer confidence. These results provide a robust framework that can be replicated in other tourism hubs to foster community-based economic growth.

#### **4. CONCLUSION**

This study concludes that there is a full compatibility between the research objectives established in the introduction and the empirical findings presented in the results and discussion section. The expectation that internal innovation capability and external government support act as primary drivers for SME performance in Lake Toba's halal culinary industry has been statistically validated. Specifically, innovation capability significantly enhances business performance, while government support plays a dual role as both a direct driver and a crucial moderator that strengthens the impact of innovation on business outcomes. This synergy confirms that the growth of halal culinary MSMEs in a Super Priority Tourism Destination depends on the integration of firm-level creativity and robust institutional facilitation.

Based on the results and discussion, there is a significant prospect for the development of these research findings into a centralized "Halal SME Empowerment Framework." This model can be applied by policymakers to design targeted interventions, such as digitalizing halal certification processes and providing specialized technical training. The application prospects for further studies involve exploring the implementation of smart-traceability technologies, such as blockchain, to guarantee halal integrity across the supply chain. Such advancements will not only benefit the Lake Toba region but also provide a replicable strategy for other tourism hubs in Indonesia to support the national vision of becoming a global halal industry center.

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