



Islamic Fintech Development Strategy in Indonesia: Analytic Network Process (ANP) Approach

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This study aims to analyze problem priorities, solutions and strategies in the development of Islamic fintech in Indonesia by using Analytical Network Process (ANP) method. The background of this study is the rapid growth of the Islamic fintech industry in Indonesia, but until now the map has not been found in its development. This study involved stakeholders from the government/regulators, practitioners and academics as the research respondents. The results of this study showed that the problem priorities of Islamic fintech development in Indonesia respectively are Regulation, Literacy, Human Resources (HR) and Capital. While the solution priorities respectively are Literacy, Human Resources (HR), Regulation and Capital. The alternative priorities for the Islamic fintech development strategy in Indonesia respectively are Increasing Literacy, Strengthening Government Support, Improving Quality and Quantity of Human Resources (HR), Expanding Access to Capital and Creating Ecosystems. This study shows that collaborative efforts are needed so that the Islamic fintech industry in Indonesia can develop and be sustainable.

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INTRODUCTION

Nowadays, the digitalization of financial transactions through fintech becomes a very common phenomenon, it is the consequence of technological development in the fourth industrial revolution era. All industrial lines are required to adapt in order to survive in serving the needs of people whose behavior changes very quickly and uphold effectiveness and convenience. The Islamic financial industry is also required to be adaptive in carrying out its activities, one of which is the digitalization of financial transactions by utilizing fintech.

In the last five years, the Islamic fintech industry has developed rapidly in Indonesia. There are 32 licensed Islamic fintech organizers divided into four clusters, namely: fintech payment, peer-to-peer financing, securities crowdfunding, and digital financial innovation. Based on the Global Islamic Fintech Report Index 2022 published by Dinar Standard, Indonesia is in the third position in terms of Islamic fintech development. (Dinar Standard, 2022). Indonesia is also considered to have a conducive ecosystem for the growth and sustainability of the Islamic fintech industry.

Referring to existing regulations, it can be concluded that the Islamic fintech industry in Indonesia is still very young. The first regulation that regulates is the Regulation of the Financial Services Authority (OJK) Number 77/POJK.01/2016 concerning Information Technology-Based Money-Lending Services and DSN MUI (Indonesian Ulema Council) Fatwa Number 117/DSN-MUI/II/2018 concerning Information Technology-Based Financing Services Based on Islamic Principles which regulates Peer to Peer Financing fintech. In addition, Bank Indonesia Regulation (BI) Number 19/12/PBI/2017 Concerning the Implementation of Fintech and DSN MUI Fatwa No. 116/DSN-MUI/IX/2017 concerning Islamic Electronic Money which regulates payment fintech. Moreover, the Indonesian Islamic Fintech Association (AFSI) which oversees Islamic fintech was also just established in 2018.

According to Rusydiana (2018) the Islamic fintech prospects in Indonesia are very good with the largest Muslim population in the world, besides that fintech in Indonesia has great potential because it can provide solutions for urgent needs that cannot be provided by traditional financial institutions, especially Islamic fintech. However, it has not been utilized strategically by stakeholders, it requires a strategy formulation from all stakeholders that can stimulate the

growth and development of Islamic fintech in Indonesia.

The Islamic fintech development in Indonesia still provides quite large and wide-open opportunities, but it must be followed by easier regulations, adequate infrastructure, and socialization about a good understanding of Islamic finance so that Islamic fintech can further develop and minimize the rapid growth of illegal fintech (Yudhira, 2020).

A study conducted by Basya, et al (2019) stated that Islamic fintech requires positioning and innovation so that it can develop and compete with conventional fintech, which has more numbers and greater capital. In addition, Islamic fintech is also expected to be user-friendly, considering that most of the users in this industry are the millennial and Z generations, who incidentally are literate in digital finance.

Based on Tripalupi and Anggahegari's research (2020) there are various opportunities that can be utilized by Islamic fintech, including the population which is mostly Muslim and 64% does not have a bank account, penetration of internet usage which is always increasing and government support for this industry. However, the rise of illegal fintech and the low literacy of Islamic finance and digital society is a challenge for fintech growth.

According to the Global Islamic Fintech Report Index 2022, the position of Indonesia's Islamic fintech industry in the global area is in 3rd position after Malaysia and Saudi Arabia. Referring to the results of the report, what makes Malaysia lead in this index ranking is the existence of an ecosystem that supports the development of the Islamic fintech industry, such as legal products support and fatwas from regulators, a broad market and adequate human resources. Moreover, in recent years, Malaysia has included the Islamic digital economy and finance in its Key Economic Growth Activities, Malaysia's seriousness in developing the fintech industry can be seen from the active role of the Malaysia Digital Economy Corporation (MDEC). MDEC is a government agency under the assistance of the Ministry of Communication and Multimedia which functions as a catalyst in the development of Malaysia's digital economy with the vision of advancing the Malaysian economy by accelerating digital transformation.

Saudi Arabia is in second place in the Global Islamic Fintech Index 2022, among the supporting factors of the Islamic fintech growth in Saudi Arabia are regulatory support and an ecosystem created by the government, this is also supported by a broad and

leading market in the region and adequate capital. Based on the [Fintech Saudi Annual Report \(2020\)](#) released by the Central Bank and Capital Market Authority of Saudi Arabia which acts as the catalyst for the fintech industry development in Saudi Arabia, there are several things that must be done for the fintech industry to develop, including building a massive ecosystem that consists of start-ups, users, technology service providers, investors, financial institutions, accelerators and incubators as well as educational and research institutions. In addition, adequate regulatory support, incentives from the government, an innovative mindset and entrepreneurship, technological readiness, a conducive business environment and strong capital are needed.

When referring to previous studies and reports related to fintech on an international scale, there is a common thread indicating that there are several aspects that play a role in the development of Islamic fintech in Indonesia, namely: Human Resources, Regulation, Capital and Literacy.

Human resources are one of the indicators for the Global Islamic Fintech Report Index 2021 published by Dinar Standard, moreover the researches by [Rusydia \(2018\)](#), [Nasution \(2021\)](#), and [Amri & Mohammed \(2021\)](#) also stated the vital role of human resources in Islamic fintech industrial development.

Regulation is one aspect that has been most frequently mentioned by previous researchers, such as [Rusydia \(2018\)](#), [Aulia, et al \(2020\)](#), [Yudhira \(2020\)](#), [Yahya \(2021\)](#), [Amri and Mohammed \(2021\)](#). In addition, regulations are also one of the indicators for the Dinar Standard in compiling the Global Islamic Fintech Report Index 2022.

Capital has a significant role in the progress of the fintech industry as in the startup sector in general. [Basya, et al \(2019\)](#) stated in their research that capital is a challenge for Islamic fintech so that it can compete and develop, besides that the preparation of the Global Islamic Fintech Report Index 2022 also makes capital as one of the indicators. Data from the Indonesian Islamic Fintech Association (AFSI) confirmed it, Emil Edhi Dharma (AFSI Executive Director) stated that in the period 2020-2021, there were 2 Islamic fintech platforms that did not continue their business due to capital difficulties ([Interview, May 3rd, 2021](#)).

Literacy is an issue that can never be separated when discussing Islamic finance, especially Islamic fintech. Based on data from the Financial Services Authority (OJK) in 2019, national Islamic financial literacy is only 8.93%, a very small number when looking at the number of Indonesian Muslim population as well

as the economic and Islamic financial potential it has. Research by [Yudhira \(2020\)](#), [Nasution \(2021\)](#), and [Yahya \(2021\)](#) also stated that one of the challenges that must receive attention in the development of the Islamic fintech industry is literacy.

This study will try to answer the following research questions: How is the model for the Islamic fintech development strategy in Indonesia using the Analytic Network Process (ANP) method.

LITERATURE REVIEW

Theory and Basic Concept

The Financial Stability Board (FSB) defines fintech as technology-enabled innovation in financial services that can result in new business models, applications, processes or products with related material effects on financial markets and institutions and the provision of financial services ([FSB, 2021](#)). Meanwhile, according to [Bank Indonesia \(2021\)](#) fintech is the use of technology in the financial system that produces new products, services, technology, and/or business models and can have an impact on monetary stability, financial system stability, and/or the efficiency, continuity, security, and reliability of payment systems. So, fintech is a combination of finance and technology, using technological innovation in financial transactions as well as various services and products.

In Indonesia, fintech (including Islamic fintech) is divided into 4 clusters, namely: Payment, P2P Financing, Securities Crowdfunding and Digital Financial Innovation. As stated in the Global Islamic Fintech Report 2022, that the ecosystem has a significant role in the development of Islamic fintech. According to the [Indonesia Islamic Fintech Association \(2022\)](#) there are at least 6 stakeholders that build an Islamic fintech ecosystem, namely: fintech companies, associations, regulators, incumbent financial institutions, supporting technology industries, educational and training institutions as well as community organizations.

Currently, there are 3 associations that oversee Islamic fintech in Indonesia, namely: the Indonesia Islamic Fintech Association (AFSI), the Indonesia Funding Fintech Association (AFPI), and the Indonesia Crowdfunding Services Association (ALUDI). For AFPI and ALUDI there is an Islamic compartment in its management and membership. However, for regulators, there are 2 agencies, namely Bank Indonesia which regulates and oversees the fintech payment cluster and the Financial Services Authority for the P2P

Financing, Securities Crowdfunding and Digital Financial Innovation clusters.

Apart from BI and OJK, there is also the National Islamic Council of the Indonesia Ulema Council (DSN-MUI) which is the regulator of Islamic fintech, whose role is in issuing and implementing fatwas related to fintech and providing recommendations to the Islamic Supervisory Board (DPS) for Islamic fintech companies.

In order to provide legal certainty and provide a sense of security and protection for the fintech regulatory community in Indonesia, various regulations have been issued which become the legal umbrella for each fintech cluster. In addition, the National Islamic Council of the Indonesia Ulema Council also issues relevant fatwas to ensure Islamic conformity of transactions in fintech organizers.

Previous Study

The study on Islamic fintech in Indonesia generally has been done by several previous researchers. Previous studies on Islamic fintech were dominated by explanations of Islamic fintech conditions, Islamic aspects of fintech and types or business models. However, the researches that specifically discusses the strategy of Islamic fintech development in Indonesia are still very minimal and no one has used the ANP approach.

Moreover, in terms of research objects, no one discussed the Islamic fintech cluster as a whole, the majority of research was carried out by previous researchers only focusing on Islamic P2P Financing. This study derives the construction of the ANP model through literature reviews and literature as well as interviews.

METHODOLOGY

The approach used in this study is a mixed method, which is a combination of quantitative research approaches and qualitative research using the Analytic Network Process (ANP) analysis method. ANP is one of the newest techniques in decision making which is the first mathematical theory that allows decision makers to deal with interrelated factors and their feedback systematically. ANP is Multiple Criteria Decision Making (MCDM), which is a decision-making method based on many criteria introduced by Thomas L. Saaty. ANP helps decision-makers measure and synthesize a number of factors in a hierarchy or network (Tanjung & Devi, 2018).

In research using the ANP method there are five stages that must be done, the five stages are:

1. In the first stage, the researcher determines the research objectives, namely the strategy for developing Islamic fintech in Indonesia. Furthermore, collecting information and various supporting studies through literature review and in-depth interviews to dig up deep and objective information on the research being studied. This was done to identify the focus of the research study and compile a list of criteria used to measure alternatives according to the research objectives.
2. The second stage, collecting data and making alternative criteria, then the next step is to create a conceptual framework and construct ANP based on the data obtained to analyze based on problems eventually, solutions and strategies in accordance with complete research with clusters, elements and their relationships.
3. The third stage, filling out the questionnaire carried out by predetermined informants and in accordance with the research criteria. The questionnaire contains statements about how important each alternative is, in terms of the problem, solution and strategy aspects. At this stage, in-depth interviews were also carried out according to the ANP research criteria and sub-criteria.
4. The fourth stage processes the results of the questionnaires obtained using the Analytic Network Process (ANP) software, namely Super Decisions. The quantification of the ANP model is a question or comparison in the form of pairwise comparisons between elements in the cluster.
5. The fifth stage is the interpretation of the data analysis results to draw conclusions from the research. This was followed by synthesis and analysis using Geometric Mean (Geomean). Geomeans are carried out to find out the results of individual assessments from experts as informants/respondents and to determine the results of opinions on a group (Saaty, 2003). Geomean is an average calculation that shows or identifies a center of tendency or a certain value. The results obtained will be calculated by Kendall's Coefficient of Concordance: ($W: 0 < W \leq 1$) $W=1$ which is a measuring tool for calculating rater agreement values that are useful for seeing agreement on the value given by research respondents (Tanjung & Devi, 2018). If the W test value is 1, it can be concluded that the assessment or opinion of the respondents has a perfect fit

(Ascarya, 2012). This agreement calculation is an additional analysis of ANP, considering that ANP is an analytical tool that involves a large number of respondents in decision-making. If the results of the rater agreement calculations are weak, it does not mean that the results of the ANP research are wrong. But it only shows that there are different views on this matter, considering that the respondents have diverse backgrounds (Tanjung & Devi, 2018).

The respondents' characteristics in the ANP method do not look at the number present but focus on the criteria of the respondent, namely people who understand and are competent in their field (Ascarya, 2005). This study will collect data from 10 respondents, consisting of clusters of practitioners, regulators and academics. Following are the names and information of the 10 respondents:

1. Ronald Yusuf Wijaya, Co-Founder and Chief Executive Officer of Ethis Indonesia which is an Islamic Peer-to-Peer Lending fintech licensed and supervised by the Financial Services Authority (OJK), and also the Chairperson of the Indonesia Islamic Fintech Association (AFSI).
2. Bembi Triawan Juniar, the Co-Founder and Chief Business Officer of Alami Sharia, which is an Islamic Peer to Peer Lending fintech licensed and supervised by OJK.
3. Kevin Syahrizal, Co-Founder and Chief Executive Officer of Shafiq Indonesia which is a Securities Crowdfunding fintech licensed and supervised by OJK.
4. Putri Madarina, the CEO of Vestora which is a Securities Crowdfunding fintech, and also the General Treasurer of the Indonesia Islamic Fintech Association (AFSI).
5. Widyo Gunadi, an Advisor to the Financial Services Authority (OJK) of Digital Innovation and Finance Group.
6. Bagas Setiaji, an Analyst for the Department of Regulation, Licensing and Supervision of the Fintech Financial Services Authority (OJK).
7. Achmad Iqbal, the Head of the Islamic Business Partnership and Acceleration Division of the National Islamic Economy and Finance Committee (KNEKS).
8. Muhammad Yusuf Helmy, a Member of the National Islamic Council of the Indonesia Ulema Council and also the Islamic Fintech P2P Supervisory Board of Dana Syariah.
9. Murniati Mukhlisin, a lecturer at the Bogor Tazkia Institute and also on the Supervisory Board of the Indonesia Islamic Fintech Association (AFSI).
10. Aam Slamet Rusydiana, Founder and Senior Researcher at SMART Research Consulting, Indonesia.

RESULTS AND ANALYSIS

One of the critical points of the Analytical Network Process (ANP) method is the selection of respondents because it relates to the validity of their responses to the research. Ascarya (2015) stated that the most important aspect of the ANP method is the selection of respondents who are competent and have mastered research topics according to their respective fields. In this study, the authors selected 10 (ten) respondents with three (3) criteria, namely: Practitioners, Regulators and Academics.

After conducting a literature review and in-depth interviews, the construct of the ANP model in this study consists of three evaluation aspects, namely: 1) Problems; 2) Solutions; and 3) Strategy. In the evaluation aspect of problems, solutions and strategies, there are respective evaluation aspects from practitioners, regulators and academics.

For aspects of problem evaluation and solutions, there are four criteria respectively, namely: 1) Human Resources; 2) Regulation; 3) Capital; and 4) Literacy, and each criterion has three sub-criteria. Meanwhile, for strategy there are five criteria, namely: 1) Increasing the Quality and Quantity of Human Resources; 2) Strengthening Government Support; 3) Strengthening and expanding access to capital; 4) Increasing Literacy; and 5) Building an ecosystem of Islamic fintech.

Problem Priorities

Through Analytical Network Process data processing using super decision software, it is known that the ranking of priorities in the problem of Islamic fintech development is as shown in the following diagram:

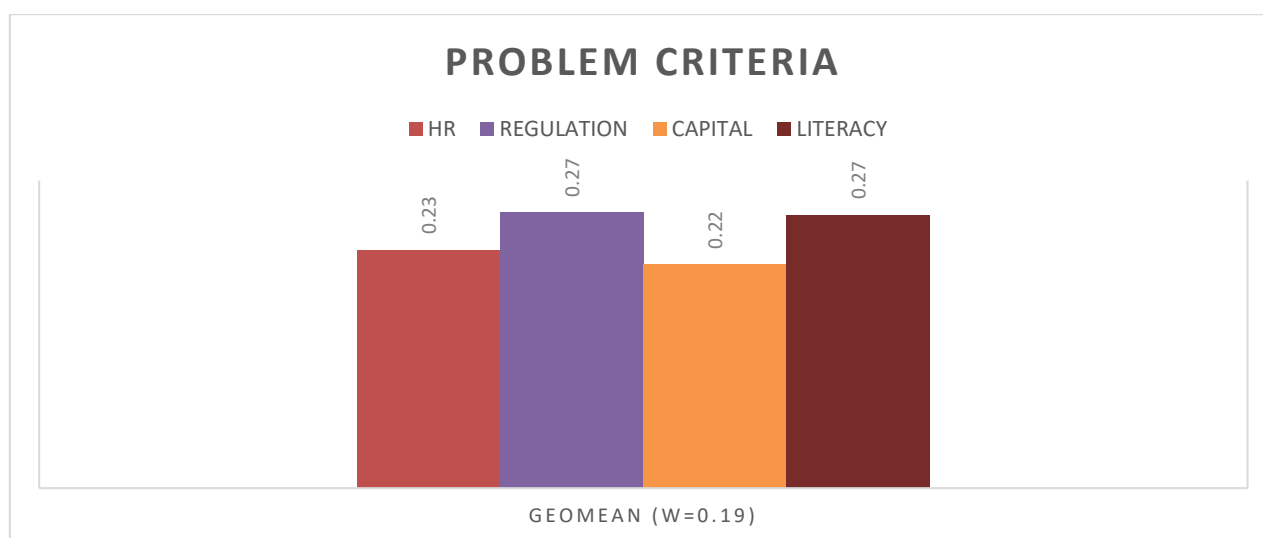


Figure 1. Problem Criteria Priority

Source: Indepth Interview and Literature Review (2022), data is processed.

Based on the figure 1, there are 4 indicators of problem criteria in the concept of Islamic fintech development strategy in Indonesia, namely: 1) HR problems, 2) Regulatory problems, 3) Capital problems; and 4) Literacy problems. Regulatory problems are the main indicator of fintech development problems with an average value of 0.27. Then Literacy Problems became the second priority indicator with an average value of 0.26, followed by HR Problems with an average value of 0.23, and then Capital Problems became the last priority in the problem criteria indicator with an average value of 0.22. The rater agreement value for this criterion is 0.19 ($w = 0.19$) which is on a weak to moderate scale, which indicates that experts have varied answers in determining problem criteria in the concept of an Islamic fintech development strategy.

Experts agree that regulation is a top priority in Islamic fintech development in Indonesia. This is in line with [Rusydia's research \(2018\)](#) which stated that the lack of support for policy instruments is a challenge in the development of Islamic fintech. This argument is in line with what was conveyed by [Aulia, et al \(2020\)](#) that regulators (BI, OJK and DSN-MUI) have a significant role in the development of the Islamic fintech industry. Research from [Yudhira \(2020\)](#), [Hasan, et al. \(2020\)](#), [Yahya \(2021\)](#), and [Amri & Mohammed \(2021\)](#) also confirmed how important regulatory support is in Islamic fintech development.

The impact of government regulation on fintech development cannot be denied ([Ali et al., 2019](#)). The ever-changing regulatory environment remains a major obstacle for Islamic fintech ([Ali et al., 2020](#)). Ningrat and Nurzaman put forward several reasons

related to regulatory stagnation, namely inappropriate and/or ineffective policies and the absence of risk management instruments. The government's failure to understand market evolution has hampered the adoption of new technology-based financial products ([Mogilevskii & Asadov, 2018](#)). The lack of support for statutory regulatory instruments is a challenge in the Islamic fintech development in Indonesia ([Rusydia, 2018](#)).

In addition to regulation, compliance with data security is also a major concern in the development of Islamic fintech. Fintechs must ensure that consumer data is protected in accordance with applicable laws, including provisions regarding personal data protection. This compliance ensures that financial transactions and personal data are handled in accordance with Sharia principles, maintaining customer trust and confidence. According to [Yahya's research \(2021\)](#), data security issues are one of the main obstacles to consumer trust in fintech services. This explains that personal data protection is an important aspect of Islamic fintech. The Indonesia government has regulations to ensure data privacy is thoroughly protected, and Islamic fintech operators must comply with these regulations to avoid severe sanctions ([Hamsin et al., 2023](#)).

The second priority in the problem of Islamic fintech development in Indonesia is literacy, a similar problem faced by Islamic economics and finance in general. Financial literacy is a key aspect of achieving financial inclusion ([Abel et al., 2018](#)). According to [Engels et al. \(2020\)](#), individual subjective well-being plays a very important role in the relationship between financial knowledge or literacy and fraud detection. The

biggest obstacle for developing countries is the lack of financial literacy (Grandolini, 2015).

Literacy has a significant role in the growth of the Islamic fintech industry, therefore many researchers have concluded that literacy plays a vital role in supporting the industry, as shown by research results (Yudhira, 2020), (Nasution, 2021), and (Yahya, 2021). Fintech used in Islamic finance must follow Islamic rules. In general, technology is Islamic-neutral unless it is used in a way that directly contradicts with Islamic rules or regulations (Oseni & Ali, 2019). To promote industry development, initiatives to ensure financial competence and literacy about Islamic fintech become very important.

Basically, the literacy activities are also part of the responsibility of fintech organizers to carry out the consumer education and protection functions as stipulated in POJK Number 77/POJK.01/2016, Number 57/POJK.04/2020 and Number 13/POJK.02/2018. Juniar (2022) stated that one of the main challenges of Islamic fintech is literacy

Apart from literacy, the role of technology is also crucial in the development of Islamic fintech and has significant implications for the growth and sustainability of Islamic finance. Hehanussa & Syarifuddin's research (2021) highlights the active role of fintech in the development of the national Islamic economy in Indonesia. He asserted that fintech provides easier, faster, and more efficient Islamic financial transactions, thus increasing financial inclusion and boosting economic growth in Islam. In addition, fintech can strengthen startup companies, improve the halal industry chain, and create an Islamic economy based on technological infrastructure (Hehanussa & Syarifuddin, 2021)

Furthermore, the application of the latest technologies such as blockchain, AI, and machine learning can improve efficiency and transparency in Islamic financial services. Blockchain technology is highly flexible and can be integrated with other technologies such as AI and machine learning to improve the security, transparency, and efficiency of financial transactions. This supports the application of Maqasid rules in Islamic financial operations, thereby increasing trust and compliance with Shariah principles (Chong, 2021; Aysan & Unal, 2022). In addition, AI and machine learning are used to analyze vast data sets, predict outcomes, and automate processes in Islamic finance. These technologies help financial institutions to make informed decisions, improve efficiency, and comply with Sharia law by analyzing data and identifying

patterns. AI and machine learning can also help identify possible areas of improvement across multiple channels and touchpoints, thereby reducing the risk of non-compliance and improving the quality of Islamic banking services (Ihsan et al., 2024). It can be concluded that blockchain technology, AI, and machine learning are essential components in the development of Islamic fintech, enabling efficient, compliant, and innovative financial services that are aligned with Islamic principles.

The next priority problem is Human Resources (HR), the existence of a talent gap or the absence of a pool of talent in this sector is a challenge for Islamic fintech growth. Rusydiana (2018) stated that the availability of human resources is one of the keys to Islamic fintech development in Indonesia. This is in line with the research conclusions of Nasution (2021) and also Amri & Mohammed (2021) which concluded that the growth of the Islamic fintech industry must be accompanied by the readiness of human resources. In addition, Dinar Standard made Human Resources as one of the indicators in compiling the Global Islamic Fintech Index 2022. Syahrizal (2022) stated that human resources are needed for the development of this industry, which according to him are still difficult to find.

In terms of human capital, finding and retaining a high-quality workforce is one of the most significant problems faced by fintech companies. One of the most difficult and fundamental challenges to overcome, according to Wolfe (2016) and Nordicity (2012) is whether the supply of graduates is interested enough to pursue an education that will train them to work in digital technologies throughout the economy. In order to stimulate continuous professional development in this field, a certification system for human resource managers should be designed (Jamil & Seman, 2019).

Furthermore, collaboration between industry and academia is essential to ensure graduates have the skills required by the Islamic fintech industry. This collaboration can help align the academic curriculum with industry needs, encourage research and innovation, and provide practical training opportunities for students. Industry-academia collaboration ensures that the academic curriculum is customized to meet the needs of the Islamic fintech industry. This alignment helps graduates acquire the necessary skills and knowledge to excel in their careers (Faculty of Economics and Business, n.d.). In addition, collaboration facilitates joint research projects and innovation initiatives. This synergy allows academics to stay up-to-date with industry trends and challenges, while the industry benefits from cutting-

edge research and innovative solutions (Faculty of Economics and Business, n.d.).

Capital is the last priority in the matter of Islamic fintech development in Indonesia. [Basya, et al \(2019\)](#) stated that capital is an important aspect of the development of Islamic fintech in Indonesia. However, this has not been the concern of other researchers who do not make the capital as an indicator of Islamic fintech development, even though its role is very crucial. In addition to internal capital, the role of investors and external funding is crucial in supporting the development of Islamic fintech.

This role is highlighted in several scientific journal references that emphasize the importance of investment in Islamic fintech for the growth and sustainability of the industry. [Trimulato et al \(2020\)](#) and [Mustamin & Trimulato \(2022\)](#) explained that Islamic fintech provides attractive investment opportunities for investors who want to invest in accordance with Islamic

principles. These investments are free from prohibited transactions such as *riba* (usury), *maysir* (gambling), and *gharar* (uncertainty), thus ensuring compliance with Sharia law. Investment in Islamic fintech can generate profits and contribute to economic growth. SME development through investment in Islamic fintech is an important aspect of this growth as it provides funds for entrepreneurs to expand their businesses ([Trimulato et al., 2020](#)).

Solution Priorities

In the solution cluster, there are four solution criteria for the development of Islamic fintech in Indonesia. Through ANP data processing using super decision software, it is known that the ranking of priorities in the problem of Islamic fintech development is as shown in the following graph:

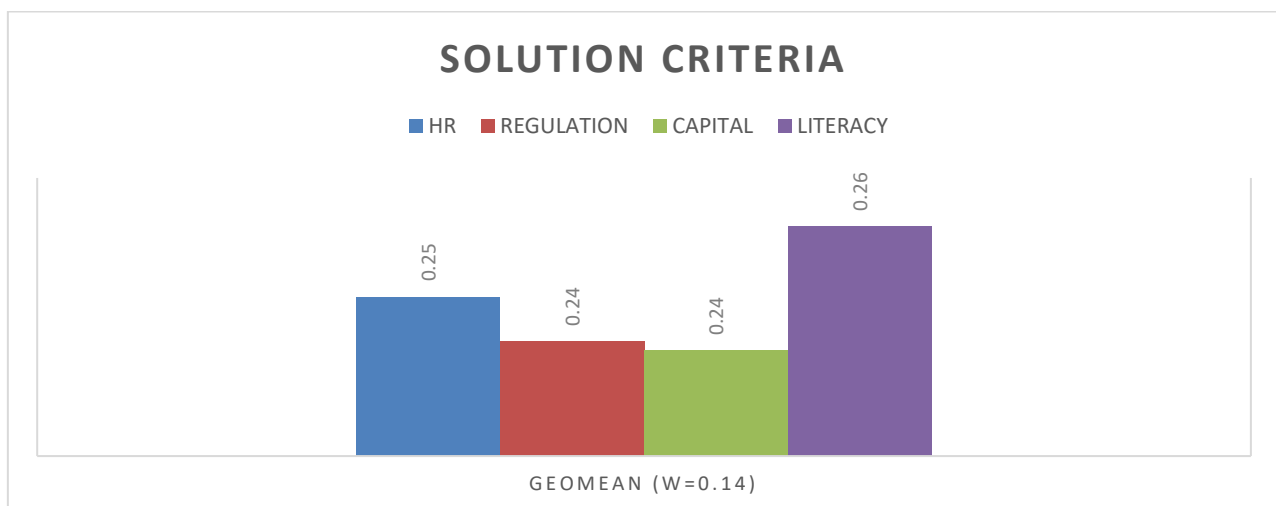


Figure 2. Solution Criteria

Source: Indepth Interview and Literature Review (2022), data is processed.

Based on figure 2 above, there are 4 indicators of solution criteria in the concept of Islamic fintech development strategy in Indonesia, namely: 1) HR Solutions; 2) Regulatory Solutions; 3) Capital Solutions; and 4) Literacy Solutions. Literacy Solution is the main indicator in the solution criteria cluster with an average value of 0.26. Furthermore, HR solutions are the second priority indicator with an average value of 0.25, followed by regulatory solutions and capital solutions with the same average value of 0.24. The rater agreement value for this criterion is 0.14 ($w = 0.14$) which is on a weak to moderate scale, which indicates that the experts do not agree or the answers vary in determining the solution

criteria in the concept of Islamic fintech development strategy in Indonesia.

The analysis results show that literacy is the main criterion for Islamic fintech development solutions in Indonesia, followed by Human Resources (HR) being the second priority, followed by regulatory and capital solutions. [Lusardi et al. \(2015\)](#) emphasized that in order to increase financial literacy, it is necessary to integrate more effective financial education through improved design and information delivery. As fraud becomes more complex, policymakers should focus on consumer education initiatives to increase financial literacy on topics such as risk and return ([Engels et al., 2020](#)).

Consumers will be more capable to identify and understand how financial products work. Furthermore, instruction on the components for achieving prudent financial behavior should include training to detect and prevent consumer fraud in addition to developing money management skills. [Ali et al. \(2020\)](#) explained indicators of financial literacy, such as receiving regular information updates, attending seminars and workshops, and using various media platforms.

The second priority in the solution criteria for the Islamic fintech development is Human Resources (HR), strategic steps by stakeholders are needed to be able to solve this problem. According to [Rusydia \(2018\)](#) the availability of human resources is one of the keys in the Islamic fintech development in Indonesia. This is in line with the research findings of [Nasution \(2021\)](#) and also [Amri & Mohammed \(2021\)](#) which stated that the growth of the Islamic fintech industry must be accompanied by the readiness of human resources.

Therefore, a more structured approach is needed to develop a more in-depth education or training system for this industry. Academic and industry collaboration is necessary to develop the types of research and courses that will provide the skills and competencies that the industry requires. In addition, collaboration with other countries that have successfully developed Islamic fintech is essential for the growth and sustainability of the industry. This collaboration allows for the exchange of best practices, expertise, and resources, which can enhance the development of Islamic fintech globally.

Collaboration with successful Islamic fintech countries enables the exchange of knowledge and best practices. This includes the integration of advanced technologies, such as blockchain and AI, to ensure Shariah compliance and enhance financial inclusion ([Cindy et al., 2019](#); [Hasan et al., 2020](#)). In addition, countries with established Islamic fintech frameworks can share experiences and lessons learned on their regulations. This helps in developing a comprehensive and effective regulatory framework that supports the growth of Islamic fintech ([Ajib, 2022](#)).

The third priority in the Islamic fintech development solution cluster is regulation, [Rusydia \(2018\)](#) stated that the lack of policy instrument support is a challenge in the Islamic fintech development. This argument is in line with what was conveyed by [Aulia, et al \(2020\)](#) that regulators (BI, OJK and DSN-MUI) have a significant role in developing the Islamic fintech industry. Research from [Yudhira \(2020\)](#), [Hasan, et al. \(2020\)](#), [Yahya \(2021\)](#), and [Amri & Mohammed \(2021\)](#)

also confirmed how important regulatory support is in Islamic fintech development. Dinar Standard made regulation as one of the indicators in compiling the Global Islamic Fintech Index 2021.

According to [Haddad and Hornuf \(2018\)](#), the fintech industry development should not be left alone, but setting sustainable policies can encourage the development of this new sector to foster new innovations in the Islamic finance sector. Regulation and supervision of fintech are very important for the development and sustainability of fintech in the long term, in order to provide legal certainty for various parties because there are potential risks to consumer protection, financial system stability, payment systems, and national economic stability, as well as to the legality of the business being carried out ([Pane, 2020](#)). Furthermore, compliance with Islamic principles is an important factor that distinguishes Islamic services from conventional services ([Mujahidin, 2019](#)). For this reason, the regulation of Islamic financial services is regulated in the aspect of Islamic compliance, with the authority devolved to the National Islamic Council of the Indonesia Ulema Council (DSN-MUI) through the Islamic Supervisory Board, which must be made for each Islamic-based fintech.

Furthermore, technological infrastructure is an important element that supports the development of Islamic fintech. According to [Soerjati et al \(2020\)](#), reliable and secure technology is essential to maintain the security of financial transactions. This includes the use of advanced encryption methods, secure data storage, and strong authentication systems to prevent unauthorized access and data breaches. In addition, compliance with Shariah principles is essential to maintain customer trust and confidence. This is particularly important in Islamic fintech, as customers expect their financial transactions to be conducted in accordance with Islamic law ([Usman et al., 2020](#); [Ishak et al., 2022](#)). The government and fintech service providers should work together to provide adequate infrastructure, such as stable and secure internet networks, and user-friendly digital platforms. With a good technological infrastructure, Islamic fintech can be more easily accessed and used by the wider community, thereby increasing financial inclusion in Indonesia.

The final priority for Islamic fintech development solutions is capital, [Basya, et al \(2019\)](#) stated that capital is an important aspect in the growth and development of Islamic fintech in Indonesia. However, this has not been the concern of other researchers who have not made capital as an indicator of

Islamic fintech development, even though its role is very crucial and significant.

The fintech industry faces development challenges due to high compliance costs and a lack of regulatory knowledge (Haddad & Hornuf, 2019). Alaassar (2021) stated that the government could provide dedicated Business Incubations and Accelerators to address these constraints, offering access to resources that significantly reduce validation costs and time to market.

This shows that there is a growing emphasis on funding incubator organizations to stimulate innovation in regulated industries. Alaassar (2021) added that Business Incubation has become a great alternative for fintech development by providing business support services, access to physical facilities, and networking opportunities.

This issue was confirmed by Emil Edhie Dharma the Executive Director of the Indonesia Islamic Fintech Association (AFSI) who stated that capital was one of the obstacles to developing Islamic fintech in Indonesia, he stated that in the period 2020-2021, there were 2 Islamic fintechs that stopped operating due to capital difficulties (Interview, May 3th, 2021). The importance of the capital role is also the basis for the Dinar Standard and makes capital one of the indicators in compiling the Global Islamic Fintech Index 2022.

International collaboration also plays an important role in the development of Islamic fintech in Indonesia. With this collaboration, Indonesia can learn

best practices and innovations that have proven effective in these countries. According to Ichsan et al (2024), international collaboration facilitates the exchange of best practices between countries that have successfully developed Islamic fintech. This knowledge exchange can help developing countries adopt effective strategies and technologies that have proven successful in other countries. For example, countries like Malaysia and Indonesia can learn from each other's regulatory frameworks and technological innovations in fintech. This will help accelerate the development of the Islamic fintech industry in Indonesia and improve its competitiveness in the global market. The implementation of international collaboration should also be accompanied by local capacity building in order to adopt and adapt technologies and business models brought from abroad. Thus, international collaboration not only provides short-term benefits, but also supports the sustainable growth of Islamic fintech in Indonesia.

Alternative Strategy

In the Analytical Network Process (ANP) model of this study, there are five alternative strategies proposed, namely: 1) Increasing the Quality and Quantity of Human Resources; 2) Strengthening Government Support; 3) Strengthening Access to Capital; 4) Increasing Literacy; and 5) Building an Ecosystem. The following is the priority analysis result of the alternative strategies:

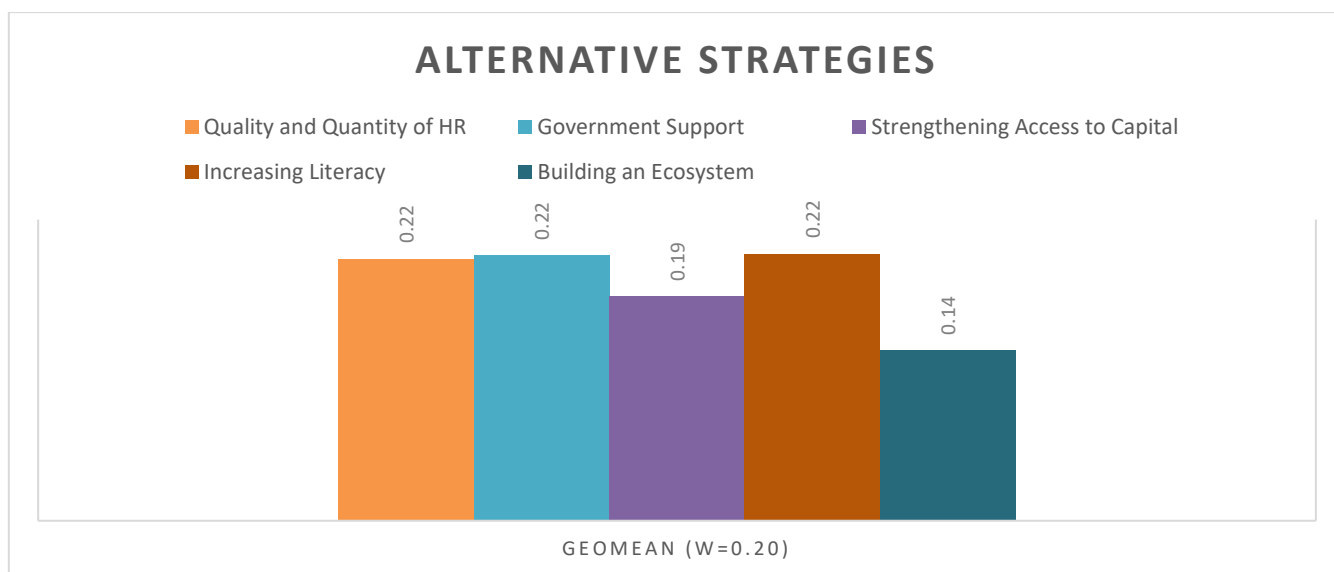


Figure 3. Alternative Strategies
Source: Inedpth Interview and Literature Review (2022), data is processed.

Based on figure 3 above, there are 5 alternative indicators of Islamic fintech development strategy,

namely: 1) Quality and quantity of human resources; 2) Government Support; 3) Strengthening Capital; 4)

Increasing Literacy; and 5) Building an Ecosystem. Increasing literacy is the main indicator in an alternative cluster of Islamic fintech development strategies in Indonesia with an average value of 0.2215. Furthermore, government support is the second priority indicator with an average value of 0.220, followed by the quality and quantity of human resources with an average value of 0.2173, strengthening capital is the fourth priority with an average value of 0.1863, and building ecosystems is the last priority in the alternative indicator with an average value of 0.1416. The rater agreement value for this criterion is 0.20 ($w = 0.20$) which is on a moderate to strong scale, which indicates that experts agree or the answers vary slightly in determining alternatives in the concept of strategy for Islamic fintech development in Indonesia.

The Islamic fintech development strategy in Indonesia can be started from increasing literacy, strengthening government support, increasing the quality and quantity of human resources, expanding access to capital and creating ecosystems. Increasing literacy is a top priority because the fintech industry in general and Sharia in particular are still relatively new, therefore good literacy is needed among stakeholders in order to grow. On the other hand, technological progress without being accompanied by literacy will also cause problems in the form of a gap between inclusion and literacy, this is what has resulted in the rise of victims of illegal online loans.

For literacy, it requires a strategy that is relevant depending on the target being targeted, in this digital era literacy initiatives are needed through social media or key opinion leaders so that the messages can touch the millennial and Z generation. On the other hand, a collaborative approach with universities is also important to increase literacy among the academic community so that they can also carry out community service activities in the future. On the other side, this is also needed by the MSME players who have the potential to become funding recipients on the Islamic fintech platform. So that they can understand comprehensively and take advantage of opportunities to get financing from organizers wisely and are also aware of the potential risks.

Apart from literacy, technological infrastructure is a key factor in supporting the development of Islamic fintech in Indonesia. With adequate infrastructure, Islamic fintech can operate efficiently and provide better services to users. Reliable and secure technology is essential to increase public trust in Islamic fintech. [Soerjati et al \(2020\)](#) explain that reliable and secure

technology is essential to maintain the security of financial transactions. The government and industry players need to ensure that technological infrastructure, such as stable internet networks and secure digital platforms, are available and accessible to all levels of society. This will help reduce the digital divide and increase financial inclusion

The second priority in the Islamic fintech development in Indonesia is to strengthen government support, for a relatively new industry, collaborative efforts are needed to grow it and one of them is the government. The government is expected not only to regulate, grant permits and supervise, but also to facilitate growth by providing innovation space for organizers. In addition, catalytic institutions such as the National Islamic Economic and Finance Committee (KNEKS) are expected to play a role in aligning stakeholders in this sector, so that there is no communication gap with each other. KNEKS can act as a liaison between the industry and the regulators, so that it can provide conducive policy formulations for the industry while still maintaining the interests of the regulators as well. With the very broad KNEKS ecosystem, it is highly expected that the role of this institution is in supporting the growth of Islamic fintech.

The third priority in the alternative strategy is to improve the quality and quantity of Human Resources (HR), a classic issue faced by the Islamic economics and finance industry for a long time. Even though Indonesia is the 1st ranks in the Education category, 2nd in the Research category, and 2nd in the category of Organizing Seminars in terms of indicators of knowledge and awareness of Islamic economics and finance based on the [Islamic Finance Development Indicator \(IFDI\) 2020](#), but literacy problems and HR are still the task of the stakeholders of Islamic economics and finance in Indonesia.

Therefore, collaborative and innovative efforts are needed to solve this problem, industry collaboration and association with universities can be a relevant strategy. So that students in universities do not miss information on what is developing in the industry.

For this matter, the Indonesia Islamic Fintech Association (AFSI) has made a unique effort through the AFSI Academic Partner which is an education and training collaboration program between universities and the Indonesia Islamic Fintech Association (AFSI). This collaboration is intended for academic institutions that wish to equip their academic community with competence in the field of Islamic fintech. This program is part of an effort to realize one of AFSI's missions,

which is to provide support to academic institutions in preparing human resources to encourage the progress of Islamic fintech in Indonesia and in line with the Merdeka Campus program of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia and supported by KNEKS.

The fourth priority in the alternative Islamic fintech development strategy is expanding access to capital. Stakeholders should pay more attention to Islamic fintech start-ups for this issue, starting with encouraging Islamic venture capital to support this industry or other strategic steps. This challenge always appears in various fintech discussion forums, especially since most of the organizers are early-stage companies. In addition, incubation programs carried out by Ministries and State Institutions or other stakeholders can expand access to capital for fintech players. In addition, Islamic fintech incubators and accelerators offer essential support services for startups, such as mentorship, office space, and access to investor networks. These programs can help startups navigate the regulatory environment and connect with potential investors. Crowdfunding platforms that adhere to Shariah principles can also provide an alternative avenue for raising capital. These platforms allow individuals to invest in fintech startups while ensuring compliance with Islamic financial principles.

The fifth priority of alternative strategy in Islamic fintech development in Indonesia is creating an ecosystem, stakeholders should also become concerned about this matter. Because a conducive ecosystem will give birth to innovations and maintain the sustainability of the industry. According to the Indonesia Islamic Fintech Association (AFSI) that there are at least six stakeholders in the Islamic fintech industry, namely: Islamic fintech start-ups, regulators, associations, Islamic financial institutions, supporting technology industries as well as educational and training institutions. Each stakeholder has other subs. All of these aspects must be in a conducive condition so that they can support the growth of Islamic fintech in Indonesia.

A healthy and sustainable ecosystem is essential for the success of Islamic fintech. To create a supportive ecosystem, there needs to be synergy between various parties such as fintech start-ups, Islamic financial institutions, regulators, and educational institutions. According to AFSI, a good ecosystem will facilitate innovation and maintain the sustainability of the industry. Stakeholders must work together to ensure that this ecosystem supports the growth and development of Islamic fintech in Indonesia.

CONCLUSION AND RECOMMENDATION

The problem priorities for the Islamic fintech development in Indonesia sequentially are regulation, literacy, Human Resources (HR) and Capital. Regulatory problems are the main indicator of problems in fintech development. Furthermore, Literacy Problems become the second priority indicator. Followed by HR Problems and then Capital Problems are the last priority in the problem criteria indicator.

The solution priorities for Islamic fintech development in Indonesia are literacy, Human Resources (HR), Regulation and Capital sequentially. Literacy Solution is the main indicator in the solution criteria cluster. Furthermore, HR solutions are the second indicator, followed by regulatory solutions and capital solutions.

The alternative priorities of the Islamic fintech development strategy in Indonesia sequentially are increasing literacy, strengthening government support, increasing the quality and quantity of Human Resources (HR), expanding access to capital and creating ecosystems. Increasing Literacy is the main indicator in the alternative cluster of Islamic fintech development strategies in Indonesia. Furthermore, government support is the second priority indicator, followed by the quality and quantity of human resources, strengthening capital is the fourth priority, and building ecosystems is the last priority in the alternative indicators.

Based on the process and results of this study, the researcher recommends several things. For regulators to be able to make the results of this study as one of the basic considerations in compiling studies, drafting regulations and policies and especially in the road map for the development of Islamic fintech in Indonesia. For practitioners to be able to use the results of this study as a reference in preparing literacy and education programs, as well as material for discussion with stakeholders from regulators, associations, educational and training institutions, and other stakeholders. For academics, the researcher recommends following up on the findings of this study, due to the limited number of studies on Islamic fintech in Indonesia, this study can be a reference in explaining the landscape of Islamic fintech in Indonesia, because in several previous studies researchers have focused a lot only on Peer to Peer Financing Islamic fintech. In addition, if using a similar method to this study, it is advisable to include the community as one of the research clusters that were not carried out in this study.

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