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DEVELOPMENT OF THE PENTAHELIX TO HEXAHELIX MODEL IN RAJAPOLAH TASIKMALAYA HANDICRAFT SMEs

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ABSTRACT

This study aims to develop the pentahelix model into a hexahelix model to strengthen woven handicraft Small and Medium Enterprises (SMEs) in Rajapolah, Tasikmalaya. The traditional pentahelix model, involving government, academia, business actors, communities, and media, has not fully addressed challenges related to financing access, innovation sustainability, and SME performance. Therefore, this study introduces financial institutions as a sixth actor within a collaborative hexahelix framework. Data were analyzed using NVivo 12 Pro based on in-depth interviews with relevant stakeholders. The findings reveal that financial institutions have not yet become an effective driver of business expansion due to entrepreneurs' concerns regarding interest payments, financing requirements, and installment obligations. Many SME owners remain reluctant to utilize formal financing because of uncertainty about their ability to meet future repayment commitments amid changing business conditions. Nevertheless, the hexahelix model has the potential to foster stronger cross-sector collaboration and support the sustainability of culture-based local economies, provided that entrepreneurs' financial literacy improves and financial institutions offer more accessible and secure financing schemes.

INTRODUCTION

Woven handicraft SMEs in Rajapolah, Tasikmalaya, represent a local cultural heritage with high economic value and export potential. However, classic challenges such as limited access to financing (Faisal, 2023), low product innovation, weak branding, and minimal synergy among stakeholders remain major obstacles to SME development in this region (Reni et al., 2024). The pentahelix model involving five elements: government, academia, business actors, community, and media has been widely adopted in SME development. Nevertheless, in practice, the role of financial institutions or investors has not been systemically integrated (Cahyadi & Pradnyani, 2021),, even though financing was key to innovation sustainability and market expansion (Fauza et al., 2022).

The pentahelix model has contributed significantly to creating cross-sector collaboration (Wardana;Mulyaningtyas, 2016 & Edison; Andriansyah, 2023). However, the dynamics of modern SME development, particularly in facing digitalization challenges, economic crises, and global market expansion (Annisa Cindy Maurina & R Yuniardi Rusdianto, 2023), demand more adaptive and inclusive institutional innovation (Dewi et al., 2024). A fundamental weakness of the pentahelix model lies in the absence of structural financial support (Wardana & Mulyaningtyas, 2016; Kurnianti et al., 2024). In practice, SME actors often encounter obstacles related to access to capital, financing (Fathori, 2024), innovation, and business scaling facilitation. Therefore, there was an urgent need to develop the pentahelix model into a hexahelix model by adding a sixth element financial institutions (banks, cooperatives, investors, fintech, crowdfunding) as strategic actors in the SME development ecosystem (Fathori, 2024).

Research Gap and Novelty

Although the pentahelix model has been proven effective in creating cross-sector collaboration, its fundamental weakness was the absence of structurally integrated financing elements. Most previous studies have focused on agriculture, tourism, or urban creative economies, leaving a gap in the application of the hexahelix model to culture based handicraft SMEs. This study fills that gap by empirically testing financial institutions as the sixth actor. The novelty of this research lies in integrating formal financing aspects into a collaboration framework previously oriented toward non financial support. Furthermore, this study not only expands the actors involved but also re-examines the dynamics of relationships and trust among actors within a culture-based SME ecosystem.

Theoretical Contribution

This research contributes to the literature on multi-actor collaboration models by proposing an Adaptive Hexahelix Model, which includes mandatory financial literacy co-training and a risk-sharing mechanism among government, banks, and communities before full collaboration is implemented. This modification has not been found in previous hexahelix literature and constitutes the main theoretical contribution of this study.

LITERATURE REVIEW

The Evolution from Pentahelix to Hexahelix

The hexahelix concept has been developed as an extension of the pentahelix model by involving six actors: government, academia, industry (business actors), community, media, and environment or ecology (Firmansyah et al., 2022) In the context of sustainable development, the hexahelix model emphasizes the importance of cross sector synergy that was not only aggregative but also integrative (Susetyo, 2025).

Critical Synthesis of Previous Studies

Several studies have identified limitations of the pentahelix model. Wardana & Mulyaningtyas (2016) showed that the pentahelix model in Malang SMEs failed to overcome financing access gaps due to the absence of an active role for financial institutions. Similarly, Kurnianti et al. (2024) found that multiparty collaboration without banking involvement tends to produce incidental and unsustainable programs. Across these studies, a consistent finding emerges: structural financing support was the missing link in multi actor collaboration models. However, most previous research remains normative and does not empirically examine why financial institutions although conceptually necessary often fail to play an optimal role. Factors such as trust, financial literacy, and risk perception from the SME actors' perspective have not been systematically investigated. This study addresses these gaps.

Conceptual Framework

Based on the synthesis above, this study proposes an Adaptive Hexahelix Model consisting of six interacting actors: Government as regulator and catalyst; Academia as knowledge provider and bridge; Business Actors (SMEs) as core economic agents; Community as social adhesive and aggregator; Media as publicity and branding channel; Financial Institutions as financing provider and risk sharing partner. Unlike the standard hexahelix model, the Adaptive Hexahelix Model requires two additional mechanisms before full collaboration:(a) financial literacy co-training involving academia, banks, and SMEs; and (b) risk-sharing agreements between government and financial institutions to reduce SME perception of risk.

RESEARCH METHOD

This study employs a qualitative-collaborative approach based on Participatory Action Research (PAR) (Stringer, 2014), which allows active involvement from all hexahelix elements. This approach emphasizes contextual understanding, critical reflection, and collective action to design and implement a local based collaborative SME model (Firmansyah et al., 2022). The research was conducted in Rajapolah District, Tasikmalaya Regency, West Java Province, the center of woven handicraft SMEs based on rattan, bamboo, and other natural materials.

Data Collection Techniques

Qualitative data were collected through in depth interviews with 31 SME actors in Rajapolah, multi actor Focus Group Discussions (FGDs), participatory observation, and documentation of SME practices and local policies. Quantitative data were collected through perception and participation surveys (Likert questionnaire) and measurement of SME economic indicators (turnover and number of partners).

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Sample Size Justification

The sample size of 31 SME actors was determined based on the principle of data saturation in qualitative research (Guest et al., 2006), where data collection stops when no new themes or codes emerge from interviews. The population of woven handicraft SMEs in Rajapolah District reaches 127 business units (Dinas Koperasi dan UKM Tasikmalaya, 2024). Thus, a sample of 31 people (approximately 24.4% of the population) was considered sufficient to capture variations in perceptions and experiences.

Generalization Limitations

Because this study uses a single case study approach, the results cannot be statistically generalized to all handicraft SMEs in Indonesia. However, analytical generalization to similar contexts particularly areas with culture-based SMEs facing financing access challenges remains possible.

Data Analysis

Qualitative data were analyzed using NVivo 12 Pro for Windows. NVivo was software for developing, supporting, and managing qualitative data analysis, where its main function was to code data effectively and efficiently.

Figure 1 - Word Cloud Analysis

(Source: NVivo 12 Pro processed data, 2025)

Figure 1 shows that among 15 words (with a minimum of 5 letters per word), the most frequent words were displayed in the word cloud. The word cloud reveals that government assistance to increase SME actors' participation in various mentoring activities is frequently discussed in the interviews. Words that frequently appear besides "government" include "SMEs," "campus," "media," "bank," and "community." The word "SMEs" has the highest frequency (1.89% of all data sources), followed by "government" (1.73%), "bank" (1.38%), "media" (1.36%), "campus" (1.14%), and "community" (0.97%).

Key Findings by Actor

Academia

The analysis reveals that the current role of academia (focused on research) cannot overcome the main challenges faced by SME actors. SME actors view the government as a catalyst that can move all parties, including academia. Future

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expectations emphasize multi-party collaboration initiated and led by the government, where the role of academia shifts from researcher to provider of practical and financial support.

Government

SME actors perceive the government more as a "licensing body" than an "empowering agent." Perceived assistance (training, exhibitions) was project based and did not build long-term independence. Core assistance such as market access and distribution was absent. There was a strong belief among SME actors in the government's capacity as a catalyst. They believe that initiatives from academia, banks, or the private sector will remain fragmented and suboptimal without government coordination and leadership.

Community

There was a collective memory among SME actors of a time when the community and cooperatives were active. The dissolution of cooperatives serves as a symbolic point marking the end of the structured collaboration era. Currently, the situation was described as a vacuum, where each SME actor operates individually. SMEs hope for a community entity that can aggregate products for larger scale marketing.

Financial Institutions

The analysis reveals an accessibility paradox. Banks were considered easily accessible because they actively offer products (such as KUR loans). However, physical and promotional accessibility was not followed by psychological and economic accessibility. SMEs distance themselves from banks due to fear of interest rates, regulations, and consequences they do not fully understand. The biggest obstacle was not the application process but future uncertainty. "Concerns about repayment" were the core of the problem. Without a safety net (insurance, restructuring) and adequate understanding of financial management, loans are perceived as risky burdens rather than opportunities.

Media

SME actors were highly critical of how media report on them. Coverage was considered "unfocused" on products, focusing more on other matters such as official visits. In contrast to disappointment with conventional media, SMEs show excellent understanding of digital media's potential. They mention specific strategies such as "unique content" and "following the latest trends," indicating a desire to take control of their own marketing narrative.

Integration of Findings with Hexahelix Theoretical Framework

The findings of this study indicate that although the hexahelix model conceptually offers more complete integration, its implementation faces three main challenges. First, financial institutions were perceived by SME actors as transactional and risky entities, not as collaborative partners. This contradicts the basic assumption

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of the hexahelix, which requires mutual trust and shared value among actors (Firmansyah et al., 2022). Second, the government was still viewed as the "missing catalyst" the actor that should lead coordination but is the least consistent in mentoring programs. Third, the community, which previously functioned as a social adhesive, was now inactive, weakening the collective bargaining power of SMEs.

Proposed Model: Adaptive Hexahelix

Based on these findings, this study proposes a modification to the hexahelix model into the Adaptive Hexahelix Model, which not only adds a financial actor but also requires financial literacy co training and a risk sharing mechanism between the government, banks, and the community before full collaboration is implemented. This modification has not been found in previous hexahelix literature and constitutes the main theoretical contribution of this study.

Visual Representation of the Adaptive Hexahelix Model

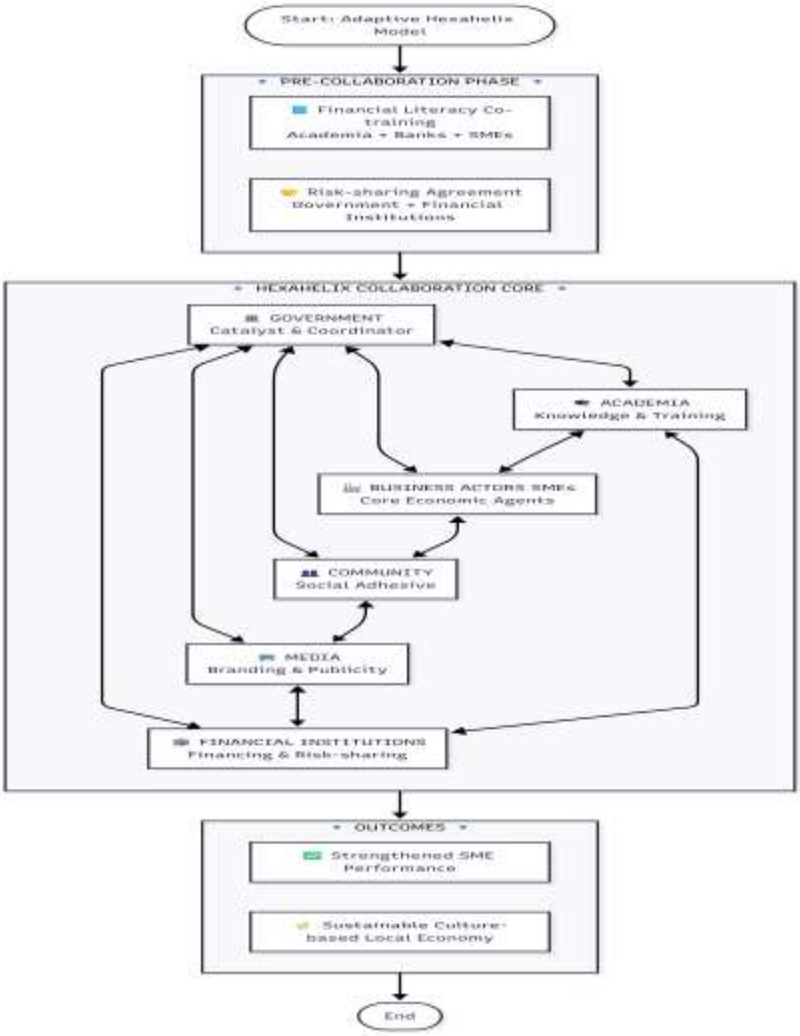

Figure 2. Adaptive Hexahelix Model for Handicraft SMEs

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Interpretation the adaptive hexahelix model illustrates six interconnected actors with the government as the central catalyst. Two mandatory pre collaboration mechanisms (financial literacy co training and risk sharing agreement) must be fulfilled before full collaboration begins. These mechanisms address the main barriers identified in this study: low financial literacy and high risk perception among SME actors.

CONCLUSION

Based on in depth analysis of interviews with 31 woven handicraft SME actors in Rajapolah, this study concludes that access to financing remains a central challenge. The existing pentahelix model has not been able to effectively integrate financial institutions. Meanwhile, the hexahelix model proposed in this study can conceptually address that challenge, but its implementation faces main obstacles: low SME trust in financial institutions, lack of government program consistency, and weak collective capacity of the community.

Key Recommendations

For Government: The government needs to revolutionize KUR (People's Business Credit) program socialization and digitalization, making it simpler and more accessible. Pre and post disbursement mentoring programs are urgently needed.

For Financial Institutions: Banks should rebrand their relationship from "lender" to "business development partner." Products with profit sharing schemes or grace periods adjusted to seasonal business characteristics should be developed.

For Community: Rather than forming meeting based communities, collective initiatives that directly provide economic benefits such as pooled ordering systems for raw materials or joint marketing through digital platforms should be built.

For Media: Media should provide sustainable, in depth coverage of the processes, challenges, and local wisdom behind SME products, not only focusing on ceremonial events.

Research Limitations and Future Directions

This study was conducted in only one sub district using a qualitative approach, thus empirical generalization was limited. Future research was recommended to test the Adaptive Hexahelix Model on a larger scale using mixed methods and to measure the quantitative impact on increased turnover and SME financing access.

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