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Indigenous Governance and Social Cohesion: A Marsialapari-Based Pentahelix Collaboration Model for Community Development

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Abstract

This study examines the role of indigenous governance through the Mandailing local wisdom of *Marsialapari* in strengthening social cohesion and participatory collaboration within the Pentahelix framework in Medan, Indonesia. Drawing on perspectives of social capital, participatory governance, and indigenous knowledge systems, the study conceptualizes a Marsialapari-based Pentahelix model integrating academia, business, government, community, and media through the values of solidarity, reciprocity, mutual assistance, and collective responsibility embedded in local tradition. Employing a mixed-method sequential explanatory design, data were collected from 350 women entrepreneurs and community actors through surveys, focus group discussions, and interviews, and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) alongside qualitative interpretation. The findings reveal that effective communication and self-confidence significantly strengthen *Marsialapari*-based Pentahelix collaboration, while social interaction shows a weaker influence. The study further demonstrates that indigenous collaboration practices positively contribute to social cohesion, participatory engagement, community resilience, and collective empowerment. Readiness for social change also strengthens the relationship between *Marsialapari*-based collaboration and community development outcomes. The study contributes theoretically by repositioning local wisdom as a form of indigenous governance and social capital within collaborative governance frameworks. Practically, the findings emphasize the importance of integrating culturally grounded values into participatory governance to strengthen sustainable and socially resilient

communities.

Keywords: Collaborative Participation, Collective Responsibility, Community Resilience, Local Wisdom, Participatory Governance, Social Capital.

Introduction

In contemporary social development discourse, indigenous knowledge and local wisdom are increasingly recognized as important foundations for strengthening social cohesion, participatory governance, and sustainable community resilience (Lam et al., 2020; Suat et al., 2025). Across many societies, local traditions not only function as cultural heritage but also operate as social mechanisms that regulate cooperation, solidarity, collective responsibility, and mutual trust within communities. In Indonesia, local wisdom continues to play an essential role in shaping social interaction, communal participation, and collective problem-solving despite the growing pressures of modernization and globalization (Aji et al., 2025; Alwi et al., 2025; Jalal et al., 2024; Rahma, 2025). The preservation and revitalization of indigenous values are therefore becoming increasingly important in supporting inclusive and culturally grounded community development.

Community development today requires collaborative governance approaches that involve multiple social actors working collectively to address social challenges and strengthen public participation (Afandi et al., 2023; Bianchi et al., 2021; Yang, 2025). In this context, the Pentahelix model has emerged as one of the collaborative frameworks widely used to encourage synergy among academia, business, government, community, and media. The Pentahelix approach emphasizes the importance of shared responsibility, stakeholder participation, collective learning, and collaborative action in achieving sustainable development goals (Afandi et al., 2023; Eprilianto et al., 2024; Gaol et al., 2026; Sumarna et al., 2025; Yunas, 2024). Previous studies have mainly examined the Pentahelix model from economic, entrepreneurial, and innovation perspectives, particularly in relation to community development, tourism, and regional (Chakim et al., 2025; Kurniawan et al., 2023; Muda, 2026; Nainggolan et al., 2020; Sa'adah & Siswanto, 2025). However, limited attention has been given to the sociocultural dimensions of collaboration, especially the integration of indigenous governance values and local wisdom into collaborative development frameworks.

One important form of indigenous collaborative tradition in North Sumatra is *Marsialapari*, a local wisdom deeply rooted in the social life of the Mandailing community. *Marsialapari* literally refers to reciprocal cooperation, mutual assistance, and helping one another in collective social activities (Harahap et al., 2020; Hasibuan et al., 2024; Lubis & Rosdiana, 2025; Muhajir, 2024; Nasution & Aisyah, 2024; Yuslina & Gani, 2025). Beyond physical cooperation, it represents a social philosophy emphasizing solidarity, empathy, communal participation, and collective social

responsibility. Traditionally, this practice has functioned as an informal governance mechanism that strengthens social trust, reinforces communal ties, and ensures that social burdens are collectively shared within the community. Through *Marsialapari*, individuals are encouraged to actively participate in communal life and contribute to shared goals for the benefit of the wider society.

The relevance of *Marsialapari* remains significant in contemporary society, particularly amid increasing social fragmentation, individualism, and weakening communal interaction caused by modernization and digital transformation (Harahap et al., 2020; Hasibuan et al., 2024; Lubis & Rosdiana, 2025; Muhajir, 2024; Nasution & Aisyah, 2024; Yuslina & Gani, 2025). Indigenous collaborative traditions such as *Marsialapari* provide important social capital for strengthening collective identity and sustaining participatory community practices. Local wisdom-based collaboration may therefore serve not only as a cultural preservation effort but also as a model of indigenous governance capable of supporting inclusive and sustainable community development (Abdullah & Fadhilah, 2026; Maturbongs & Lekatompessy, 2020; Saputra et al., 2018). In this regard, indigenous governance refers to governance practices grounded in local cultural values, communal norms, collective participation, and socially embedded systems of cooperation.

Integrating *Marsialapari* into the Pentahelix framework offers a broader perspective on collaboration by positioning local wisdom as the foundation of participatory governance and social cohesion. The values embedded in *Marsialapari* can strengthen relationships among stakeholders and encourage more inclusive forms of community participation. Collaboration in this context is understood not merely as institutional coordination but also as a sociocultural process shaped by shared values, collective identity, and communal responsibility. Consequently, the integration of indigenous values into collaborative governance frameworks may strengthen social trust, policy learning, cultural resilience, and collective empowerment within communities.

This study addresses these gaps by proposing a *Marsialapari*-based Pentahelix collaboration model grounded in indigenous governance and social cohesion perspectives. Specifically, this study investigates how collaborative communication, social interaction, and community self-confidence influence *Marsialapari*-based Pentahelix collaboration and how such collaboration contributes to community development and social cohesion. In addition, the study examines the moderating role of readiness for social change in strengthening collaborative community practices.

Theoretically, this study contributes to the development of collaborative governance and community development literature by repositioning *Marsialapari* as a form of indigenous governance and social capital within the Pentahelix framework. The study also expands the discussion of Pentahelix collaboration beyond economic and managerial perspectives by emphasizing sociocultural participation, collective responsibility, and local wisdom preservation. Practically, the findings are expected to provide insights for policymakers, local governments, community leaders,

educational institutions, and civil society organizations in designing culturally grounded and participatory approaches to sustainable community development

This study focuses on several important issues: (1) the need for collaborative governance models grounded in local wisdom and indigenous social values; (2) the limited integration of indigenous knowledge systems into contemporary participatory governance frameworks; and (3) the importance of strengthening social cohesion and community resilience through culturally embedded collaboration. Accordingly, this study proposes a *Marsialapari*-based Pentahelix collaboration model as an alternative framework for participatory community development rooted in indigenous governance principles..

Literature Review and Hypothesis Development

Indigenous Governance and Local Wisdom in Community Development

Indigenous governance has increasingly become an important discourse in social science studies, particularly in discussions related to community resilience, participatory development, and culturally grounded governance systems (Espeso-Molinero & Pastor-Alfonso, 2020; Kirmayer et al., 2011; Lee et al., 2019; Sterling et al., 2017). Indigenous governance refers to systems of collective organization, decision-making, and social regulation rooted in local traditions, communal norms, and inherited cultural values. Unlike formal bureaucratic governance, indigenous governance emphasizes reciprocity, collective responsibility, solidarity, and community participation as the foundation of social order and social cohesion. In many traditional societies, indigenous governance systems function not only as cultural practices but also as mechanisms for resolving conflict, maintaining social harmony, and organizing collective action within communities (Alpha & Tumelo, 2024; Genbezo et al., 2026; Hameretibeb, 2024; Sherpa, 2024; Yasri et al., 2024).

In the Indonesian context, local wisdom continues to play an important role in shaping social interaction and communal life. Local wisdom represents accumulated knowledge, ethical values, and social practices inherited across generations that guide how communities interact with one another and respond to social change. One example is *Marsialapari*, a Mandailing tradition of reciprocal cooperation and mutual assistance that reflects collective solidarity and communal responsibility (Harahap et al., 2020; Hasibuan et al., 2024; Lubis & Rosdiana, 2025; Muhajir, 2024; Nasution & Aisyah, 2024; Yuslina & Gani, 2025). *Marsialapari* functions as a form of indigenous governance because it encourages active participation, strengthens interpersonal trust, and reinforces collective obligations among community members. Through such practices, communities preserve social cohesion while adapting to contemporary social and developmental challenges.

Community-Based Participatory Collaboration

Community-based participatory approaches emphasize the active involvement of community members in decision-making, problem-solving, and development

processes. Participatory collaboration is grounded in the assumption that sustainable development can only be achieved when communities are positioned as active participants rather than passive beneficiaries (Boyer-Villemaire et al., 2014; Petiwala et al., 2021; Scerri & James, 2010; Selman, 2004). Community participation strengthens local ownership, enhances collective responsibility, and promotes socially inclusive governance practices.

In this study, *Marsialapari*-based Pentahelix collaboration is conceptualized as a culturally grounded participatory governance model that integrates indigenous values with multi-stakeholder collaboration. The values of solidarity, reciprocity, communal responsibility, and cooperation embedded in *Marsialapari* may strengthen communication among stakeholders, reinforce social trust, and encourage collective participation in community development initiatives. Consequently, collaboration is viewed not merely as a managerial strategy but as a socially embedded process shaped by cultural identity, indigenous knowledge, and collective social relationships.

Social Capital and Social Cohesion

The concept of social capital provides an important theoretical lens for understanding how local wisdom contributes to collective action and community collaboration. Social capital broadly refers to networks, trust, norms, and social relationships that facilitate cooperation among individuals and groups within society (Keefer & Knack, 2008). Within community development contexts, social capital plays an important role in encouraging collective participation, strengthening interpersonal trust, and facilitating collaborative governance (Dulkiah & Majid, 2025; Jalil et al., 2021; Jicha et al., 2011; Kawachi, 1999). Communities with strong social capital tend to demonstrate higher levels of cooperation, collective responsibility, and social resilience because individuals are connected through networks of trust and mutual obligation.

The values embedded in *Marsialapari* strongly reflect the principles of social capital. Reciprocal cooperation, communal participation, and collective solidarity create social trust and reinforce social cohesion within communities. Through repeated practices of mutual assistance, individuals develop stronger interpersonal relationships and a sense of collective belonging. These relationships become important social resources that support collaborative action and strengthen community resilience in facing social transformation. Thus, *Marsialapari* may be understood not only as a cultural tradition but also as a form of indigenous social capital that sustains participatory collaboration and collective empowerment.

New Conceptualization: Pentahelix Collaboration Based on Marsialapari Local Wisdom

Based on the literature review that has been conducted on social exchange theory, collaboration theory, synergy theory, pentahelix concept, and *marsialapari* local wisdom, we formulated five domain constructs that will be the dimensions of the Marsialapari Local Wisdom-Based Pentahelix Collaboration. These indicators were

formulated based on an in-depth literature review on the concept of Collaboration, the pentahelix concept, and the *marsialapari* local wisdom. For this reason, we formulate and propose five propositions to provide a new and broad conceptualization, namely:

- Harmony of Capabilities
- Solidarity for Strategic Partnership
- Cooperation in policy implementation
- Community bonding
- Cooperation from the media

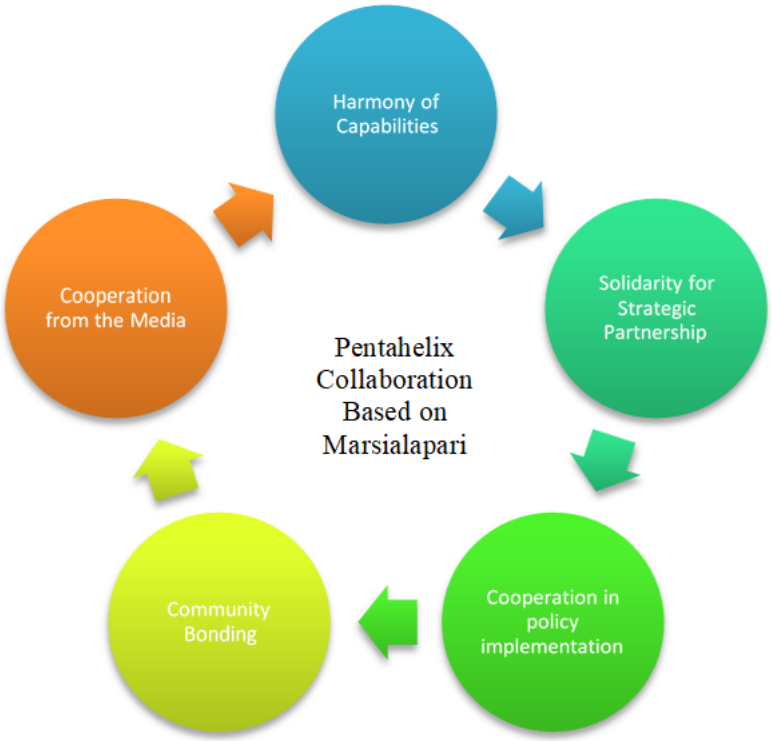

Figure 1. Domains of Pentahelix Colaboration based on *Marsialapari*

Hypothesis Development

The hypotheses of this study are formulated as the followings:

H1: Effective Communication has a significant positive relationship with Pentahelix Collaboration, based on Marsialapari.

H2: Social Interaction has a significant positive relationship with Pentahelix Colaboration, based on Marsialapari.

H3: Self-confidence has a significant positive relationship with Pentahelix Collaboration, based on Marsialapari.

H4: Pentahelix Collaboration Based on Marsialapari has a significant positive relationship with community development.

H5: Effective Communication has a significant positive relationship with community development.

H6: Social Interaction has a significant positive relationship with community development.

H7: Self-confidence has a significant positive relationship with community development.

H8: Readiness to Change moderates on Pentahelix Collaboration Based on Marsialapari and community development.

Research Methodology

The research design of this study is mixed-method research, with a sequential explanatory design. According to Creswell & Creswell (2018), mixed methods refer to the blending or integrating of qualitative and quantitative research and data in a research study. In this study, the researcher initially used the sequential explanatory design to gather the quantitative data, followed by the qualitative data. The analytical tool used for quantitative data is an SEM of partial least squares (PLS). Quantitative testing is carried out to test field data taken based on theoretical and empirical studies, test the validity and reliability of the relationship between indicators and latent variables (outer model or measurement model), and the relationship between variables, which ends by testing the research hypothesis (the inner model or structural model). Data reduction, data visualization, conclusion, and verification drawing are all aspects of data analysis conducted by focus group discussions and unstructured interviews for qualitative data.

Sampling and Data Collection

The population consisted of women community actors and local entrepreneurs actively involved in collaborative social and economic activities within communities in Medan City. The population size in this study was unknown because there were differences in the data on the number from several institutions; therefore, the sample size developed by Krejcie and Morgan in Sekaran was 350 people. The sampling technique used was non-probability sampling, and the type of sampling used was purposive sampling. Qualitative data were collected through focus group discussions and unstructured interviews with women entrepreneurs, government, and traditional leaders.

Data Analysis

We used structural equation modelling for quantitative data as the most appropriate

and effective estimation technique for multiple regression equations (Hair et al., 2021). Structural equation modelling can also test causal and mediating or moderating effects between exogenous and endogenous variables.

Table 1. Acceptence Criteria For PLS

Categories	OUTPUT	Criteria
Outer Model	*Convergent Validity*	*Loading Factor (LF):* 0,50 – 0,60
	Discriminant Validity	The cross-loading correlation value with the latent variable must be greater than the correlation with the latent variable. Other
	Average Variance Extracted (AVE)	AVE Value above 0,50
	Composite Reliability	Composite reliability value: ≥ 0,70.
Inner Model	R^2 for endogen Latent variable	R^2 Value 0,67 ; 0,33 ; Moreover 0,19 indicates that the model is good, moderate, and weak.
	Parameter coefficients and T-statistics	The estimated value for the path relationship in the structural model must be significant, which can be obtained by the bootstrapping procedure.

Source: Hair et al., (2021)

Furthermore, for qualitative data, we do data reduction, data visualization, conclusion, and verification drawing, as well as all aspects of data analysis. The questionnaire results helped calculate how often each factor appeared. Thus, we generally know the factors that dominate each category.

Results and Discussion

Results

A good model meets reliability and validity criteria. Evaluation of the measurement model is carried out using convergent validity and discriminant validity. In assessing convergent and discriminant validity, it is important to evaluate the value of each

assessment indicator. In this study, reliability was assessed by assessing the indicator load for each construct, with an acceptable cut-off value of 0.708 (Hair et al., 2021). Furthermore, the Cronbach alpha criterion is used to assess the internal consistency reliability of each construct with a cut-off of 0.7. For composite reliability (CR), the cut-off value must be above 0.7 to ensure the construct meets the internal consistency criteria (Hair et al., 2021). Average Variance Extracted (AVE) is considered good with a cut-off value of 0.50 or higher (Hair et al., 2021).

Table 2 illustrates that all constructs have indicators above 0.7. The Cronbach Alpha results show that the highest value is 0.921 for pentahelix collaboration based on *Marsialapari*, and the lowest is 0.649 for readiness to change. All values are above the cut-off value of 0.7, which confirms good internal consistency. Similarly, the Composite Reliability (CR) results all exceeded the required threshold of 0.7. For Average Variance Extracted (AVE), all exceeded the minimum acceptable value of 0.5. The results of this study indicate that each construct shows satisfactory reliability in measuring its respective construct, which indicates the reliability of the model as a whole.

Table 2. Result of construct validity and reliability

Variable (s)	Item	Loading	Cronbach`s Alpha	CR	AVE
Effective Communication			0,951	0,933	0,747
Social Interaction	SI 1	0,773	0,928	0,962	0,667
	SI 2	0,813			
	SI 3	0,823			
	SI 4	0,844			
	SI 5	0,807			
	SI 6	0,867			
	SI 7	0,739			
	SI 8	0,861			
Self-Confidence	SC 1	0,896	0,939	0,954	0,698
	SC 2	0,865			
	SC 3	0,867			
	SC 4	0,894			
	SC 5	0,818			
	SC 6	0,846			
	SC 7	0,784			

	SC 8	0,693			
Pentahelix Collaboration Based on Marsialapari	PCM 1	0,882	0,967	0,968	0,773
	PCM 2	0,862			
	PCM 3	0,903			
	PCM 4	0,921			
	PCM 5	0,911			
	PCM 6	0,881			
	PCM 7	0,910			
	PCM 8	0,920			
	PCM 9	0,787			
	PCM 10	0,804			
Community Development	MP 1	0,887	0,961	0,931	0,786
	MP 2	0,874			
	MP 3	0,911			
	MP 4	0,889			
	MP 5	0,910			
	MP 6	0,879			
	MP 7	0,903			
	MP 8	0,836			
Readiness to Change	RTC 1	0,649	0,905	0,962	0,686
	RTC 2	0,658			
	RTC 3	0,886			
	RTC 4	0,908			
	RTC 5	0,910			
	RTC 6	0,907			

Discriminant validity indicates how much a construct differs from other constructs (Hair et al., 2021). This study tests discriminant validity using the Fornell-Larker criterion to confirm the discriminant validity of a model. The criteria stipulate that the square root of the average Variance obtained by a construct must be above the correlation between that construct and other constructs (Fornell & Larcker, 1981). The analysis results show that each construct's value exceeds the corresponding off-diagonal values in its respective column and row in the correlation matrix. So, the

results of this analysis show that all constructs meet the criteria for discriminant validity.

Table 3 below shows the results in detail.

Table 3. Result of discriminant validity using the Fornell-Larcker criterion

Variable (s)	Social Interaction	Self-Confidence	Effective Communication	Pentahelix Collaboration Based on Marsialapari	Readiness to Change	Community Development
Social Interaction	0,817					
Self Confidence	0,801	0,835				
Effective Communication	0,832	0,571	0,864			
Pentahelix Collaboration Based on Marsialapari	0,522	0,671	0,406	0,879		
Readiness to Change	0,648	0,570	0,583	0,598	0,828	
Community Development	0,622	0,547	0,598	0,510	0,901	0,886

Table 3 shows that the convergent and discriminant validity criteria have been met, so it can be concluded that this study has met the construct validity requirements. Next, the structural model was evaluated to assess and test the proposed hypotheses. This study used the Smart PLS algorithm and bootstrapping as an analysis technique, with 5,000 iterations. Table 4 shows the results of hypothesis testing.

Table 4 shows that H1 is supported, indicating that effective communication positively correlates with pentahelix collaboration based on *Marsialapari*: t = 4.512, p-value = 0.001. Similarly, H2 is not supported, social interaction has a positive relationship with pentahelix collaboration based on *Marsialapari* but not significant: t = 1.401, p value = 0.161. Furthermore, self-confidence was found to have a positive relationship with pentahelix collaboration based on *Marsialapari*: t = 8.413, p value = 0.000), supporting H3. Pentahelix collaboration based on *Marsialapr*i has a positive relationship with community development: t = 7.275, p value = 0.000), therefore H4 was supported. Effective communication positively correlates with community development (t = 8.895, p value = 0.001), supporting H5. Furthermore, social

interaction was found to have a positive relationship but not significant with community development: t = 0.870, p value = 0.384), not supporting H6. Self-confidence was found to have a positive relationship with community development (t = 5.245, p-value = 0.003), supporting H7. Table 4 Result of hypotheses testing.

Table 4. Results of Hypothesis Testing

Hypothesis	Path	T-Value	P-Value	Decision
H1	EC - PCM	5,572	0,001	Supported
H2	SI - PCM	1,401	0,161	Not Supported
H3	SC - PCM	8,413	0,000	Supported
H4	PCM - MP	7,275	0,000	Supported
H5	EC - MP	8,895	0,001	Supported
H6	SI - MP	0,870	0,384	Not Supported
H7	SC - MP	5,245	0,003	Supported

The result also indicates that approximately 45.7% of the Variance in Pentahelix Collaboration Based on *Marsialapari* can be explained by the three exogenous variables: effective communication, social interaction, and self-confidence. Moreover, almost 82% of the Variance in community development can be explained by four exogenous variables: effective communication, social interaction, self-confidence, and pentahelix Collaboration based on Marsialapari. Overall results indicate that the R2values exceeded the minimum threshold of 0.19 (Chin, 1998).

Table 5. R-Square

Variable (s)	R-square	Adjusted R-square
Pentahelix Collaboration Based on Marsialapari	0,457	0,452
Community Development	0,820	0,819

This research also examined the function of readiness to change as a moderating variable in the correlation between Pentahelix Collaboration based on *Marsialapari* and the community development. Table 6 indicates the moderating effect of readiness to change in the correlation of pentahelix Collaboration based on *Marsialapari* on community development. Based on the results of the moderation test in Table 6, it is known that the p-value of RTC x PCM→ MP is 0.003 <0.05, so readiness to change (M) is significant in moderating the influence of pentahelix collaboration based on *Marsialapari* (Z) on community development (Y). The value of T Statistics for the variable readiness to change (M) in moderating the effect of pentahelix collaboration based on *Marsialapar*i (Z) on community development (Y) is 3.000 greater than 1.96,

which means that the readiness to change is a moderating variable or can moderate the influence of the pentahelix collaboration based on *Marsialapari* on community development. Table 6 below presents a detailed breakdown of the moderating effect result.

Table 6. Result of the moderating effect

Hypothesis	Path	T-Value	P-Value	Decision
H8	RTC X PCM - MP	3,000	0,003	Supported

Discussion

The findings demonstrate that effective communication plays a crucial role in strengthening *Marsialapari-based* Pentahelix collaboration. Communication facilitates trust-building, collective understanding, and participatory coordination among stakeholders, including government, academia, business, community, and media. In the context of *Marsialapari,* communication is not merely an exchange of information but a culturally embedded practice reinforcing solidarity, reciprocity, and communal responsibility. This finding supports previous studies emphasizing the importance of communication in collaborative participation and social cohesion. From a social capital perspective, effective communication strengthens networks of trust and collective engagement, which are essential for participatory governance.

Social interaction showed a positive but insignificant influence on *Marsialapari*-based collaboration and community development. This finding suggests that interaction alone may not sufficiently sustain collaborative governance unless supported by deeper cultural commitment and shared communal values. Modernization and changing social structures may weaken traditional communal engagement, reducing the effectiveness of social interaction in maintaining indigenous collaborative practices. Therefore, the sustainability of *Marsialapari* depends not only on social contact but also on the preservation of collective identity, reciprocity, and moral responsibility within the community.

Self-confidence significantly influenced collaborative participation and community development. Individuals with higher confidence are more willing to participate in collective decision-making, contribute ideas, and engage in community initiatives. This finding indicates that indigenous governance requires empowered community actors capable of sustaining local wisdom within changing social environments. *Marsialapari*-based Pentahelix collaboration also positively contributes to social cohesion and community resilience by strengthening solidarity, mutual trust, and participatory engagement among stakeholders.

The findings of this study extend beyond the immediate context of women entrepreneurs and community actors in Medan by demonstrating how indigenous

knowledge systems can function as an important foundation for collaborative governance and community development. The *Marsialapari*-based Pentahelix model illustrates that local wisdom is not merely a cultural artifact preserved for symbolic purposes, but rather a living social mechanism capable of strengthening participation, social trust, collective responsibility, and social cohesion within contemporary society. More broadly, this study extends collaborative governance theory by demonstrating that indigenous knowledge systems can strengthen modern governance frameworks. This model illustrates that local wisdom is not merely cultural heritage but a socially embedded governance mechanism supporting inclusive and sustainable community development. The findings suggest that communities seeking to integrate local wisdom into governance practices may strengthen social cohesion, cultural resilience, and participatory collaboration through culturally grounded approaches to development.

One important implication of this study is that collaborative governance frameworks become more socially sustainable when they are grounded in culturally embedded values and local social practices. Existing models of collaborative governance and Pentahelix collaboration have frequently emphasized institutional coordination, innovation systems, and economic productivity. However, this study demonstrates that the effectiveness of collaboration is also deeply influenced by social relationships, collective identity, and indigenous norms of reciprocity. In the Marsialapari tradition, collaboration is understood not simply as functional cooperation among stakeholders but as a moral and communal obligation shaped by solidarity, empathy, and mutual responsibility.

Conclusion

This study concludes that effective communication and self-confidence play important roles in strengthening *Marsialapari*-based Pentahelix collaboration within participatory community development. Effective communication facilitates trust-building, collective understanding, and collaborative engagement among stakeholders, while self-confidence encourages active participation and collective responsibility within community initiatives. In contrast, social interaction shows a positive but less significant influence, suggesting that sustainable collaboration depends not only on social contact but also on deeper cultural commitment, reciprocity, and shared communal values embedded in indigenous traditions.

The findings further demonstrate that *Marsialapari*-based Pentahelix collaboration contributes positively to social cohesion, participatory governance, community resilience, and collective empowerment. The integration of indigenous values such as solidarity, mutual assistance, and communal responsibility strengthens collaborative relationships among academia, business, government, community, and media. In this regard, *Marsialapari* functions not merely as cultural heritage but also as a form of indigenous governance and social capital capable of supporting inclusive and sustainable community development.

Nevertheless, this study is limited to the sociocultural context of North Sumatra, particularly within communities influenced by Mandailing traditions. Future studies are recommended to explore other indigenous collaborative traditions and comparative community settings to further examine how local wisdom may strengthen participatory governance and social resilience in diverse cultural contexts.

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Ethical Considerations

We confirm that we have obtained all necessary consents under applicable laws for publishing any personal information or images of patients, research subjects, or other individuals featured in this work.

Conflict of Interest

The authors declare no conflicts of interest.

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