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A Conceptual Framework for Entrepreneurial Competencies Among Coffee Farmers: Development and Validation

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KEYWORDS
Entrepreneurial Competencies, Conceptual Framework, Coffee Farmers
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ABSTRACT
Agricultural entrepreneurship is a multifaceted field, with many enterprises being family-run and production-oriented, shaped by policies and access to knowledge. In Bandung Regency, coffee farmers operating within micro, small, and medium-sized enterprises (MSMEs) continue to rely on traditional cultivation methods to sustain their livelihoods and preserve local culture. However, they face persistent challenges, including low product quality, limited capital, outdated technology, weak partnerships, and insufficient innovation. Therefore, strengthening their entrepreneurial competencies in strategic management, adaptability, networking, and innovation is essential to enhance their competitiveness and sustainability. This study aims to develop and validate a Conceptual Framework of Entrepreneurial Competencies (CFEC) for coffee farmers, providing both theoretical grounding and empirical validation. A mixed-methods approach was employed, including a literature review, document analysis, and stakeholder interviews to identify key constructs, followed by a quantitative validation phase. Data were collected from 300 coffee farmers in Bandung Regency between October and December 2024 using a five-point Likert scale questionnaire. Exploratory factor analysis (EFA) identified five core competency dimensions—Strategic, Adaptability, Partnerships, Opportunity Recognition, and Innovation—comprising 27 valid indicators (KMO = 0.939; explained variance = 66.64%). Confirmatory factor analysis (CFA) using structural equation modeling (SEM) confirmed the model's reliability (Cronbach's alpha > 0.7; composite reliability > 0.7) and validity (average variance extracted (AVE) > 0.5; root mean square error of approximation (RMSEA) = 0.079). Coffee farmers' entrepreneurial competencies encompass five domains: Strategic and Planning; Adaptability and Communication; Partnerships and Collaboration; Opportunity Recognition; and Innovation and Risk-Taking. These domains cover business planning, opportunity utilization, networking, communication, and innovative risk-taking in coffee farm management. The Conceptual Framework of Entrepreneurial Competencies (CFEC) provides a context-specific model that reflects the realities of coffee farmers' entrepreneurial activities. This framework contributes to the theoretical field of competency-based entrepreneurship and, in practice, supports improved performance, innovation, and sustainability of agricultural enterprises.
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1. INTRODUCTION

Coffee is one of Indonesia's most important agricultural products. In 2024, global coffee production reached 10.49 million tonnes, representing a 4% increase from the previous year. Indonesia ranked as the world's fourth-largest producer, contributing 654 thousand tonnes, or 6.2% of global output [1]. Most of the country's coffee is cultivated by smallholder farmers, who account for 99.56% of total production. National production was recorded at 758.7 thousand tonnes in 2023, reflecting a 2.09% increase compared to the previous year [2].

In West Java, coffee production reached 23,617 tonnes, primarily in the districts of Bandung, Garut, and Bogor. Bandung was the largest producer, with 3,211 farmer groups managing 11,696.9 hectares of land to produce 8,567 tonnes of Arabica coffee [3,4]. This underscores the role of farmers as agricultural entrepreneurs who not only manage production but also navigate complex agricultural systems and markets, reflecting the characteristics of family farming enterprises shaped by protective policies and knowledge exchange [5,6].

Entrepreneurship has become a key concept associated with innovation, opportunity, and economic growth. This development has prompted the government and related institutions to formulate policies that foster entrepreneurial activities and capabilities. Entrepreneurial competence is regarded as essential for building entrepreneurial capacity within communities [7,8,9].

Coffee farmers have the potential to drive local entrepreneurship, enhancing productivity and competitiveness through innovation, technology, and capital mobilization [10]. The success of agricultural activities largely depends on farmers' competencies, including their ability to innovate, create, identify opportunities, and manage production, marketing, finance, and partnerships [10,11].

Entrepreneurial competence plays a vital role in improving productivity [12,13]. In Bandung Regency, small-scale coffee farmers continue to rely on traditional practices and face challenges such as low product quality, limited capital, lack of innovation, and inadequate supporting facilities. Furthermore, farmers possess weaker bargaining power than intermediaries and exporters, making the enhancement of technical and entrepreneurial competencies essential for increasing productivity and strengthening economic resilience.

Entrepreneurial competence is often equated with managerial skills; however, entrepreneurial activity cannot be confined merely to business management, as it requires a broader range of competencies [14]. It encompasses both individual and collective abilities essential for life, emphasizing creativity and innovation as key drivers of career development and the creation of business opportunities [8].

Entrepreneurial competence includes the knowledge, skills, motives, traits, and self-image that influence the establishment and growth of a business. Various studies indicate that this competence comprises strategic, conceptual, organizational, commitment, relationship, opportunity, personal, and technical dimensions, all of which play a crucial role in entrepreneurial success [15,16].

Against this backdrop, the present study seeks to develop and test a conceptual model of entrepreneurial competence among coffee farmers in Bandung Regency. The research is designed to produce a contextualized, applicable, and relevant model aligned with the social, economic, and cultural conditions of rural coffee farmers. Furthermore, farmers' entrepreneurial competence is measured using an instrument initially developed by Man et al. (2002) and later refined by Khanam (2020) and Aidara (2021). [11,15,16]

2. METHOD

Research Design

This study employed a quantitative research design to develop and validate a Conceptual Framework of Entrepreneurial Competencies (CFEC) among coffee farmers in Bandung Regency, Indonesia. The framework was adapted from previous studies by Lans (2014), Khanam (2020), Md. Nazmus Sakib (2022), Yusuf Iskandar (2021), and Simone Nieuwoudt (2017). [5,16,17,18,19] with modifications to reflect the specific characteristics of coffee farmers operating within micro, small, and medium-sized enterprises (MSMEs).

Population and Sampling

The study population consisted of coffee farmers who were members of farming cooperatives in Bandung Regency. Data were collected between October and December 2024. A purposive sampling technique was employed to select 300 respondents, meeting the minimum ratio of 10 participants per observed variable required for factor analysis [20].

Instrument Development

The measurement instrument was developed by adapting entrepreneurial competency indicators from previous research. These indicators were organized into five main constructs: Strategic Thinking, Adaptability, Partnerships, Opportunity Recognition, and Innovation. Each indicator was rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

To ensure clarity and contextual relevance, the questionnaire items were reviewed by academic experts and validated through preliminary interviews with selected coffee farmers. A pilot test involving 30 respondents was conducted to assess the internal consistency of the items. The results indicated that all 27 manifest variables achieved a Cronbach's Alpha coefficient above 0.7, demonstrating reliable measurement [21].

Data Analysis Procedures

1. Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) was conducted to examine the underlying factor structure of entrepreneurial competencies. The suitability of the data for factor analysis was assessed using the Kaiser–Meyer–Olkin (KMO) measure (acceptable value ≥ 0.60) and Bartlett's Test of Sphericity ($p \leq 0.05$) [22]. Indicators with a Measure of Sampling Adequacy (MSA) below 0.50 were excluded. Factor extraction was performed using Principal Component Analysis (PCA) with eigenvalues greater than 1, followed by Varimax rotation to optimize factor loadings [23]. The EFA results identified five dominant factors, which together accounted for 66.64% of the total variance, confirming that the construct structure was both interpretable and theoretically meaningful.

2. Confirmatory Factor Analysis (CFA)

The factor structure extracted from the EFA was validated through Confirmatory Factor Analysis (CFA) using the Unweighted Least Squares (ULS) estimation method. Model fit was evaluated using several indices:

Goodness-of-Fit Index (GFI) and Adjusted GFI (AGFI)

Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI)

Root Mean Square Error of Approximation (RMSEA)

Root Mean Square Residual (RMR)

Model adequacy was considered acceptable when NFI, IFI, and TLI ≥ 0.90; RMR ≤ 0.10; RMSEA ≤ 0.08; and GFI, AGFI, CFI > 0.90 [30]. Reliability and validity were further assessed using Composite Reliability (CR ≥ 0.70) and Average Variance Extracted (AVE ≥ 0.50). Discriminant validity was confirmed when the square root of the AVE for each construct exceeded its correlations with other constructs [24].

Ethical Considerations

All participants were informed about the purpose of the study and their right to withdraw at any stage. Participation was voluntary, and responses were treated confidentially to ensure data integrity and privacy.

3. RESULT AND DISCUSSION

Sample Characteristics

Table 1 Characteristics of Coffee Farmers in Bandung Regency (n = 300)

Characteristics	Category	Number (n)	Percentage (%)
Gender	Male	210	70.0
	Female	90	30.0
Age (years)	17–25	32	10.7
	26–35	92	30.7
	36–45	96	32.0
	46–55	54	18.0
	56–65	25	8.3
	>65	1	0.3
Education Level	Elementary School	47	15.7
	Junior High School	111	37.0
	Senior High School	104	34.7
	Diploma (D3)	23	7.7
	Bachelor's Degree (S1)	15	5.0
Farming Status	Main Occupation	226	75.3
	Side Occupation	74	24.7
Land Area (m^2)	< 1,000	98	32.7

	1,000–3,000	173	57.7
	3,000–10,000	25	8.3
	>10,000	4	1.3
Land Ownership Status	Owner	118	39.3
	Tenant Farmer	161	53.7
	Renter	21	7.0
Coffee Variety	Ateng	126	42.0
	Ateng Coklat	95	31.7
	Tim-tim	55	18.3
	Others	24	8.0
Experience (years)	1–10	32	10.7
	11–20	92	30.7
	21–30	96	32.0
	31–40	54	18.0
	>40	26	8.7
Monthly Income (IDR)	1–5 million	71	23.7
	6–10 million	133	44.3
	>10 million	96	32.0

Most coffee farmers in Bandung Regency are male (70%), aged 36–45 years (32%), and have completed junior high school (37%). The majority regard coffee farming as their main occupation (75.3%) and cultivate land areas ranging from 1,000 to 3,000 m² (57.7%). Most are tenant farmers (53.7%) growing the Ateng variety (42%). They typically have 21–30 years of farming experience (32%), with the largest proportion earning IDR 6–10 million per month (44.3%).

Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) identified 27 variables, confirming the adequacy of the data (KMO = 0.939; Bartlett's test, $p < 0.05$; all MSAs > 0.5). Five dominant factors, each with an eigenvalue greater than 1, collectively explained 66.64% of the total variance. Using Varimax rotation, variables with loadings above 0.50 were considered dominant, resulting in five clearly interpretable factors.

The first factor, Strategic, encompasses marketing strategy, awareness of strengths and weaknesses, utilisation of opportunities, long-term vision, institutional relationships, innovation, and market understanding. The second factor, Adaptability, reflects farmers' openness to criticism, flexibility, and proficiency in digital marketing, communication, and networking (both local and regional). The third factor, Partnership, represents collaboration with government and universities, a clear business focus, and effective implementation of ideas. The fourth factor, Opportunity, highlights business planning and the ability to transform opportunities into viable enterprises. Finally, the fifth factor, Innovation, emphasises risk-taking, experimentation, and openness to new ideas.

Table 2. Rotated component matrix (EFA)

No	Item	Component				
1	Marketing strategy	0.839	0.176	0.139	0.109	-0.047
2	Awareness of strengths	0.816	0.244	0.117	-0.015	0.132
3	Awareness of weaknesses	0.815	0.246	0.038	-0.031	0.144

4	Utilisation of opportunities	0.778	0.260	0.114	0.218	0.003
5	Addressing critical issues in coffee cultivation	0.773	0.303	0.077	-0.068	0.118
6	Long-term vision	0.760	0.178	0.208	0.059	0.117
7	Institutional relationships	0.706	0.371	0.234	-0.032	0.013
8	Market understanding	0.691	0.423	0.058	0.235	0.027
9	Understanding market trends	0.622	0.283	0.097	0.459	0.014
10	Knowledge of innovative agricultural practices	0.619	0.302	0.155	0.425	-0.057
11	Family participation in agricultural operations	0.523	0.431	0.273	0.089	-0.107
12	Receptiveness to constructive feedback	0.359	0.717	0.113	0.031	0.093
13	Ability to adapt to changing conditions	0.275	0.680	0.204	0.050	0.211
14	Utilization of digital marketing	0.493	0.644	0.056	0.015	0.021
15	Effectiveness of communication strategies	0.234	0.636	0.110	0.206	0.088
16	Capacity to apply feedback for improvement	0.467	0.625	0.056	0.195	-0.088
17	Collaboration and networking	0.459	0.582	0.106	0.080	-0.105
18	Establishment of interregional farmer networks	0.558	0.579	0.140	0.189	-0.132
19	Collaboration with government institutions	0.059	0.119	0.818	0.162	0.145
20	Partnership and knowledge exchange	0.075	0.062	0.798	0.179	0.134
21	Consistency in pursuing business objectives	0.254	0.126	0.738	0.113	-0.006
22	Application and execution of entrepreneurial concepts	0.160	0.134	0.705	0.118	-0.007
23	Development of structured business plans	-0.006	0.043	0.265	0.800	0.118
24	Conversion of opportunities into viable enterprises	0.181	0.160	0.229	0.791	0.073
25	Willingness to assume calculated business risks	0.007	-0.093	0.039	0.076	0.817
26	Exploration and testing of innovative methods	0.323	0.316	0.260	0.070	0.544
27	Receptiveness to external insights and perspectives	-0.019	0.377	0.184	0.373	0.426

Confirmatory Factor Analysis (CFA)

In SEM studies, model evaluation is conducted using goodness-of-fit indices to assess the extent to which the proposed model aligns with empirical data, considering multiple indices simultaneously [25,26]. The results of the model fit analysis for this study are presented in Table 1. The evaluation of the model's goodness-of-fit indices indicated that the Entrepreneurial Competency Model achieved an overall acceptable fit. Although the Chi-Square value (895.81) suggested a marginal fit—likely due to its sensitivity to sample size—the RMSEA value of 0.079 fell within the acceptable threshold (≤ 0.08), indicating a reasonable approximation between the model and the observed data. Other fit indices, including GFI (0.816), CFI (0.866), TLI (0.849), PNFI (0.718), and AGFI (0.777), were slightly below the ideal cut-off of 0.90, reflecting a marginal yet satisfactory model fit. These results confirm that the model adequately represents the empirical data and provides a valid structural framework for understanding the entrepreneurial competencies of coffee farmers. The slightly lower indices may reflect the model's complexity, capturing the multidimensional nature of entrepreneurial competencies. Overall, the model is both conceptually robust and empirically acceptable for further theoretical and practical applications.

Table 3 GOODNESS-OF-FIT (GOF)

No	Eligibility Criteria	Cut off Value	Test Results	Description
1	Goodness-of-Fit Index (GFI)	>0,90	0.816	Marginal Fit
2	Root Mean Square Error of Approximation (RMSEA)	≤0,08	0.079	Good fit
3	Comparative Fit Index (CFI)	>0,90	0.866	Marginal Fit
4	Tucker-Lewis Index (TLI)	>0,90	0.849	Marginal Fit
5	Parsimony-Adjusted Normed Fit Index (PNFI)	>0,90	0.718	Marginal Fit
6	Adjusted Goodness-of-Fit Index (AGFI)	>0,90	0.777	Marginal Fit

Convergent Validity

Convergent validity refers to the principle that indicators of a construct should exhibit high correlations. It is assessed by examining the outer loading values of each construct indicator. Outer loadings above 0.5–0.6 are considered acceptable, while values exceeding 0.7 are regarded as high. In addition, both the Average Variance Extracted (AVE) and communality values should exceed 0.5 [27].

Table 4. Loading Factor

Factor	No	Item	Factor Loading	Stdev	AVE	Cronbach's Alpha	Composite Reliability
Strategic	1	Marketing strategy	0.733	0.832	0.530	0.911	0.925
	2	Awareness of strengths	0.704	0.805			
	3	Awareness of weaknesses	0.736	0.808			
	4	utilisation of opportunities	0.743	0.797			
	5	Addressing challenges in the coffee sector	0.707	0.749			
	6	Long-term vision	0.757	0.871			
	7	institutional relationships	0.747	0.833			
	8	market understanding	0.723	0.726			
	9	Understanding market trends	0.742	0.864			
	10	Knowledge of innovative agricultural practices	0.711	0.823			

	11	Family participation in agricultural operations	0.703	0.898			
Adaptability	12	Receptiveness to constructive feedback	0.804	1.217	0.678	0.891	0.914
	13	Ability to adapt to changing conditions	0.789	0.947			
	14	Utilization of digital marketing and e-commerce platforms	0.783	1.188			
	15	Effectiveness of communication strategies	0.796	1.23			
	16	Capacity to apply feedback for improvement	0.71	1.108			
	17	Collaboration and networking with local coffee producers	0.784	1.156			
	18	Establishment of interregional farmer networks	0.771	1.118			
Partnership	19	Collaboration and engagement with government institutions	0.775	1.146	0.652	0.82	0.882
	20	Partnership and knowledge exchange with academic institutions	0.863	1.103			
	21	Consistency in pursuing business objectives	0.859	0.759			
	22	Application and execution of entrepreneurial concepts	0.725	0.831			
Opportunity	23	Development of structured business plans	0.71	0.743	0.870	0.851	0.931
	24	Conversion of opportunities	0.81	0.907			

		into viable enterprises					
Innovation	25	Willingness to assume calculated business risks	0.75	0.811	0.678	0.763	0.863
	26	Exploration and testing of innovative methods	0.825	0.82			
	27	Receptiveness to external insights and perspectives	0.826	0.801			

The results of the confirmatory factor analysis (CFA) indicate that all constructs and indicators in the entrepreneurial competency model for coffee farmers exhibit adequate validity and reliability. All indicators had factor loadings greater than 0.5, an Average Variance Extracted (AVE) greater than 0.5, and Composite Reliability (CR) greater than 0.7, confirming that the constructs significantly represent the latent variables and are internally consistent.

The strategic, adaptability, partnership, opportunity, and innovation constructs all demonstrated strong CFA performance. This suggests that coffee farmers possess the ability to develop business strategies, adapt to changing conditions, build partnerships, recognize market opportunities, and innovate within their enterprises. These findings are consistent with entrepreneurial theory, which highlights strategic competence, flexibility, collaboration, creativity, and innovation as critical factors for entrepreneurial success [8,15,16,]

Overall, the CFA model is valid and reliable, providing a robust empirical framework for understanding and enhancing the entrepreneurial competencies of coffee farmers. This model can serve as a basis for further testing using SEM while bridging theoretical and practical insights in the context of local coffee farming.

Discriminant Validity

Discriminant validity can be evaluated by comparing the square root of the AVE with the correlations among latent variables. If the correlation between a construct and its own indicators is higher than its correlations with other constructs, the latent construct is considered to predict its indicators better than those of other constructs [27].

Table 5. Discriminant Validity

Construct	Adaptability	Innovation	Partnership	Opportunity	Strategic
Adaptability	0.777				
Innovation	0.784	0.823			
Partnership	0.84	0.754	0.807		
Opportunity	0.732	0.709	0.753	0.933	
Strategic	0.819	0.795	0.807	0.742	0.728

The study confirms that the proposed conceptual framework of entrepreneurial competencies among coffee farmers is both empirically valid and statistically reliable. Although some fit indices were marginal, the model demonstrated an acceptable overall fit (RMSEA = 0.079) and strong reliability (Cronbach's alpha and CR > 0.7; AVE > 0.5). The framework effectively integrates theoretical and empirical evidence, providing a robust foundation for both research and practical interventions. The five constructs strategic, adaptability, partnership, opportunity, and innovation function as an integrated system of entrepreneurial competencies.

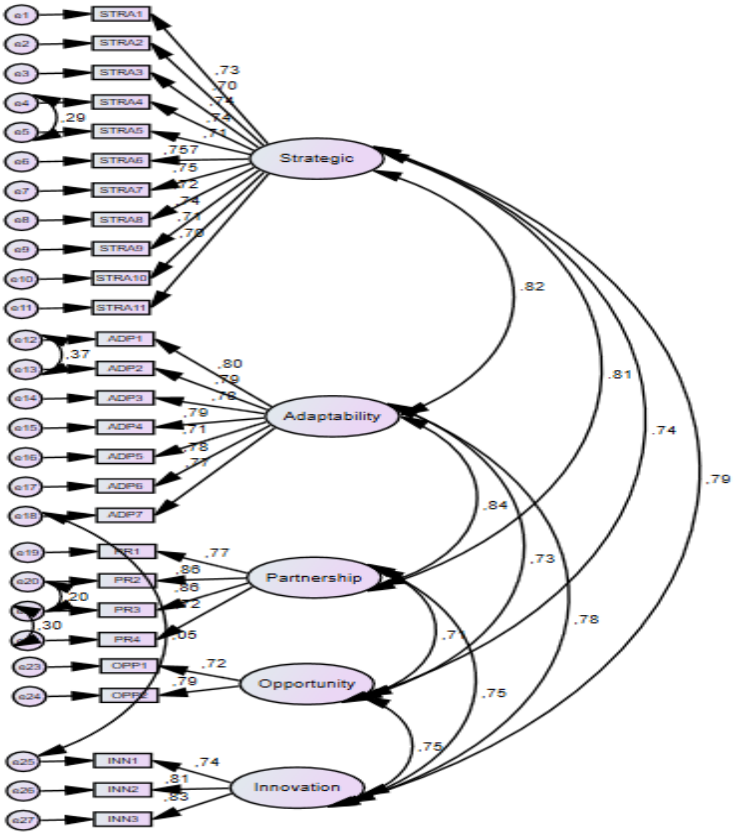

Figure 1

Model Conceptual Framework of Entrepreneurial Competencies among Coffee Farmers

4. DISCUSS

This section presents the findings, limitations, and recommendations for future research. Through a literature review, document analysis, and interviews with coffee farmers, the study identified five main constructs and 27 sub-constructs of entrepreneurial competencies; strategic, adaptability, partnership, opportunity, and innovation. The findings indicate that these constructs operate both independently and interdependently, forming an integrated system within the practical context of coffee farming.

Strategic Competence

Strategic competence is the ability to develop, evaluate, and implement effective business strategies, involving long-term thinking, informed decision-making, and adaptability. In the coffee industry, it enables entrepreneurs to navigate market changes, manage resources efficiently, and sustain their businesses by aligning internal strengths with external opportunities.

Strategic competence enables entrepreneurs to set clear goals, develop an overarching vision, and formulate plans that drive business growth. It helps them identify profitable opportunities and, when applied effectively, contributes to business success and expansion [28,29, 30,31]

Strategic competence is crucial for both large companies and microenterprises, such as coffee farms, enabling them to achieve long-term success through planning, setting priorities, forecasting financial needs, and innovating business concepts [11].

Strategic competence, as Md. Nazmus Sakib (2022) (18) explains, involves creating, comparing, and implementing strategies, including projecting future outcomes, prioritizing activities, restructuring organizations, aligning operations with objectives, and designing work systems to achieve goals. It also enables individuals and organizations to compete effectively in dynamic business environments [18]. Entrepreneurs with strategic competence are better equipped to plan, develop, and implement business ideas, balance short- and long-term needs, and ensure organizational progress.

Research consistently highlights the importance of strategic competence for business success. Studies by Tamyez (2017), Pranowo (2020), Jamie and Oliver (2020), Venia and Slamet (2020), indicate that it plays a key role in achieving business objectives and fostering growth [32,33,34].

Adaptability Competence

Adaptability is a key aspect of this competence, as entrepreneurs can adjust to new situations and interact with new people with ease. They remain focused on business objectives even when faced with challenges and changes and actively seek the latest information, whether related to the supply of high-quality seeds, fertilizers, and agricultural tools for coffee farmers or to coffee bean processing and cultivation techniques [35].

According to Sigit Kurnianto (2021), adaptive individuals can adjust their behavior and strategies in response to environmental changes, while high competence enables more effective, results-oriented decision-making. In the context of entrepreneurship, this highlights the importance of both adaptability and strategic competence in navigating market dynamics and ensuring business sustainability [36].

Mandlik (2025) emphasizes that in the digital era, adaptability is a core competency essential for business success. Businesses must be able to respond quickly to technological advances, shifts in consumer behavior, and evolving digital regulations. For coffee farmers and entrepreneurs, digital adaptability is crucial for expanding markets, promoting products online, and building partnerships through digital agricultural platforms [37].

Nadya Puspa (2025) notes that individuals with strong adaptability tend to achieve higher job satisfaction and performance. Adaptability involves not only technical skills but also the ability to manage emotions, interact positively, and maintain self-motivation. For coffee farmers, success depends on both business and technological skills, as well as emotional resilience in facing market pressures and environmental uncertainties [38].

Partnership Competence

Partnership competence refers to the ability to build relationships, foster collaboration, and manage mutually beneficial networks with various stakeholders. For coffee farmers, this includes collaborating with local producers, forming networks with other farmers, and partnering with government agencies, academic institutions, and businesses across the supply chain. Involving family members with experience in coffee cultivation also supports business sustainability.

Md. Nazmus Sakib (2022) states that partnership competence reflects an entrepreneur's ability to build trust-based networks and manage resources effectively. It is vital for SMEs in meeting operational needs, improving communication, and fostering collaboration [17]. Similarly, Lans (2014) emphasizes that networking competence involves forming inter-organizational partnerships to exchange resources, knowledge, and market opportunities [5].

Md. Nazmus Sakib (2022) found a strong correlation between relationship competence and business performance, supporting Man's (2002) view that it is vital for SME success [17,15]. Nur Hidayah (2022) found that networking competence positively influences SME sustainability by enabling entrepreneurs to access resources, market opportunities, and information [39]. Similarly, Kalm (2012) highlights that strong networks provide emotional support, enhancing entrepreneurs' motivation and resilience in high-risk situations [40]

Kehinde A. Ojewumi (2019) note that networking is crucial for identifying opportunities, testing ideas, and accessing resources in new ventures [41]. Similarly, Kozan and Akdeniz (2014) found that entrepreneurial networks enhance business longevity and sustainability [42]. For coffee agripreneurs, strong networks with private sector actors, public institutions, and farming communities are vital for improving competitiveness, expanding markets, and ensuring long-term success.

Opportunity Competence

The opportunity competency factor relates to an entrepreneur's ability to recognize, seek, and utilize business opportunities. In this study, indicators of opportunity competency include understanding the obstacles and supporting factors influencing coffee farming opportunities and transforming these opportunities into viable ventures. This aligns with Md. Nazmus Sakib (2022), who defines opportunity competency as an individual's ability to identify, develop, and evaluate various market opportunities using diverse methods [17].

According to Lans (2014), opportunity competency involves the cognitive ability to analyze situations, interpret challenges, and predict future trends. The ability to recognize opportunities forms part of the attitudinal aspect of entrepreneurial competency, encompassing initiative and proactivity [5]. This proactive nature manifests in two ways: seeking new opportunities and managing ongoing operations.

Opportunity competency also refers to an entrepreneur's capacity to identify market opportunities using multiple tools, approaches, and methods (Kabir, M., 2017;). Tehseen and Ramayah (2015) further note that opportunity competency denotes an entrepreneur's ability to identify, develop, and evaluate tangible market opportunities [43,44].

These findings are consistent with Puput (2022), who found that the ability to identify opportunities significantly influences the performance of coffee farming businesses [45]. Similarly, Hartono and Ardini (2022) assert that the ability to recognize opportunities contributes substantially to small business performance, as enterprises that can identify new opportunities are more likely to improve their outcomes [46].

Innovation Competence

Innovation competence involves proactively seeking information, opportunities, and solutions while experimenting to find the most effective business approaches. In this study, it is indicated by the willingness to try new things. Lans (2014)

describes this as the early stage of entrepreneurship, characterized by idea generation, opportunity identification, and initial planning that demonstrate initiative, experimentation, and a willingness to take risks [5]. Innovation as activities that enhance the value of existing assets and improve the utilization of products or resources to generate greater value [47]. Tehseen and Sajilan (2016) show that innovation significantly drives business growth [44]. According to de Jong (2016), innovation can be measured using four indicators [48]:

Opportunity exploration: the innovation process guided by opportunities, such as designing strategies and services for business activities.

Idea generation: developing concepts to improve performance or enhance capabilities.

Championing: promoting teamwork and behaviors aimed at achieving work targets.

Application: translating creative ideas into practical actions

The EFA and CFA results indicate consistency with the entrepreneurial competency model proposed by Md. Nazmus Sakib (2022), which includes strategic, commitment, relationship, opportunity, and initiating competencies. This model aligns with the findings of Lans et al. (2014) and Man et al. (2002), both of which emphasize the importance of opportunity, relationship, and strategic competencies in entrepreneurship [17, 5, 15].

This competency reflects coffee farmers' willingness to take risks, explore new approaches, and remain open to feedback, fostering creativity and entrepreneurial courage. According to Lans [1], the initial stage of entrepreneurship involves idea formulation, opportunity identification, and early planning, which demonstrate initiative and readiness to take risks. Strategic competence serves as the foundation for coffee farmers in planning, management, decision-making, and market adaptation, while also supporting the development of other competencies such as adaptability, innovation, and partnership [5]

5. RESEARCH LIMITATIONS

The conceptual framework for entrepreneurial competencies among coffee farmers has several limitations. The data were limited to coffee farmers in Bandung Regency and focused solely on entrepreneurial competencies. Although the framework was validated using SEM, further testing in other agricultural contexts is necessary. Future research should explore additional dimensions of the Entrepreneurial Competency Model (ECM) and extend the study to other agricultural sectors and MSMEs in Indonesia. Expanding the sample size, employing mixed methods, and conducting comparative studies across regions or commodities would provide a more comprehensive understanding of entrepreneurial competencies and their impact on business performance.

6. CONCLUSION

This study developed and validated a conceptual framework of entrepreneurial competencies for coffee farmers in Bandung Regency. The framework includes five core competencies strategic, adaptability, partnership, opportunity identification, and innovation that enhance competitiveness, sustainability, and business growth. The findings highlight the need for entrepreneurship education and training programs supported by local government initiatives. Strengthening these competencies requires collaboration among farmers, government agencies, and academia to design effective training modules and evaluate competency-based interventions for sustainable performance improvement.

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