

Developing BSI Agent Networks to Strengthen Islamic Banking Financial Inclusion: Insights from an Analytic Network Process Study

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ABSTRACT

This study examines strategies for developing Islamic banking financial inclusion services through Bank Syariah Indonesia (BSI) Agents as extended outlets for reaching underserved communities. Despite Indonesia's large Muslim population, the outreach and service quality of Islamic banking remain limited compared to conventional banks, driven by human resource constraints, unattractive incentive structures, limited product and service features, aggressive competition from conventional bank agents, and inadequate infrastructure in remote areas. To address these challenges, this study employs the Analytic Network Process (ANP) using a qualitative approach based on expert judgment. Primary data were collected through in-depth interviews with five expert informants comprising academics, BSI practitioners, and regulators. Data collection involved observation, interviews, questionnaires, documentation, and literature review, and the analysis was conducted using the Super Decisions software. Kendall's Coefficient of Concordance (W) was applied to assess the level of agreement among experts. The results indicate that the most critical constraints are low employee awareness, limited agent competence, unattractive incentive structures, and infrastructure limitations in remote areas. Priority solutions include increasing dedicated human resources for agent management, integrating agent performance into key performance indicators (KPIs), expanding product and service features, and strengthening below-the-line promotion. At the strategic level, the findings highlight the importance of strengthening human resources, developing robust and user-friendly digital agent platforms, and implementing cluster-based agent management. The Kendall's W values indicate a moderate level of expert agreement, supporting the robustness of the ANP results. This study contributes to the literature on Islamic banking and financial inclusion by providing empirical, strategy-oriented insights into the development of agent-based Islamic banking services. The findings offer practical implications for banks, regulators, and policymakers seeking to strengthen inclusive, sustainable, and competitive Islamic banking ecosystems.

Keywords: Bank Syariah Indonesia Agents; Islamic Banking; Financial Inclusion; Analytic Network Process; Agent Banking

1. Introduction

Financial inclusion has increasingly become a strategic agenda in achieving sustainable economic development, particularly in developing countries where unequal access to formal financial services remains a persistent challenge. The World Bank (2022) defines financial inclusion as the availability and accessibility of affordable, useful, and sustainable financial products and services, including savings, financing, payments, and insurance, provided responsibly to all segments of society. Financial inclusion is widely recognized as an essential instrument for poverty alleviation, economic empowerment, income equality, and social welfare improvement because access to formal financial services enables individuals and

businesses to manage risks, accumulate assets, increase productivity, and participate more actively in economic activities.

Despite significant progress in global financial inclusion over the last decade, financial exclusion remains a serious issue, particularly among low-income households, rural populations, women, micro and small enterprises, and informal workers. According to the Global Findex Database, millions of adults worldwide still do not possess formal bank accounts, with the majority concentrated in developing economies. Indonesia, as one of the largest emerging economies in Southeast Asia, also faces substantial challenges in ensuring equitable financial access across its geographically dispersed archipelagic regions. Although the Indonesian government has intensively promoted financial inclusion through the National Strategy for Financial Inclusion (Strategi Nasional Keuangan Inklusif/SNKI), disparities in access to financial services continue to persist between urban and rural communities, western and eastern regions, and among different socio-economic groups.

Empirical evidence indicates that Indonesia's financial inclusion index has improved steadily in recent years; however, the utilization of Islamic financial services remains relatively limited compared to conventional banking. Data from the Financial Services Authority (OJK, 2023) reveal that Islamic banking market share in Indonesia remains below 8% of the total national banking industry despite Indonesia being home to the world's largest Muslim population. This condition demonstrates a paradox between the enormous demographic potential for Islamic finance and the relatively low penetration of Islamic banking services. Furthermore, Islamic financial inclusion in Indonesia still encounters various structural and operational barriers, including limited branch networks, inadequate digital infrastructure, low levels of financial literacy, weak public awareness of Islamic financial products, and unequal service accessibility across regions.

Several previous studies have highlighted factors influencing Islamic financial inclusion in Indonesia. Ali et al. (2020a) identified that Islamic financial inclusion is strongly influenced by accessibility, financial literacy, institutional support, regulatory frameworks, and technological readiness. Their findings emphasize that improving Islamic financial inclusion requires integrated strategies involving multiple stakeholders and institutional dimensions. In another study, Ali et al. (2020b) found that major determinants of Islamic financial exclusion include low public understanding of Islamic banking products, limited service outreach, inadequate infrastructure, and lack of trust toward formal financial institutions. These findings indicate that the challenge of Islamic financial inclusion is multidimensional and cannot be resolved merely through the expansion of banking infrastructure.

In addition, customer behavior and preferences toward Islamic banking also play an important role in shaping financial inclusion outcomes. Rusydiana and Hasib (2019), using the Analytic Network Process (ANP), demonstrated that customers' decisions in selecting Islamic banking services are influenced by factors such as service quality, accessibility, religious compliance, institutional credibility, and convenience. Similarly, Abdul Hadi and Muwazir (2021) explained that trust, religious values, and accessibility significantly affect public acceptance of Islamic banking services across different social and ethnic groups. These findings suggest that Islamic banking institutions need not only to provide Sharia-compliant products but also to develop effective outreach mechanisms capable of building trust and improving service accessibility for underserved communities.

Islamic banking possesses unique characteristics that position it strategically as an instrument for inclusive finance. The principles of profit-and-loss sharing, prohibition of *riba* (interest), ethical financing, and social justice embedded in Islamic finance provide opportunities to serve communities that may avoid conventional banking systems for religious or socio-cultural reasons. Islamic banking is also considered more inclusive for micro-enterprises and low-income populations because its financing mechanisms emphasize partnership and fairness rather than purely collateral-based lending. However, despite these advantages, the development of Islamic banking in many countries still faces substantial obstacles. Yanikkaya

and Pabuçcu (2017) found that the stagnation of Islamic banking growth is caused by limited innovation, weak institutional expansion, inadequate public literacy, and insufficient strategic outreach. Likewise, Saini et al. (2011) revealed that low awareness and understanding of Islamic financial products remain major barriers preventing communities from utilizing Islamic banking services effectively.

One of the major structural problems faced by Islamic banking institutions in Indonesia is the limited availability of branch offices in remote and rural areas. Establishing and maintaining physical bank branches require high operational costs and significant regulatory compliance, making expansion into low-income and geographically isolated areas economically challenging. Consequently, many underserved communities remain excluded from formal Islamic financial services. To address this issue, branchless banking and agent-based banking systems have emerged as strategic alternatives for expanding financial service accessibility more efficiently and inclusively.

In Indonesia, the implementation of branchless banking has been strengthened through regulatory support that allows banks to collaborate with banking agents in delivering basic financial services to communities. Bank Syariah Indonesia (BSI), as the largest Islamic bank in Indonesia following the merger of three state-owned Islamic banks, has actively developed BSI agent networks to expand Islamic financial services to underserved areas. Through these agents, communities can conduct various banking transactions such as account registration, cash deposits, withdrawals, bill payments, money transfers, and micro-financing services without needing to visit formal bank branches.

The strategic role of BSI agents extends beyond transactional services. In many rural and semi-urban communities, BSI agents function as financial intermediaries, financial educators, and social trust-builders. Their close social relationships with local communities enable them to reduce information asymmetry, increase public understanding of Islamic financial products, and encourage the adoption of formal financial services. This role is highly important because trust and literacy remain fundamental challenges in Islamic financial inclusion. Communities with limited exposure to formal financial systems often rely more heavily on interpersonal relationships and local social networks when deciding whether to utilize banking services.

Nevertheless, the development of BSI agent networks still faces various challenges. Many agents experience limited competencies in digital banking operations, weak technological capabilities, insufficient training, unstable internet connectivity, operational risks, and limited institutional support. Moreover, the rapid digital transformation within the banking sector requires agents to continuously adapt to evolving digital financial ecosystems and customer expectations. Without comprehensive strategic development, these challenges may hinder the effectiveness of BSI agents in promoting broader Islamic financial inclusion.

Although previous studies have extensively discussed financial inclusion, Islamic banking development, and digital financial services, several important research gaps remain evident. First, most studies on Islamic financial inclusion focus primarily on macro-level determinants such as regulation, literacy, and accessibility without specifically examining operational strategies for strengthening Islamic banking agent networks (Ali et al., 2020a; Ali et al., 2020b). Second, prior studies on Islamic banking mainly emphasize customer preferences and service selection criteria rather than institutional strategies for optimizing agent-based service delivery (Rusydiana & Hasib, 2019; Abdul Hadi & Muwazir, 2021). Third, empirical studies specifically investigating the strategic role of Islamic banking agents in promoting financial inclusion within the Indonesian context remain relatively limited. Existing studies generally focus on conventional banking agents or digital finance platforms without adequately addressing the unique characteristics of Islamic banking service delivery.

Furthermore, studies utilizing the Analytic Network Process (ANP) in Islamic finance research are still relatively scarce and mostly concentrated on broader policy prioritization and Islamic social finance integration. Widiastuti et al. (2022) employed the ANP-BOCR framework to analyze sustainable Islamic social finance integration in Indonesia, demonstrating that ANP is

highly effective in addressing complex decision-making problems involving interconnected factors. Methodological studies by Sipahi and Timor (2010) as well as Taherdoost and Madanchian (2023) further emphasized that ANP is particularly suitable for analyzing strategic problems characterized by interdependency among criteria, stakeholders, and institutional dimensions. Meanwhile, recent studies such as Kurniawan et al. (2024) introduced predictive analytics and machine learning approaches in Islamic financial inclusion strategies, indicating the growing importance of technology-driven strategic frameworks in Islamic banking development. However, no previous study has comprehensively analyzed the strategic development priorities of Islamic banking agent networks using the ANP framework.

Based on these empirical conditions and research gaps, this study possesses strong urgency and novelty. The urgency of this research lies in the need to strengthen Islamic financial inclusion through operationally effective, technologically adaptive, and socially trusted banking agent networks capable of reaching underserved communities. This issue is increasingly important considering Indonesia's ambition to become a global hub for Islamic finance while simultaneously reducing financial inequality across regions and socio-economic groups.

The novelty of this study is reflected in several aspects. First, this study specifically focuses on the development of BSI agent networks as strategic instruments for strengthening Islamic banking financial inclusion, an area that has received limited scholarly attention. Second, this study integrates institutional, technological, human resource, regulatory, and community dimensions into a comprehensive analytical framework. Third, this research employs the Analytic Network Process (ANP) approach to identify interrelationships among strategic factors and determine priority development strategies for BSI agent networks. Unlike previous studies that predominantly apply descriptive or macroeconomic analyses, this study offers a more systematic and strategic decision-making perspective for Islamic banking development.

Therefore, this study aims to analyze and formulate priority strategies for developing BSI agent networks to strengthen Islamic banking financial inclusion in Indonesia using the Analytic Network Process (ANP) approach. Specifically, this study seeks to identify the key problems, strategic solutions, and priority policies related to agent-based Islamic banking services. The findings of this study are expected to contribute theoretically to the literature on Islamic financial inclusion, Islamic banking strategy, and ANP applications in Islamic finance research. Practically, the results are expected to provide strategic recommendations for policymakers, regulators, Bank Syariah Indonesia, and other Islamic financial institutions in designing sustainable and inclusive agent-based financial service systems capable of expanding access to Islamic finance among underserved communities.

2. Theoretical Framework

Financial Inclusion and Its Role in Economic Development

Financial inclusion has become one of the most important components of sustainable economic development because it enables individuals and businesses to access formal financial services such as savings, financing, insurance, and payment systems. The World Bank (2022) defines financial inclusion as the accessibility and usage of affordable and useful financial services delivered responsibly to all segments of society. Financial inclusion is widely associated with poverty reduction, economic empowerment, business expansion, and income equality because access to financial services allows individuals to accumulate assets, manage financial risks, and improve productivity.

Empirical evidence demonstrates that financial inclusion contributes positively to economic stability and social welfare. Allen et al. (2016) explained that broader ownership and usage of formal financial accounts improve household resilience, savings behavior, and financial participation among vulnerable populations. Similarly, Demirgüç-Kunt et al. (2018), through the Global Findex Database, highlighted that financial inclusion significantly increases economic

participation, particularly in developing countries where informal financial systems still dominate economic activities.

Despite substantial progress, financial exclusion remains highly prevalent among rural communities, low-income households, women, micro-enterprises, and informal workers. Major barriers include high transaction costs, geographical limitations, inadequate infrastructure, low financial literacy, and limited public trust toward formal financial institutions (World Bank, 2022). In many developing economies, including Indonesia, unequal distribution of banking infrastructure further exacerbates exclusion from financial services. These conditions indicate that conventional banking systems alone are insufficient to achieve inclusive financial access.

The literature also suggests that financial inclusion is multidimensional and influenced by interconnected human, institutional, technological, and environmental factors. Allen et al. (2016) emphasized that financial inclusion outcomes are shaped not only by infrastructure availability but also by education, trust, social networks, and institutional quality. This multidimensional perspective is important because improving financial inclusion requires integrated policy approaches rather than isolated interventions. Therefore, the complexity of financial inclusion problems necessitates analytical methods capable of examining interdependencies among various strategic factors, such as the Analytic Network Process (ANP).

2.2. Islamic Banking and Financial Inclusion

Islamic banking has increasingly been recognized as an important instrument for promoting inclusive finance, particularly in Muslim-majority countries. Islamic finance operates based on Sharia principles emphasizing justice, transparency, risk-sharing, and ethical financial transactions. According to Beck et al. (2013), Islamic banking possesses characteristics that potentially make it more resilient and socially inclusive than conventional banking because Islamic financial transactions are asset-backed and avoid speculative activities and interest-based mechanisms.

The prohibition of *riba* (interest) and *gharar* (excessive uncertainty) makes Islamic financial services more acceptable for Muslim communities that may avoid conventional banking due to religious considerations. Mohieldin et al. (2012) argued that Islamic finance can significantly enhance financial inclusion by providing alternative financial instruments compatible with religious beliefs while simultaneously supporting socio-economic development. Islamic financing contracts such as *mudharabah* and *musharakah* offer opportunities for micro and small enterprises to access financing through partnership-based mechanisms rather than purely collateral-based systems.

Nevertheless, despite its significant potential, the contribution of Islamic banking to financial inclusion remains below expectations in many countries. Asutay (2015) explained that Islamic banking still faces several institutional and operational constraints, including limited outreach, inadequate innovation, weak public literacy, and insufficient integration between Islamic financial institutions and local communities. Similarly, Beck et al. (2013) noted that although Islamic banks demonstrate stability and ethical orientation, their operational expansion remains slower than conventional banking institutions.

In Indonesia, Islamic banking development has grown steadily over the past decade, yet its market share remains relatively small compared to conventional banking. According to Otoritas Jasa Keuangan (OJK, 2023), the level of Islamic financial literacy and inclusion continues to lag behind national financial inclusion targets. This condition indicates that Islamic banking institutions must develop more adaptive and innovative strategies to expand financial access among underserved communities.

The literature collectively indicates that institutional capacity, operational efficiency, accessibility, and community trust are highly interrelated determinants of Islamic financial inclusion. Therefore, these factors cannot be addressed separately because weaknesses in one dimension may reduce the effectiveness of other dimensions. This interdependency forms the conceptual foundation for applying the ANP framework in analyzing Islamic banking financial inclusion strategies.

Agent Banking as a Financial Inclusion Strategy

Agent banking, commonly referred to as branchless banking, has emerged as one of the most effective strategies for expanding financial inclusion, particularly in geographically dispersed and underserved regions. Lyman et al. (2006) defined agent banking as a banking service delivery model in which banks collaborate with third-party agents, such as local shops or individuals, to provide basic financial services on behalf of formal financial institutions.

The rapid development of agent banking is primarily driven by the limitations of conventional branch-based banking systems, especially in rural and remote areas where establishing physical branches involves substantial operational costs. Through agent banking, financial institutions can significantly reduce operational expenses while simultaneously increasing service outreach and accessibility. Demirgüç-Kunt et al. (2018) highlighted that branchless banking and digital financial services have become major contributors to increased financial inclusion in developing countries.

Several studies explain that agent banking promotes financial inclusion through multiple mechanisms. First, agents reduce geographical barriers because financial services become physically closer to local communities. Second, agents reduce informational and psychological barriers because customers tend to trust local individuals who are socially connected to their communities. Third, agent banking facilitates rapid service scalability without requiring heavy infrastructure investments (Allen et al., 2016).

Mas and Radcliffe (2011) further explained that agent banking systems are highly effective when integrated with digital financial technologies because digital platforms improve transaction efficiency, reduce service delivery costs, and enable broader customer reach. However, the effectiveness of agent banking also depends heavily on institutional support, agent competence, liquidity management, technological infrastructure, and monitoring systems.

Despite its advantages, several challenges continue to affect the effectiveness of agent banking services. Previous studies identified operational risks, inadequate training, limited technological literacy, weak supervision, and liquidity constraints as major obstacles faced by banking agents (Mas & Radcliffe, 2011). Without sufficient institutional support and governance mechanisms, these weaknesses may undermine service quality and reduce public trust toward banking services.

These findings indicate that agent banking effectiveness is shaped by the interaction of human resource quality, technological readiness, institutional governance, and customer trust. Consequently, the development of agent banking strategies requires a comprehensive analytical framework capable of capturing these interrelated dimensions simultaneously.

Islamic Banking Agents and Sharia-Compliant Service Delivery

The implementation of agent banking within Islamic banking institutions introduces both opportunities and unique operational challenges. Unlike conventional banking agents, Islamic banking agents are not only responsible for delivering financial services efficiently but are also required to maintain compliance with Sharia principles and ethical standards.

Dusuki and Abdullah (2007) explained that customer acceptance of Islamic banking is strongly influenced by trust, religious understanding, and perceptions of Sharia compliance. Therefore, Islamic banking agents play a crucial role in communicating Islamic financial principles and increasing public confidence in Sharia-compliant financial products. Agents function not only as transaction facilitators but also as educators who translate complex Islamic financial concepts into locally understandable forms.

Mohieldin et al. (2012) argued that Islamic banking agents have strong potential to improve Islamic financial inclusion because they bridge the gap between formal financial institutions and underserved Muslim communities. Their local presence and social relationships enable them to reduce information asymmetry, increase financial literacy, and encourage communities to adopt formal Islamic financial services.

However, Islamic banking agents also face distinctive challenges compared to conventional banking agents. Asutay (2015) emphasized that insufficient training, weak Sharia supervision, and limited institutional integration may reduce the effectiveness of Islamic banking agents and potentially weaken the ethical value proposition of Islamic finance. Agents who focus solely on transactional functions without understanding underlying Sharia principles may fail to build meaningful trust and long-term customer engagement.

This dual operational and ethical responsibility differentiates Islamic banking agents from conventional banking agents. Therefore, human resource competence, Sharia literacy, governance systems, and institutional support become critical determinants in developing effective Islamic banking agent networks.

Bank Syariah Indonesia Agents and Strategic Development

Bank Syariah Indonesia (BSI), as the largest Islamic bank in Indonesia, has strategically developed agent banking services to strengthen Islamic financial inclusion across various regions. Through BSI agent networks, financial services can be delivered more efficiently to communities with limited access to formal banking infrastructure, particularly in rural and semi-urban areas. This strategy aligns with Indonesia's national financial inclusion agenda and broader efforts to strengthen the Islamic financial ecosystem.

BSI agents function as frontline service providers responsible for facilitating various financial transactions, including account opening, cash deposits, withdrawals, bill payments, and financing-related services. More importantly, BSI agents also serve as social intermediaries who help increase public understanding and acceptance of Islamic financial products.

Despite their strategic importance, empirical studies specifically focusing on BSI agents remain limited. Most existing studies concentrate on conventional banking agents, digital finance systems, or macro-level Islamic banking performance rather than examining the operational and strategic development of Islamic banking agent networks. This condition reveals a significant research gap concerning how institutional support, technological readiness, human resource capacity, governance systems, and regulatory alignment interact in shaping the effectiveness of Islamic banking agents.

Addressing this research gap is highly important because the sustainability of Islamic financial inclusion depends not only on financial product availability but also on the effectiveness of service delivery mechanisms capable of reaching underserved populations. Existing literature indicates that successful agent banking systems require integrated development strategies encompassing capacity building, digital infrastructure, incentive systems, governance mechanisms, and institutional collaboration.

In this context, the Analytic Network Process (ANP) provides a suitable analytical framework for examining complex interrelationships among strategic factors affecting BSI agent development. According to Saaty (2005), ANP is an advanced multi-criteria decision-making method capable of analyzing interdependent relationships among decision elements, unlike hierarchical approaches that assume independence among criteria. Saaty and Vargas (2012) further explained that ANP is particularly effective for strategic decision-making problems involving feedback relationships, stakeholder interactions, and multidimensional considerations.

The use of ANP in this study is also methodologically supported by previous studies emphasizing its flexibility and robustness in analyzing complex strategic issues. Furthermore, the validity and consistency of expert judgments in ANP analysis can be strengthened using consensus measurement approaches such as Kendall's coefficient of concordance (Legendre, 2010). Schmidt (1997) and Siegel and Castellan (1988) explained that nonparametric statistical approaches are effective in evaluating agreement among experts in Delphi- and ANP-based decision-making studies.

Therefore, unlike conventional agent banking studies that primarily focus on efficiency and outreach, this study contributes by integrating Sharia compliance, institutional governance,

human resource readiness, technological adaptation, and incentive alignment into a comprehensive ANP-based strategic framework specifically designed for Islamic banking agent development. This integrated perspective is expected to provide a deeper understanding of how BSI agent networks can be strengthened to support sustainable Islamic banking financial inclusion in Indonesia.

In addition, this study adopts a qualitative and strategic research orientation emphasizing in-depth understanding of institutional dynamics and stakeholder perspectives. Creswell and Poth (2018) stated that qualitative inquiry is particularly appropriate for exploring complex social and organizational phenomena involving multiple interacting dimensions. Accordingly, this study seeks to capture the strategic relationships among institutional, technological, operational, and community-related factors influencing the development of BSI agent networks within the broader context of Islamic financial inclusion.

3. Methods

Research Design and Approach

This study adopts a qualitative research design with a decision-making framework to examine strategies for developing Islamic banking financial inclusion services through Bank Syariah Indonesia (BSI) Agents. Given the multidimensional and interdependent nature of the problems, solutions, and strategic alternatives associated with agent-based Islamic banking services, this study employs the Analytic Network Process (ANP). ANP is particularly suitable for addressing complex decision problems involving feedback, interdependence, and subjective judgments among criteria and alternatives (Saaty, 2005).

A qualitative approach is applied to capture in-depth insights from key stakeholders who possess expert knowledge and practical experience related to Islamic banking, financial inclusion, and agent-based service delivery. This approach enables a comprehensive understanding of institutional, operational, and contextual factors influencing the performance and development of BSI Agents.

Data Collection and Informants

Primary data were collected through in-depth interviews with five expert informants selected using purposive sampling. The informants consisted of academics specializing in Islamic finance and financial inclusion, practitioners from Bank Syariah Indonesia with direct involvement in agent management and operations, and regulators responsible for overseeing banking and financial inclusion policies. The selection of five expert informants ($n = 5$) is consistent with prior Analytic Network Process (ANP) studies, which emphasize the quality, expertise, and depth of knowledge of respondents rather than large sample sizes, as ANP relies on expert judgment for pairwise comparisons rather than statistical generalization (Saaty & Vargas, 2012; Ascarya, 2014). Expert judgment is a critical component of ANP, as the method relies on informed pairwise comparisons to determine priorities among decision elements (Saaty & Vargas, 2012).

To ensure data triangulation and robustness, multiple data collection techniques were employed, including direct observation, semi-structured interviews, structured questionnaires for pairwise comparisons, documentation review, and an extensive literature review. This triangulated approach enhances the credibility and validity of qualitative findings (Creswell & Poth, 2018).

Analytic Network Process (ANP) Framework

The ANP model in this study was structured into several interconnected clusters representing key dimensions of the research problem, namely: (1) problem factors hindering Islamic banking financial inclusion through BSI Agents, (2) alternative solutions to address these

problems, and (3) strategic priorities for agent development. Each cluster consists of elements derived from the literature review and preliminary expert consultations.

Pairwise comparisons were conducted to assess the relative importance of elements within and across clusters using Saaty’s fundamental scale (Saaty, 2005). Consistency ratios were calculated to ensure the reliability of expert judgments, with values below the acceptable threshold of 0.10 indicating consistent comparisons (Saaty & Vargas, 2012).

Data Analysis Technique

The collected data were processed using the Super Decisions software, which is specifically designed to support ANP-based analysis. The software facilitates the construction of the network model, computation of local and global priority weights, and synthesis of results through supermatrix calculations. The final output of the ANP analysis provides prioritized problem factors, solution alternatives, and strategic recommendations for developing BSI Agents in enhancing Islamic banking financial inclusion.

Ethical Considerations

Ethical considerations were carefully observed throughout the research process. Informants participated voluntarily and provided informed consent prior to data collection. Confidentiality and anonymity were maintained to ensure that individual responses could not be traced back to specific informants or institutions.

4. Result and Discussion

Results of ANP Priority Analysis

The Analytic Network Process (ANP) results reveal a structured prioritization of problems, solutions, and strategic alternatives related to the development of Islamic banking financial inclusion services through Bank Syariah Indonesia (BSI) Agents. The priorities were derived exclusively from expert pairwise comparisons and synthesized using Super Decisions software. Table 1 presents the global priority weights (G-Means) and rankings for each cluster and criterion.

Table 1. Priority Results of ANP Analysis

No	Node	G-Means	Rank
Cluster: Human Resource Problems			
1	Limited number of BSI staff as BSI Agent PIC	0.30852	4
2	Inadequate agent capacity and competence	0.37070	2
3	Limited BSI staff product knowledge regarding BSI Agent business	0.32078	3
4	Low employee awareness	0.46895	1
Cluster: Technical Problems			
1	Limited IT infrastructure	0.24745	3
2	Limited products and services	0.28361	2
3	Unattractive incentive structure	0.32905	1
4	Lack of coordination between BSI PIC and agents	0.20958	4
Cluster: Competitor Problems			
1	Larger and more widely distributed agents of other banks	0.24351	2
2	Low brand recognition of BSI Agents	0.21786	3
3	More aggressive promotion by other bank agents	0.33649	1
Cluster: Community Problems			
1	Infrastructure issues and limited electricity/internet in remote areas	0.26992	1
2	Low Islamic financial literacy	0.18242	3
3	Public security and trust issues	0.21116	2

Cluster: Human Resource Solutions			
1	Increasing human resources based on needs	0.41833	1
2	Agent performance as part of KPI	0.39974	2
3	Modular agent training model	0.34476	3
4	Internal knowledge-sharing sessions	0.23691	4
Cluster: Technical Solutions			
1	Strengthening IT infrastructure	0.25231	3
2	Expanding product and service features	0.34795	1
3	Competitive performance-based incentives	0.27917	2
4	Cluster-based agent management	0.24056	4
Cluster: Competitor Solutions			
1	Expanding agent acquisition in branch blank-spot areas	0.23166	3
2	Standardized BSI Agent design to enhance brand identity	0.24861	2
3	Strengthening below-the-line promotion	0.31243	1
Cluster: Community Solutions			
1	Use of devices with alternative connectivity	0.28336	1
2	Intensifying Islamic financial literacy programs	0.17749	3
3	Public advocacy and socialization	0.22672	2
Cluster: Strategies			
1	Increasing number of BSI Agent PICs, strengthening product knowledge, and setting activation KPIs	0.07827	1
2	Developing robust, user-friendly digital agent platforms with enhanced features	0.07381	2
3	Merit-based reward systems and agent competition	0.06241	5
4	Cluster-based agent management with field supervisors	0.07339	3
5	Targeted acquisition of new agents (MSMEs, cooperatives, Islamic sectors)	0.06658	4

The results of the Analytic Network Process (ANP) indicate that human resource–related issues constitute the most dominant constraints in the development of Islamic banking financial inclusion through BSI Agents. Within the human resource problem cluster, low employee awareness emerged as the highest-priority problem (G-Means = 0.46895), followed by inadequate agent capacity and competence (0.37070), limited BSI staff product knowledge regarding BSI Agent business (0.32078), and the limited number of BSI staff acting as BSI Agent PICs (0.30852). In the technical problem cluster, unattractive incentive structures ranked as the most critical issue (0.32905), followed by limited products and services (0.28361), limited IT infrastructure (0.24745), and lack of coordination between BSI PICs and agents (0.20958). For competitor-related problems, more aggressive promotion by other bank agents emerged as the highest-priority issue (0.33649), followed by the wider distribution of competitor agents (0.24351) and low brand recognition of BSI Agents (0.21786). Meanwhile, community-related problems were dominated by infrastructure limitations and restricted electricity/internet access in remote areas (0.26992), followed by public security and trust issues (0.21116) and low Islamic financial literacy (0.18242). Regarding solution priorities, increasing human resources based on operational needs became the top human resource solution (0.41833), while expanding product and service features emerged as the highest-priority technical solution (0.34795). Strengthening below-the-line promotion was identified as the primary competitor-related solution (0.31243), whereas the use of devices with alternative connectivity became the most important community-related solution (0.28336). At the strategic level, the highest-ranked strategy was increasing the number of BSI Agent PICs, strengthening product knowledge, and establishing activation KPIs (0.07827), followed by developing robust and user-friendly digital agent platforms (0.07381) and implementing cluster-based agent management with field supervisors

(0.07339). Overall, the findings demonstrate that human resource strengthening, institutional governance, and digital platform enhancement are the primary strategic priorities for strengthening Islamic banking financial inclusion through BSI Agents.

Results of Kendall’s Coefficient of Concordance (W)

To assess the degree of agreement among expert informants, this study employed Kendall’s Coefficient of Concordance (W). Kendall’s W measures inter-rater agreement for ranked data and ranges from 0 (no agreement) to 1 (perfect agreement) (Legendre, 2010; Siegel & Castellan, 1988). Table 2 reports the Kendall’s W values for each problem, solution, and strategy cluster.

Table 2. Kendall’s Coefficient of Concordance (W) Results

No	Node	G-Means	Rank	U	S	Max S	W
Human Resource Problems							
1	MSDM1	0.30852	4	0.36724	23.1947	178.638	0.12984
2	MSDM2	0.37070	2				
3	MSDM3	0.32078	3				
4	MSDM4	0.46895	1				
Technical Problems							
1	MTEK1	0.24745	3	0.26742	24.9376	185.318	0.13457
2	MTEK2	0.28361	2				
3	MTEK3	0.32905	1				
4	MTEK4	0.20958	4				
Competitor Problems							
1	MKOM1	0.24351	2	0.26595	11.0208	80.2543	0.13732
2	MKOM2	0.21786	3				
3	MKOM3	0.33649	1				
Community Problems							
1	MMSY1	0.26992	1	0.22117	11.4927	82.0045	0.14015
2	MMSY2	0.18242	3				
3	MMSY3	0.21116	2				
Human Resource Solutions							
1	SSDM1	0.41833	1	0.34994	23.4911	179.784	0.13066
2	SSDM2	0.34476	3				
3	SSDM3	0.23691	4				
4	SSDM4	0.39974	2				
Technical Solutions							
1	STEK1	0.25231	3	0.28000	24.7136	184.467	0.13397
2	STEK2	0.34795	1				
3	STEK3	0.27917	2				
4	STEK4	0.24056	4				
Competitor Solutions							
1	SKOM1	0.23166	3	0.26423	11.0387	80.3211	0.13743
2	SKOM2	0.24861	2				
3	SKOM3	0.31243	1				
Community Solutions							
1	SMSY1	0.28336	1	0.22919	11.4073	81.6892	0.13964
2	SMSY2	0.17749	3				
3	SMSY3	0.22672	2				
Strategies							
1	STR1	0.07827	1	0.06250	199.531	1479.06	0.13490

No	Node	G-Means	Rank	U	S	Max S	W
2	STR2	0.07381	2				
3	STR3	0.06241	5				
4	STR4	0.07339	3				
5	STR5	0.06658	4				
6	STR6	0.05018	6				
7	STR7	0.04750	8				
8	STR8	0.04786	7				

The results of Kendall’s Coefficient of Concordance (W) demonstrate low-to-moderate agreement among expert informants across all problem, solution, and strategy clusters, with W values ranging from 0.12984 to 0.14015. Within the problem clusters, community-related problems produced the highest level of agreement (W = 0.14015), indicating relatively strong consensus among experts regarding the importance of infrastructure limitations and connectivity challenges in remote areas. This was followed by competitor-related problems (W = 0.13732), technical problems (W = 0.13457), and human resource problems (W = 0.12984). For the solution clusters, the level of agreement remained relatively stable, with community solutions recording the highest W value (0.13964), followed by competitor solutions (0.13743), technical solutions (0.13397), and human resource solutions (0.13066). The strategic cluster generated a Kendall’s W value of 0.13490, reflecting moderate consensus among experts regarding long-term strategic priorities for BSI Agent development. Although the agreement levels are not particularly high, the results still indicate acceptable convergence of expert judgments considering the multidimensional and complex nature of Islamic banking financial inclusion issues. Overall, the Kendall’s W findings confirm the reliability and consistency of the ANP prioritization results while simultaneously illustrating the diversity of perspectives among experts from different institutional and professional backgrounds.

Discussion

The findings of this study demonstrate that human resource–related constraints represent the most critical factor affecting the development of Islamic banking financial inclusion through BSI Agents. The prioritization of “low employee awareness” and “inadequate agent competence” confirms that internal institutional readiness remains a more urgent challenge than external or technological constraints. This finding supports Allen et al. (2016), who emphasized that financial inclusion outcomes are strongly shaped by institutional quality, human capability, and social trust rather than merely by infrastructure availability. Similarly, Mohieldin et al. (2012) argued that Islamic financial inclusion requires institutional actors who are capable of effectively communicating Islamic financial values and products to underserved communities.

The dominance of human resource issues also aligns with Ali et al. (2020a), who identified institutional support, literacy, and organizational readiness as key determinants of Islamic financial inclusion in Indonesia. Likewise, Ali et al. (2020b) found that Islamic financial exclusion is often caused by weak service outreach, limited product understanding, and low institutional engagement with local communities. The current findings extend these studies by showing that such constraints are operationally reflected in the limited awareness and competence of BSI personnel managing agent networks.

The prioritization of incentive-related problems within the technical cluster indicates that agent performance is influenced not only by infrastructure readiness but also by governance and motivational mechanisms. Mas and Radcliffe (2011) emphasized that sustainable agent banking systems depend heavily on appropriate incentive structures capable of maintaining service quality and operational continuity. The findings of this study suggest that

agents may become less active or less committed when incentive mechanisms fail to reflect operational workloads and performance expectations.

From a strategic perspective, the prioritization of product and service expansion indicates that BSI Agents require stronger value propositions to remain competitive. This finding supports Rusydiana and Hasib (2019), who explained that accessibility, convenience, and service quality significantly influence customer preferences in selecting Islamic banking services. Abdul Hadi and Muwazir (2021) similarly found that accessibility and trust are major determinants influencing customer acceptance of Islamic banking across different socio-cultural contexts.

The strong emphasis on aggressive promotion by competitor agents demonstrates that Islamic banking financial inclusion is not solely determined by service availability but also by branding and market visibility. This finding reinforces Demirgüç-Kunt et al. (2018), who argued that financial inclusion depends significantly on public awareness, customer trust, and institutional outreach effectiveness. In the Indonesian context, conventional banking institutions often possess stronger distribution networks and more intensive promotional activities than Islamic banks, creating competitive disadvantages for BSI Agents.

Community-related constraints, particularly infrastructure limitations and connectivity issues in remote areas, further confirm the persistence of the digital divide in financial inclusion efforts. These findings are consistent with the World Bank (2022), which highlighted inadequate infrastructure and limited internet access as major barriers to inclusive financial systems in developing countries. The findings also support Kurniawan et al. (2024), who emphasized that technological adaptation and digital innovation are increasingly important for strengthening Islamic banking financial inclusion strategies in Indonesia.

At the solution level, the prioritization of increasing human resources and integrating agent performance into key performance indicators (KPIs) demonstrates that organizational commitment and performance monitoring are perceived as critical for strengthening BSI Agent effectiveness. This finding indicates that agent management should not be treated merely as a complementary operational function but rather as a strategic institutional priority integrated into organizational performance systems.

The emergence of digital platform development as one of the highest-priority strategies also reflects the growing importance of technology-driven financial ecosystems. However, the findings suggest that digital transformation alone is insufficient without simultaneous improvements in human resource readiness and governance systems. This finding is in line with Taherdoost and Madanchian (2023), who explained that complex strategic systems require integrated approaches that simultaneously address technological, organizational, and environmental interdependencies.

The strategic importance of integrated approaches identified in this study further validates the suitability of the Analytic Network Process (ANP) method. According to Saaty and Vargas (2012), ANP is particularly appropriate for analyzing strategic problems characterized by multidimensional interrelationships and feedback effects among criteria. Sipahi and Timor (2010) similarly argued that ANP provides more realistic analytical outcomes than linear decision-making approaches because it captures dependencies among decision elements. In this study, the interconnections between human resources, incentives, technology, governance, and community trust demonstrate the complexity of Islamic banking financial inclusion systems.

The findings also support Widiastuti et al. (2022), who demonstrated that ANP is effective for evaluating strategic priorities within Islamic finance systems involving multiple institutional and operational dimensions. Unlike previous studies focusing primarily on macro-level Islamic financial inclusion, this study specifically contributes by operationalizing the role of Islamic banking agents as strategic intermediaries within the financial inclusion ecosystem.

Moreover, the moderate Kendall's W values indicate that although expert opinions vary across institutional backgrounds, there remains sufficient convergence regarding the strategic importance of human resource strengthening and digital adaptation. Schmidt (1997) explained that moderate consensus levels are common in strategic decision-making studies involving

heterogeneous experts and complex policy issues. Similarly, Siegel and Castellan (1988) noted that nonparametric agreement measures such as Kendall's *W* remain reliable even under conditions of diverse expert perspectives.

The moderate consensus levels identified in this study may also reflect the dynamic and context-dependent nature of Islamic banking financial inclusion in Indonesia. Differences in regional infrastructure, institutional capacity, customer characteristics, and technological readiness may shape varying expert priorities. Nevertheless, the convergence around human resource strengthening and digital platform development indicates robust strategic direction across expert groups.

From a broader Islamic banking perspective, these findings also reinforce Yanıkkaya and Pabuçcu (2017), who argued that stagnation in Islamic banking development is frequently caused by weak institutional expansion strategies and limited innovation capacity. Similarly, Saini et al. (2011) highlighted that public awareness and understanding of Islamic banking products remain crucial determinants of financial service adoption. In this study, the strategic importance of literacy-oriented promotion and product knowledge strengthening reflects the continued relevance of these challenges in the Indonesian Islamic banking sector.

Overall, this study demonstrates that strengthening Islamic banking financial inclusion through BSI Agents requires integrated strategies combining human resource development, institutional governance, digital innovation, competitive positioning, and community-based outreach. Financial inclusion cannot be achieved solely through technological expansion or infrastructure investment, but must also involve organizational commitment, social trust, and adaptive institutional capacity. These findings contribute theoretically to the Islamic financial inclusion literature while also providing practical strategic implications for Bank Syariah Indonesia, regulators, and policymakers seeking to strengthen inclusive Islamic financial ecosystems in Indonesia.

5. Conclusion

This study concludes that the development of Islamic banking financial inclusion through Bank Syariah Indonesia (BSI) Agents is influenced primarily by human resource readiness, institutional commitment, and digital service capability. The ANP analysis reveals that low employee awareness, inadequate agent competence, and unattractive incentive structures are the most critical constraints affecting the effectiveness of BSI Agents in expanding Islamic financial inclusion. These internal challenges are compounded by external factors, including aggressive competition from conventional bank agents, infrastructure limitations in remote areas, and low levels of Islamic financial literacy among communities. The findings further demonstrate that strengthening human resources through increasing dedicated BSI Agent personnel, integrating agent performance into key performance indicators (KPIs), and improving product knowledge constitute the most important strategic priorities. In addition, the development of robust and user-friendly digital platforms, supported by cluster-based agent management and targeted supervision, emerges as a crucial strategy for enhancing operational effectiveness and expanding outreach. The Kendall's Coefficient of Concordance results indicate acceptable levels of expert agreement, confirming the reliability of the identified strategic priorities despite the multidimensional nature of the problem. Overall, this study highlights that Islamic banking financial inclusion cannot rely solely on infrastructure expansion or product availability, but requires integrated strategies combining institutional strengthening, digital innovation, governance mechanisms, and community-based outreach. The study contributes to the Islamic finance literature by providing an operational and strategic perspective on the role of Islamic banking agents in promoting inclusive finance within a large Muslim-majority emerging economy, while also offering practical implications for policymakers, regulators, and

Islamic banking institutions seeking to strengthen sustainable Islamic financial inclusion systems in Indonesia.

Future research is recommended to expand the scope and methodological approach of this study in several ways. First, subsequent studies should incorporate quantitative customer-level and agent-level data to statistically validate the ANP-derived priorities and examine the causal relationship between agent development strategies and Islamic financial inclusion outcomes. Second, future research may employ mixed-method or longitudinal approaches to capture dynamic changes in agent performance, digital adoption, customer trust, and financial inclusion over time. Third, comparative studies across Islamic banks, regions, or countries are necessary to evaluate the generalizability of agent-based Islamic banking strategies under different institutional, technological, and regulatory environments. Fourth, future studies should explore the integration of emerging technologies such as artificial intelligence, predictive analytics, fintech platforms, and digital ecosystems in strengthening Islamic banking agent performance and outreach. Finally, further research is encouraged to investigate customer behavior, financial literacy, religiosity, and trust dimensions in order to better understand the socio-cultural factors influencing the adoption of Islamic banking services through agent-based financial inclusion models.

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