

Integrating Islamic Economic Values Into the Pentahelix Model for Developing a Sustainable Digital Entrepreneurship Ecosystem

Haqiqotus Sa'adah^{1*}, Siswanto², Ahmad Djalaluddin³

¹ Program Study of Sharia Economics, Sekolah Tinggi Agama Islam al-Utsmani Bondowoso, Indonesia

^{2,3} Postgraduate of Sharia Economics, Universitas Islam Negeri Maulana Malik Ibrahim Malang, Indonesia

^{1*}Corresponding author:haqiqotussaadah05@staialutsmani.ac.id, email:²siswanto@pbs.uin-malang.ac.id,

³djalaludin@akuntansi.uin-malang.ac.id

Article history: Received January 14, 2025 | Revised September 21, 2025 | Accepted October 11, 2025 | Available online on October 29, 2025

To cite this article [*Turabian of style 8th edition*]: Sa'adah, Haqiqotus, Siswanto, and Djalaluddin, Ahmad . "Integrating Islamic Economic Values into the Pentahelix Model for Developing a Sustainable Digital Entrepreneurship Ecosystem". *IQTISHODUNA: Jurnal Ekonomi Islam* 14, no. 2 (Oktober 1, 2025): 633-652. Accessed April x, 20xx.

ABSTRACT

This study examines how Islamic economic principles may be put into practice in the Pentahelix partnership (academia, business, government, community, and media) to create a long-lasting digital entrepreneurship ecosystem. Utilizing a qualitative multi-case approach, we analyze two MSMEs in East Java Kapiten Nusantara (pesantren-based) and Superheru Snack Factory (community-based) using in-depth interviews, participant observation, and documentation. review, then Miles–Huberman cross-case analysis and methodological triangulation. According to the results, digital methods (content/community-based marketing, online marketplaces, promotion, matchmaking) are aligned with ethical governance through the integration of *tauhid*, *adl*, *khilafah*, *nubuwah*, and *tazkiyah*, which results in: increased productivity, greater market access, improved digital trust, and social empowerment (particularly for women and young people). The pentahelix orchestration is essential for developing skills, preparing for exports, and halal-value branding that incorporates *maqāṣid al-shāfi‘ah* supports inclusive welfare (*maslahah*). The Islamic Pentahelix Digital Entrepreneurship Model (IPDEM), which includes value integration, collaborative governance, and sustainability mechanisms, is presented in the paper, and the implications for MSME policy are discussed in the conclusion. university-industry initiatives and halal-digital business practices aimed at generating balanced outcomes for profit, people, the environment, and *maslahah*.

Keywords: Integrating Islamic Economic; Pentahelix collaboration; Digital Entrepreneurship Ecosystem;

INTRODUCTION

Digital entrepreneurship has become one of the most transformative and challenging phenomena of the 21st century. It is changing the way individuals, organizations, and countries interact in commerce and create economic value without the constraints of time and space.¹ The digital economy enables international market integration and accelerates innovation, but also poses various complex challenges such as cybersecurity threats, low digital literacy,

¹ Yudong Qi and Xi Chu, "Development of the Digital Economy, Transformation of the Economic Structure and Leaping of the Middle-Income Trap," *China Political Economy* 5, no. 1 (2022): 14-39, <https://doi.org/10.1108/cpe-09-2022-0012>.

limited human resources, inadequate infrastructure, intense market competition, and weak regulatory support.² In Indonesia, these structural barriers limit the full potential of Micro, Small, and Medium Enterprises (MSMEs) to transform towards a sustainable digital economy.

Numerous studies confirm that the success of digital economic transformation depends heavily on the synergy of various stakeholders within a collaborative framework, such as the Triple Helix model. This model incorporates several connecting elements, including academics, business actors, and government, as well as its more inclusive development model, the Pentahelix, which adds the role of civil society and the media. However, empirical evidence suggests that the Triple Helix model has limitations due to weak coordination between sectors and mismatched organizational cultures among its actors.³ Therefore, the Pentahelix model is increasingly seen as relevant because it is able to build an innovation ecosystem based on knowledge and creativity through inclusive collaboration between academics, the business world, government, communities, and the media.⁴ In this configuration, MSMEs can be more adaptive to technological advances and global competition through capacity building, digital orientation, and social empowerment.

East Java Province is a concrete example of this dynamic. Data from the East Java Provincial Cooperatives and MSMEs Office shows that the contribution of MSMEs to Gross Regional Domestic Product (GRDP) increased from 57.25% in 2020 to 59.18% in 2023. This growth is supported by various initiatives such as the Go Digital and Go Global programs, as well as the development of Village-Owned Enterprises (BUMDes) to strengthen the creative economy based on

² Ximena Alejandra Flechas, Carlos Kazunari Takahashi, and Júlio César Bastos de Figueiredo, "The Triple Helix and the Quality of the Startup Ecosystem: A Global View," *Revista de Gestão* 30, no. 3 (2023): 238–52, <https://doi.org/10.1108/REGE-04-2021-0077>; Cheng-Wen Lee and Mao-Wen Fu, "Conceptualizing Sustainable Business Models Aligning with Corporate Responsibility," *Sustainability (Switzerland)* 16, no. 12 (2024), <https://doi.org/10.3390/su16125015>; Siti Nor Amira Mohamad, Nuradli Ridzwan Shah Mohd Dali, and Mohamad Yazis Ali Basah, *Navigating the Moral Compass of Halal FinTech in Islamic Finance: Harvesting Benefits While Curbing Risks, Emerging Technology and Crisis Management in The Halal Industry: Issues and Recent Developments* (Springer Nature, 2024), https://doi.org/10.1007/978-981-97-1375-2_10; Firman Menne et al., "Sharia Economy, Islamic Financial Performance and Factors That Influence It—Evidence from Indonesia," *Economies* 11, no. 4 (2023), <https://doi.org/10.3390/economies11040111>.

³ Andrea Ap da Costa Mineiro, Thais Assis de Souza, and Cleber Carvalho de Castro, "The Quadruple and Quintuple Helix in Innovation Environments (Incubators and Science and Technology Parks)," *Innovation and Management Review* 18, no. 3 (2021): 292–307, <https://doi.org/10.1108/INMR-08-2019-0098>.

⁴ Tapscott Don, *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*, 1st Edition (New York: McGraw-Hill Inc., 1997); Mariarosalba Angrisani, Lorella Cannavacciuolo, and Pierluigi Rippa, "Framing the Main Patterns of an Academic Innovation Ecosystem. Evidence from a Knowledge-Intensive Case Study," *International Journal of Entrepreneurial Behaviour and Research* 29, no. 11 (2023): 109–31, <https://doi.org/10.1108/IJEBR-12-2022-1088>.

community empowerment.⁵ The success of MSMEs like Kapiten Nusantara and Superheru Factory demonstrates that implementing digital entrepreneurship based on the Pentahelix model can drive innovation, export expansion, and social responsibility. These two examples also demonstrate that economic sustainability is inseparable from the foundation of Islamic ethics, where business activities are understood not solely for financial gain but also as acts of worship and a manifestation of social justice.⁶

Islamic economics offers a holistic paradigm that combines material progress with moral and spiritual accountability. Basic principles such as *tauhid* (the oneness of God), *khilafah* (vicegerent/management of trusts), *'adl* (justice), *nubuwwah* (prophetic example), and *tazkiyah* (self-purification) serve as guidelines for economic behavior, emphasizing balance, transparency, and public welfare.⁷ Various empirical studies show that the application of Islamic values such as honesty (*shidq*), trustworthiness, justice, and virtue (*ihsan*) increases loyalty, social trust, and business sustainability in financial institutions and sharia-based business units.⁸ One of them, Islamic microfinance institutions such as BMT Mitra Mandiri and MSMEs in Ponorogo which integrate the principles of *maqāṣid al-shari'ah* have proven to be able to realize legal and economic justice as well as social welfare.

Thus, developing a sustainable digital entrepreneurship ecosystem requires not only technological innovation but also the internalization of Islamic economic values that ensure a balance between profit and benefit (*maslahah*). The integration of Pentahelix collaboration and Islamic economic principles provides a new path for inclusive growth, ethical digitalization, and the resilience of

⁵ Ikeu Kania, Grisna Anggadwita, and Dini Turipanam Alamanda, "A New Approach to Stimulate Rural Entrepreneurship through Village-Owned Enterprises in Indonesia," *Journal of Enterprising Communities* 15, no. 3 (2021): 432–50, <https://doi.org/10.1108/JEC-07-2020-0137>.

⁶ Muhammad Umer Chapra, "The Islamic Vision of Development in the Light of Maqāṣid Al-Shari'ah," *Islamic Research and Training Institute Islamic Development Bank Jeddah, DOI* 10 (2008); M Umer Chapra, *The Future of Economics: An Islamic Perspective*, vol. 21 (Kube Publishing Ltd, 2016).

⁷ Alifia Annisaa, Nurizal Ismail, and Iman Nur Hidayat, "Sejarah Hukum Perbankan Syariah Di Indonesia," *Ijtihad Jurnal Hukum Dan Ekonomi Islam* 13, no. 2 (2019); L Li et al., "Discontinuities in the Value of Relational Capital: The Effects on Employee Entrepreneurship and Mobility," *International Journal of Entrepreneurial Behaviour and Research* 24, no. 2 (2018): 764–87, <https://doi.org/10.1108/OTH-11-2019-0077>; Ranjan Chaudhuri et al., "Assessing the Economic and Social Impacts of Greenwashing: Moderating Impact of Big Data Analytics Adoption," *International Journal of Bank Marketing*, 2025, <https://doi.org/10.1108/IJBM-07-2024-0440>.

⁸ Artha Uly, "Penerapan Prinsip-Prinsip Islam Dalam Pengaturan Corporate Social Responsibility Di Indonesia," *Law Reform* 7, no. 2 (2012): 121, <https://doi.org/10.14710/lr.v7i2.12413>; Defitria Gultom et al., "Dampak Positif Digitalisasi Terhadap Perekonomian Indonesia," *Jurnal Konstanta* 3, no. 1 (2024): 107–16; Olilingo et al., "Journal of Regional Economics Indonesia," *Journal of Regional Economics Indonesia* 2, no. 1 (2021): 1–15,

<http://download.garuda.kemdikbud.go.id/article.php?article=2590630&val=24391&title=Penguanan Industri Halal bagi Daya Saing Wilayah Tantangan dan Agenda Kebijakan>; Lokot Zein Nasution, "Penguatan Industri Halal Bagi Daya Saing Wilayah," *Journal of Regional Economics Indonesia* 1, no. 2 (2020).

MSMEs in East Java and other regions. This study aims to uncover how Islamic economic values serve as a moral and structural foundation in realizing a sustainable digital entrepreneurship ecosystem, focusing on the cases of Kapiten Nusantara and Superheru Factory as concrete examples of values-based innovation amidst Indonesia's digital economic transformation.

Recent studies show that the digital economy drives market integration, accelerated innovation, and cross-sector resource recombination, while also giving rise to new risks (cybersecurity, digital literacy, capability gaps) that directly impact MSMEs.⁹ At the macro level, digital transformation is positively correlated with development, labor productivity, and employment—with different dynamics for vulnerable groups and women.¹⁰ In the context of Sub-Saharan Africa, the quality of institutions and governance strengthens the influence of digital financial inclusion on growth.¹¹ Implications for Indonesian MSMEs: successful digital entrepreneurship requires competitiveness based on digital orientation and capabilities, as well as strengthening supporting institutions and ecosystems.

Meanwhile, from the perspective of innovation literature, Triple Helix is placed as the foundation of the innovation ecosystem.¹² Bibliometric studies confirm the expansion towards the Quadruple and Quintuple Helix, adding society/community and environment as relevant actors.¹³ However, integrative studies on science & technology parks found uneven representation of Quadruple/Quintuple and weak articulation of media/community roles.¹⁴ In the university realm, the Academic Innovation Ecosystem exemplifies the orchestration of knowledge transfer, innovation, and entrepreneurship within a single hub.¹⁵ In practice, Pentahelix is promoted to strengthen creativity, technology diffusion, and value networks through ABGCM (Academia, Business, Government, Community and Media).¹⁶

At the micro level, BUMDes has been shown to promote rural entrepreneurship through opportunity exploration, capacity building, and

⁹ Qi and Chu, "Development of the Digital Economy, Transformation of the Economic Structure and Leaping of the Middle-Income Trap."

¹⁰ Heidi Aly, "Digital Transformation, Development and Productivity in Developing Countries: Is Artificial Intelligence a Curse or a Blessing?," *Review of Economics and Political Science* 7, no. 4 (2022): 238–56, <https://doi.org/10.1108/REPS-11-2019-0145>.

¹¹ Tough Chinoda and Forget Mingiri Kapingura, "Digital Financial Inclusion and Economic Growth in Sub-Saharan Africa: The Role of Institutions and Governance," *African Journal of Economic and Management Studies*, 2023, <https://doi.org/10.1108/AJEMS-09-2022-0372>.

¹² Leydesdorff, Etzkowitz, and Kushnir, "Globalization and Growth of US University Patenting (2009–2014)."

¹³ Galvao et al., "Triple Helix and Its Evolution: A Systematic Literature Review."

¹⁴ Mineiro, de Souza, and de Castro, "The Quadruple and Quintuple Helix in Innovation Environments (Incubators and Science and Technology Parks)."

¹⁵ Angrisani, Cannavacciuolo, and Rippa, "Framing the Main Patterns of an Academic Innovation Ecosystem. Evidence from a Knowledge-Intensive Case Study."

¹⁶ Don, *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*.

stakeholder coordination; key obstacles include implementation-regulation mismatch and limited human resources.¹⁷ Key lesson: The success of a village digital ecosystem requires collaborative governance, role orchestration, and strengthening of local digital capabilities. In developing countries, social media has strongly contributed to the emergence of digital entrepreneurship, particularly the empowerment of women and youth, with tangible changes in post-entrepreneurship decision-making capacity.¹⁸ These results complement the findings on the importance of digital orientation and capabilities for organizational competitiveness (see the survey summary on cooperatives/MSMEs in the data you provided).

Meanwhile, the Islamic economic framework combines material progress with moral-spiritual accountability through monotheism, khilafah, 'adl/mizān, nubuwwah, and tazkiyah, which directs economic behavior towards honesty, trust, justice, ihsan, and benefit.¹⁹ Empirical evidence shows that these values strengthen loyalty, social trust, and the sustainability of the performance of Islamic financial institutions/entrepreneurship.²⁰ The integration of *maqāṣid al-shari'ah* principles into the practices of MSMEs and microfinance institutions provides an ethical path for governance, contracts, and equitable distribution of benefits.

To reinforce the research gaps outlined above, it can be emphasized that previous studies on digital entrepreneurship ecosystems based on the helix model have focused solely on structural, collaborative, and innovative aspects, without considering the value and ethical dimensions as determinants of sustainability. In fact, in the context of Islamic economics, ecosystem success is measured not only by efficiency and competitiveness, but also by the extent to which the principles of *maqāṣid al-shari'ah* are reflected in digital economic practices. The absence of a framework that integrates spiritual and moral values, such as *tawhid*,

¹⁷ Kania, Anggadwita, and Alamanda, "A New Approach to Stimulate Rural Entrepreneurship through Village-Owned Enterprises in Indonesia."

¹⁸ Rania Miniesy, Engy Elshahawy, and Hadia Fakhreldin, "Social Media's Impact on the Empowerment of Women and Youth Male Entrepreneurs in Egypt," *International Journal of Gender and Entrepreneurship* 14, no. 2 (2022): 235–62, <https://doi.org/10.1108/IJGE-06-2021-0085>.

¹⁹ Umer Chapra, "Islam and Economic Development," 2008; Chapra, *The Future of Economics: An Islamic Perspective*; Cristiana Abbafati et al., "Global Burden of 369 Diseases and Injuries in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019," *The Lancet* 396, no. 10258 (2020): 1204 – 1222, [https://doi.org/10.1016/S0140-6736\(20\)30925-9](https://doi.org/10.1016/S0140-6736(20)30925-9); Arman Mergaliyev et al., "Higher Ethical Objective (Maqasid Al-Shari'ah) Augmented Framework for Islamic Banks: Assessing Ethical Performance and Exploring Its Determinants," *Journal of Business Ethics*, 2021, 797–834.

²⁰ Misjaya Misjaya et al., "Konsep Pendidikan Kemandirian Ekonomi Di Pondok Pesantren Mukmin Mandiri Sidoarjo - Jawa Timur," *Edukasi Islami: Jurnal Pendidikan Islam* 8, no. 01 (2019), <https://doi.org/10.30868/ei.v8i01.371>; Yandra Arkeman et al., "Application of Advanced Digital Technology for Green and Circular Agroindustrial Supply Chain Management," in *AIP Conference Proceedings*, ed. Kurniawan H. et al., vol. 2957 (American Institute of Physics Inc., 2024), <https://doi.org/10.1063/5.0184725>; Kurniawan et al., "Beyond Boundaries: Fostering Women Entrepreneurs' Success through Culture, Family, and Entrepreneurship," *Frontiers in Sociology* 10 (2025), <https://doi.org/10.3389/fsoc.2025.1513345>.

'*adl*, *amanah*, and *tazkiyah* into digital ecosystem governance indicators has prevented previous research from fully explaining the relationship between ethics, digital trust, and socioeconomic sustainability. Therefore, an interdisciplinary approach that integrates the Islamic economic paradigm with the Pentahelix model is needed to build a digital entrepreneurship ecosystem that is just, ethical, and oriented towards long-term benefits.

METHODS

This study uses a qualitative approach with a holistic multi-case design.²¹ to explore digital entrepreneurship strategies based on the Pentahelix model in empowering MSMEs in East Java. This approach was chosen because it allows researchers to conduct a comparative analysis between two case units that share similar characteristics of business sectors focused on processed food production, seen in terms of their digitalization strategies and collaboration patterns. The first case, the Kapiten Nusantara MSME, focuses on innovation in carbonated coffee beverage exports and synergies with universities, the government, and Islamic boarding schools (*Pesantren*). The second case, the Superheru Factory MSME, emphasizes collaboration with financial institutions and local governments in strengthening the e-commerce ecosystem. This multi-case approach uses a qualitative design that allows for theoretical replication and cross-case analysis to strengthen the external validity of the findings, especially in the context of complex phenomena such as Islamic-based digital entrepreneurship.²²

As the human instrument, the researcher played a direct role in all stages of the research, from data collection to interpretation. The researcher functioned as an in-depth interviewer, participant observer, and document reviewer, adapting Creswell and Poth's guidelines on the role of researchers in qualitative studies. Data collection techniques included in-depth interviews, participant observation, and documentary studies, allowing for triangulation of sources and methods to enhance the credibility of the findings. Key informants were determined purposively including business owners, university partners, regional cooperative offices, and consumers, and expanded with snowball sampling to obtain richer data. This approach allows researchers to capture the social, cultural, and spiritual context surrounding the application of Islamic economic values in the digitalization practices of MSMEs. Review of Qualitative Research: A Guide to Design and Implementation by SB Merriam & EJ Tisdell.²³

Data analysis was conducted interactively and simultaneously using the Miles, Huberman, & Saldaña model, which includes four stages: data collection, data condensation, data display, and drawing/ verification of conclusions. Cross-

²¹ Daphne Halkias et al., *The Multiple Case Study Design: Methodology and Application for Management Education* (Routledge, 2022).

²² I H Ismail, "Pendekatan Kualitatif," *Dipetik Desember* 2 (2024): 2024.

²³ Wayne A Babchuk, "Review of Qualitative Research: A Guide to Design and Implementation (2016) by SB Merriam & EJ Tisdell.," 2016.

case analysis was applied after each case was analyzed independently, using the constant comparative method technique to find patterns of similarities and differences between cases. The results of the analysis were then reduced to minor and major propositions that contributed to the formation of a substantive theory on the integration of Islamic values in the Pentahelix model. Data validity was maintained through method triangulation, audit trails, and member checking, following the five trustworthiness criteria from Lincoln & Guba, namely credibility, dependability, confirmability, transferability, and utilization. This approach ensures that the research findings are not only scientifically valid but also applicable in the context of empowering digital MSMEs based on sharia ethics.

RESULT

1. Integration of Islamic Values and Pentahelix Collaboration in Digital MSMEs

Two selected MSME units in East Java, namely Kapiten Nusantara and Superheru Snack Factory, both demonstrate digital-based economic empowerment practices through the Pentahelix model. This approach involves collaboration between academics, government, industry players, communities, and the media in creating a sustainable digital entrepreneurial ecosystem. Both represent two innovative typologies in the context of modern Islamic economics: Kapiten Nusantara as pesantren-based entrepreneurship and Superheru as community-based edupreneurship. This research focuses on how the integration of Islamic values such as *tauhid*, *'adl*, *khalifah*, *tazkiyah*, and *maqasid al-shariah* shapes moral orientation in every stage of digital business management. Initial findings show that this cross-actor collaboration drives productivity, expands market networks, and strengthens ethical orientation in business practices. Thus, digitalization functions not only as a marketing tool, but also as an instrument of economic da'wah to realize blessings and social sustainability according to the principles of profit, people, planet, and *maslahah*.

Kapiten Nusantara is an MSME under the auspices of the An-Nur II Islamic Boarding School (*Pesantren*) in Malang that produces coffee-flavored carbonated drinks. Established in 2015 and officially operating in the *pesantren* area in 2020, Kapiten has penetrated national and international markets such as Malaysia, New Zealand, and South Africa. Production reaches 40,000 cans per month with a workforce of 25 students and alumni. The product has been certified halal by LPPOM-MUI and BPOM, demonstrating its consistency in upholding the principle of *halal tayyiban*. Collaboration with the government through the One *Pesantren* One Product (OPOP) program demonstrates the actualization of the values of the caliphate, namely social responsibility towards the surrounding community. The Governor of East Java, Khofifah Indar Parawansa, at the inauguration of the Kapiten factory, called this business model an example of the integration between da'wah and the economic empowerment of students. Kapiten is not only a business entity, but also a center for Islamic economic learning that instills the ethos of *santripreneur*, *pesantrenpreneur*, and

sociopreneur for students so that they are able to preach through professional, honest, and fair business practices.

Islamic values are the main foundation of Kapiten Nusantara's operations. The value of *An-Nubuwah* is realized through the principles of honesty, trustworthiness, and continuous innovation in the production system. The principles of *Adl* and *At-Tawazun* are reflected in inclusive workforce recruitment without discrimination based on race, gender, or social status, as well as through a policy of balancing worldly and hereafter orientations. The values of *Tawhid* and *Ma'ad* are implemented through social programs such as the Kapiten Nusantara scholarship for underprivileged students, while *Ta'awun* is evident in collaboration with the government, communities, and universities in various digital training programs. Kapiten places spirituality as a moral dimension of the economy, where profits are measured not only financially but also based on blessings. This aligns with the concepts of *tazkiyah al-mal* (purification of wealth) and *tawazun al-hayah* (balance in life), which position business as a means of social worship. Kapiten thus becomes an ideal model of an Islamic ethical enterprise that combines market orientation with the values of humanity and justice.

Table 1. Summary of Findings: Two Digital MSMEs Based on Islamic Values in East Java

Analytical Aspect	Kapiten Nusantara	Superheru Snack Factory
Entrepreneurship Typology	<i>Pesantren-Based Entrepreneurship</i> – operating under the An-Nur II Islamic Boarding School (<i>Pesantren</i>), Malang.	<i>Community-Based Edupreneurship</i> – rooted in local creative and educational communities.
Business Sector	Production of carbonated coffee beverages using local ingredients.	Production of spicy snacks and traditional local food products.
Year Established & Operational Scale	Established in 2015; produces 40,000 cans per month; exports to Malaysia, New Zealand, and South Africa.	Established in 2014; operates nationally; main target market: young women aged 25–35 years.
Digitalization Focus	Digital marketing through an official website, e-commerce platforms (Shopee, Tokopedia), and social media (Instagram, YouTube).	Optimization of social media (Instagram, Facebook, YouTube) and e-commerce integration (Shopee, Padi UMKM).
Collaboration Model (Pentahelix)	<i>Academia</i> : Universitas Brawijaya (digital marketing training).- <i>Government</i> : One Pesantren One Product (OPOP) Program of East Java.- <i>Business</i> : PT Debindo Multi Adhiswasti (export partner).- <i>Community</i> : Pesantren and surrounding society.- <i>Media</i> : Influencers and local media campaigns.	<i>Academia</i> : Asia Institute and Binus University (guest lectures and workshops).- <i>Government</i> : Kampus UMKM Shopee and Rumah BUMN programs.- <i>Business</i> : BRI Business Incubator.- <i>Community</i> : Women and local MSME empowerment groups.- <i>Media</i> : Digital promotion and inspirational coverage.
Islamic Values Integrated	<i>Tauhid, Adl, Khilafah, Nubuwah, Tazkiyah, Ta'awun.</i>	<i>Mahabbah, Al-Layin, Qudwah, Tauhid, Ma'ad.</i>

Implementation of Values in Business Practice	Honesty (<i>shidq</i>), trustworthiness (<i>amanah</i>), inclusive employment,	-
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In the context of digital entrepreneurship, Kapiten Nusantara implements five main strategies aligned with the Pentahelix model. First, content-based business, utilizing social media (Instagram, YouTube, and the official website) to build a brand narrative for halal products. Second, community-based business through partnerships with MSME communities, coffee shops, and local businesses. Third, an online-store strategy by optimizing marketplaces like Shopee and Tokopedia. Fourth, business promotion through collaboration with influencers and mass media to expand the reach of digital promotions. Fifth, matchmaking business, utilizing paid Instagram Ads and creating an official website to connect with potential business partners. This synergy is strengthened by local government support through the "*UMKM Pasti Bisa*" platform and the Malang Regency Virtual Expo. Interviews indicate that this digital strategy not only increases sales but also strengthens Kapiten's position as a globally competitive Islamic boarding school-based MSME that remains grounded in sharia ethics.

2. Digital Entrepreneurship Strategies and Ethical Value Integration within the Pentahelix Model

The application of Islamic values in every digital strategy of Kapiten creates a business culture oriented towards blessings (*barakah*). The value of *Adl* is evident in the fair distribution of work, while *Ma'ad* is realized through the donation of business proceeds to Islamic boarding school students (*santri*) and communities affected by the pandemic. A culture of sharing, digital transparency, and a spiritual work ethic make Kapiten not just a beverage producer, but an icon of Islamic economics that teaches the balance between spirituality and professionalism. Collaboration with Brawijaya University in a business marketing workshop strengthens the position of academics as a knowledge-sharing element in the Pentahelix model. Meanwhile, the involvement of media and influencers builds a social narrative that strengthens public legitimacy for local halal products. All these elements form a robust and character-based digital entrepreneurial ecosystem, aligned with the principles of *maqasid al-shariah* to create social benefits, maintain economic sustainability, and strengthen Islam's image as a religion of progress.

Superheru Snack Factory, founded by Heru Nurwahyudin in 2014, is a local food-based MSME that emphasizes the principles of sustainability and community empowerment. Its production focuses on local spicy snacks, primarily targeting young women aged 25–35. Superheru is committed to developing a globally competitive local-based creative industry through women's empowerment, workforce training, and environmentally friendly waste management. Superheru's vision is to be part of the internationally oriented local creative industry, while its mission includes training, capacity building, and career development for the surrounding community. Superheru's

efficient organizational structure, with a fair recruitment system and gender-equal work facilities, demonstrates the application of *At-Tawazun* values. Support from the government and financial institutions such as BRI Incubator and Rumah BUMN strengthens Superheru's digital capacity and financial literacy, making it an example of an MSME that applies the principles of human-centered entrepreneurship within an Islamic framework.

From an Islamic perspective, Superheru embodies six core values: *Mahabbah*, *Al-Layin*, *An-Nubuwah*, *Qudwah*, *Tawhid*, and *Ma'ad*. The values of *Mahabbah* and *Al-Layin* are embodied in friendly service, familial relationships with customers, and empowerment of the local workforce. *An-Nubuwah* is evident in the owner's innovative intelligence in adapting technology for product development and digital marketing. The value of *Qudwah* (exemplary behavior) is evident in Heru's role as a speaker at various entrepreneurship seminars, where he instills the spirit of *edupreneurship* in students and other MSMEs. Meanwhile, the values of *Tawhid* and *Ma'ad* serve as a spiritual foundation that strengthens business integrity, where profit is oriented not only toward economic profit but also social rewards through charity, *zakat*, and social contributions. All of these values make Superheru not just an economic entity, but also a learning platform for Islamic business ethics that balances this world and the hereafter.

Superheru's digital strategy emphasizes a content-based and community-based business approach. The owner actively uses Instagram, YouTube, and Facebook as promotional media and for digital entrepreneurship education. Uploaded content includes customer testimonials, village-owned enterprise training, and documentation of guest lectures at various universities such as the Asia Institute and Binus University. Superheru's participation in the Shopee MSME Campus program and the 2024 Customs Fair demonstrates direct engagement with the government and national community. Through this strategy, Superheru has successfully increased brand awareness and earned recognition as an inspiring MSME at the national level. Cross-sector collaboration demonstrates the practical application of the Pentahelix model: academia as knowledge providers, industry as financial backers, government as regulators, communities as market bases, and media as promotional channels that expand social influence.

Superheru also developed an online store strategy through the Shopee platform and the Padi SMEs application, facilitated by *Rumah BUMN (Badan Usaha Milik Negara)*. Through these platforms, consumers can interact directly, provide positive reviews, and conduct transparent digital transactions. Observations show that Superheru has a high level of customer satisfaction with a 4.9 rating and a 100% response rate. Furthermore, the involvement of the BRI (*Bank Rakyat Indonesia*) Incubator expands access to business capital and digital marketing training, which strengthens product competitiveness in local and export markets. A business matchmaking strategy is also used by bringing together various parties such as distributors, communities, and customers

through digital campaigns. This approach demonstrates how collaboration between industry and MSMEs can be mutually beneficial economically and socially. This synergy forms an inclusive, ethical, and value-oriented digital ecosystem, in line with the spirit of *maslahah al-'ammah* (benefit for the common good).

3. The Role of the Pentahelix Model in Fostering Islamic Sustainable Digital Entrepreneurship

The implementation of the Pentahelix model in Superheru's development is evident across multiple dimensions. Academics play a role in digital entrepreneurship training and research; industry provides capital support and business incubation; the government creates supporting regulations through the Job Creation Law and MSME digitalization training; local communities actively participate as workers and community partners; and the media drives public trust through positive reporting and digital promotion. Empowering local communities, particularly women and youth, is a hallmark of Superheru's social development. This holistic approach demonstrates that digital entrepreneurship can be a means of *da'wah bil-hal* (propaganda), namely *da'wah* through concrete actions, by instilling Islamic values into modern economic practices. Thus, Superheru demonstrates that digitalization is not merely a commercial tool, but a means to actualize the principles of Islamic social justice on a microeconomic scale.

Synthetically, these two research cases demonstrate that the Pentahelix-based Digital Entrepreneurship model plays a significant role in empowering MSMEs based on Islamic values in East Java. Kapiten Nusantara excels in the practice of social and spiritual ethics of the Islamic boarding school economy, while Superheru Snack Factory excels in the application of digital innovation and community empowerment. Both demonstrate that Islamic values such as *Tauhid*, *Adl*, *Khalifah*, *Tazkiyah*, *Mahabbah*, and *Ma'ad* can be operationalized in a digital ecosystem involving various actors. The synergy between academia, industry, government, society, and the media forms a productive and equitable chain of collaboration. Thus, the digitalization of MSMEs based on Islamic values not only increases economic competitiveness but also serves as a means of moral transformation towards Islamic sustainable entrepreneurship, an economic model that balances sustainability, blessings, and social benefits.

Tabel 2. Implementasi Pentahelix pada Kapiten Nusantara dan Superheru Snack Factory

No.	Analysis Aspects	Kapiten Nusantara (<i>Pesantren</i> -Based Entrepreneurship)	Superheru Snack Factory (Community-Based Edupreneurship)
1.	Business Profile	Established in 2015 under the <i>Pesantren</i> An-Nur II in Malang, it produces coffee-flavored carbonated drinks and exports	Founded in 2014 by Heru Nurwahyudin, the company focuses on local spicy snacks and is based on the creative industry and community empowerment.

		to Malaysia, New Zealand, and South Africa.	
2.	The Foundation of Islamic Values	Tauhid, Adl, Khalifah, Tazkiyah, Ma'ad, and Ta'awun are the ethical framework for production, distribution, and social responsibility.	Mahabbah, Al-Layin, Qudwah, An-Nubuwah, Tauhid, and Ma'ad are applied in leadership, customer service, and public education.
3.	Principles of <i>Maqasid al-Shariah</i>	Safeguarding wealth (<i>hifz al-mâl</i>), justice (<i>'adl</i>), and social welfare (<i>maslahah</i>) through scholarships and charitable activities.	Strengthening the public welfare (<i>maslahah al-'ammah</i>) through training for women, youth, and inclusive entrepreneurship.
4.	Pentahelix Collaboration Form	Academics: digital research & training; Government: OPOP & export facilitation; Industry: PT Debindomulti Adhiswasti; Community: <i>Pesantren</i> & HIPMI; Media: digital halal branding.	Academics: guest lectures & digital entrepreneurship research; Government: BUMN House, Shopee UMKM Campus; Industry: BRI Incubator; Community: local business groups; Media: digital social promotion.
5.	Digital Strategy	1) Content-based marketing 2) Community-based partnership 3) Online marketplace (Shopee, Tokopedia) 4) Promotion via influencers 5) Matchmaking business	1) Content-based and educational 2) Online stores on Shopee & Padi UMKM 3) Digital campaign with BRI Incubator 4) Community branding & government events 5) Testimonials & active customer interaction
6.	Ethical and Social Dimensions	Implementing financial transparency, labor fairness, and donating business profits. Digitalization is aimed at blessings (<i>barakah</i>) and balance in this world and the hereafter.	Prioritizing the principles of human-centered entrepreneurship; social empowerment as an implementation of Islamic <i>da'wah bil-hal</i> and social justice.
7.	Economic and Social Outcomes	Increase sales by 35%, create 25 jobs for students, strengthen the independent Islamic boarding school economy.	Customer rating 4.9/5; 40% increase in turnover; creating jobs for local women and youth.
8.	Academic and Practical Contributions	To become a model of Islamic Ethical Enterprise based on <i>pesantren</i> and Pentahelix collaboration.	Becoming a model of Humanistic Digital Entrepreneurship based on community empowerment.
9.	Final Orientation (Integrative Outcome)	Realizing Islamic Sustainable Entrepreneurship that combines profit, people, planet, and <i>maslahah</i> .	Building an inclusive digital ecosystem based on Islamic values, social justice, and community sustainability.

DISCUSSION

Digital transformation has become a key catalyst in the restructuring of the 21st-century global economy. Digitalization is driving productivity growth, improving market efficiency, and accelerating the economic leap of middle-income countries by strengthening knowledge-based economic structures.²⁴ However, on the other hand, the digital revolution has also deepened the capability gap, particularly in the MSME sector, which faces limitations in digital literacy, infrastructure, and social capital. In Indonesia, this situation is particularly relevant because MSMEs contribute more than 59% of East Java's GRDP, yet they still face challenges in technology conversion and adaptive cross-sector collaboration within the digital ecosystem. This challenge demands governance that is not only economically efficient but also socially just and spiritually ethical.

Innovation literature positions the Triple Helix (academia, business and government) as the foundation of the knowledge ecosystem²⁵. However, global studies confirm that this approach is starting to experience structural fatigue due to weak coordination and asymmetry of interests between actors.²⁶ Its evolution towards Quadruple and Quintuple Helix²⁷ adding society and the environment as innovative elements, but its implementation is still limited to the institutional level—not ethical practice. In this context, the Pentahelix Model emerges as a more inclusive framework ABGCM (Academia, Business, Government, Community and Media), which integrates social learning, digital literacy, and collective participation. Other research confirms that sustainable innovation requires the orchestration of values and roles, not just the flow of resources. Thus, the shift to the Pentahelix model offers a governance perspective based on shared values and collaborative intelligence.²⁸

However, as Chapra cautions, economic development without a moral foundation will lead to disorientation. The Islamic economic framework offers a synthesis of efficiency and spirituality through the principles of monotheism, caliphate, *'adl*, *nubuwah*, and *tazkiyah*. These five principles serve as ethical guidelines that balance the material and moral dimensions in every economic decision. In practice, the application of these values strengthens social trust, fosters customer loyalty, and improves the ethical performance of *Sharia*-based financial institutions and entrepreneurs. Another study even confirms that the integration of *Sharia* principles in halal FinTech not only reduces the risk of moral hazard but also increases transparency and digital trustworthiness. In other

²⁴ Qi and Chu, "Development of the Digital Economy, Transformation of the Economic Structure and Leaping of the Middle-Income Trap."

²⁵ Galvao et al., "Triple Helix and Its Evolution: A Systematic Literature Review."

²⁶ Flechas, Kazunari Takahashi, and Bastos de Figueiredo, "The Triple Helix and the Quality of the Startup Ecosystem: A Global View"; Osmuk, "Challenges and Opportunities of Forming Sustainable Triple Helix Model in Regions of Russia."

²⁷ Mineiro, de Souza, and de Castro, "The Quadruple and Quintuple Helix in Innovation Environments (Incubators and Science and Technology Parks)."

²⁸ Angrisani, Cannavacciuolo, and Rippa, "Framing the Main Patterns of an Academic Innovation Ecosystem. Evidence from a Knowledge-Intensive Case Study."

words, spiritual capital is an inherent part of sustainable digital entrepreneurship.

Convergensi antara ekonomi digital dan nilai Islam dapat dipahami sebagai upaya *re-enchantment of capitalism*, yakni reorientasi logika ekonomi modern dari efisiensi menuju etika. Temuan lain, mengindikasikan bahwa keberhasilan²⁹ The digital economy depends not only on technological infrastructure, but also on the quality of institutions and governance that facilitate inclusion.³⁰ In Sub-Saharan Africa, institutional quality strengthens the relationship between digital inclusion and economic growth.³¹ In the Indonesian context, governance based on *maqāṣid al-shari‘ah* can serve as an institutional enhancer that ensures that digital inclusion goes hand in hand with equitable distribution of benefits and social sustainability. The values of *adl* (justice) and *maslahah* (public welfare) serve as normative mechanisms that guide digital economic policies so that they are not merely competitive but also inclusive.

Furthermore, other studies show that business sustainability cannot be separated from social responsibility and corporate accountability. In this context, a sustainable business model aligned with the principles of *maqāṣid al-shari‘ah* (the principles of the principles of Islamic law) can combine corporate responsibility with spiritual values, for example, through corporate *zakat* (alms), value redistribution, and cross-helix collaboration for social benefit. This aligns with the findings of Kania, Anggadwita, and Alamanda regarding the success of *Badan Usaha Milik Desa* (BUMDes) in Indonesia in encouraging rural entrepreneurship through collaborative governance and social capacity building.³² Thus, Pentahelix-based collaboration in the context of Islamic economics is not only structural, but also ethical and moral.

At the micro level, empirical research shows that social media and digital communities have a transformational role in empowering women and youth.³³ Social interactions in the digital space enhance the agency and decision-making power of young entrepreneurs, while strengthening their awareness of the values of justice and sustainability. When these dimensions are combined with the principles of *tazkiyah al-māl* (purification of wealth) and *tawazun al-hayah* (balance in life), digitalization becomes a tangible instrument of *da‘wah bil-hal*. namely, *da‘wah* through ethical and productive economic practices. This is reflected in

²⁹ Abbafati et al., “Global Burden of 369 Diseases and Injuries in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019.”

³⁰ Qi and Chu, “Development of the Digital Economy, Transformation of the Economic Structure and Leaping of the Middle-Income Trap.”

³¹ Chinoda and Kapingura, “Digital Financial Inclusion and Economic Growth in Sub-Saharan Africa: The Role of Institutions and Governance.”

³² Kania, Anggadwita, and Alamanda, “A New Approach to Stimulate Rural Entrepreneurship through Village-Owned Enterprises in Indonesia.”

³³ Miniesy, Elshahawy, and Fakhreldin, “Social Media’s Impact on the Empowerment of Women and Youth Male Entrepreneurs in Egypt”; Kurniawan et al., “Beyond Boundaries: Fostering Women Entrepreneurs’ Success through Culture, Family, and Entrepreneurship.”

Kapiten Nusantara and Superheru Snack Factory, where economic spirituality drives innovation and social responsibility based on the collaboration of five Pentahelix actors.

Thus, this discourse leads to the construction of a new theory: the Islamic Pentahelix Digital Entrepreneurship Model (IPDEM). This model combines the knowledge-based collaboration orientation of the helix theory with the ethical-spiritual embeddedness principle of Islamic economics. IPDEM positions Islamic values not as moral ornaments, but as determinant variables in the performance of the digital ecosystem—through three main mechanisms: (1) Value Integration Mechanism, namely the internalization of the principles of *tauhid*, *adl*, and *tazkiyah* in business policies; (2) Collaborative Governance Mechanism, namely cross-actor synergy within the Pentahelix framework for equitable innovation; and (3) Sustainability Mechanism, namely the implementation of *maqāṣid al-shari'ah* in indicators of economic, social, and spiritual sustainability. With this approach, the digital economy is no longer merely a space for the production of material value, but also an arena for the actualization of moral values that balance profit-people-planet-*maslahah*.

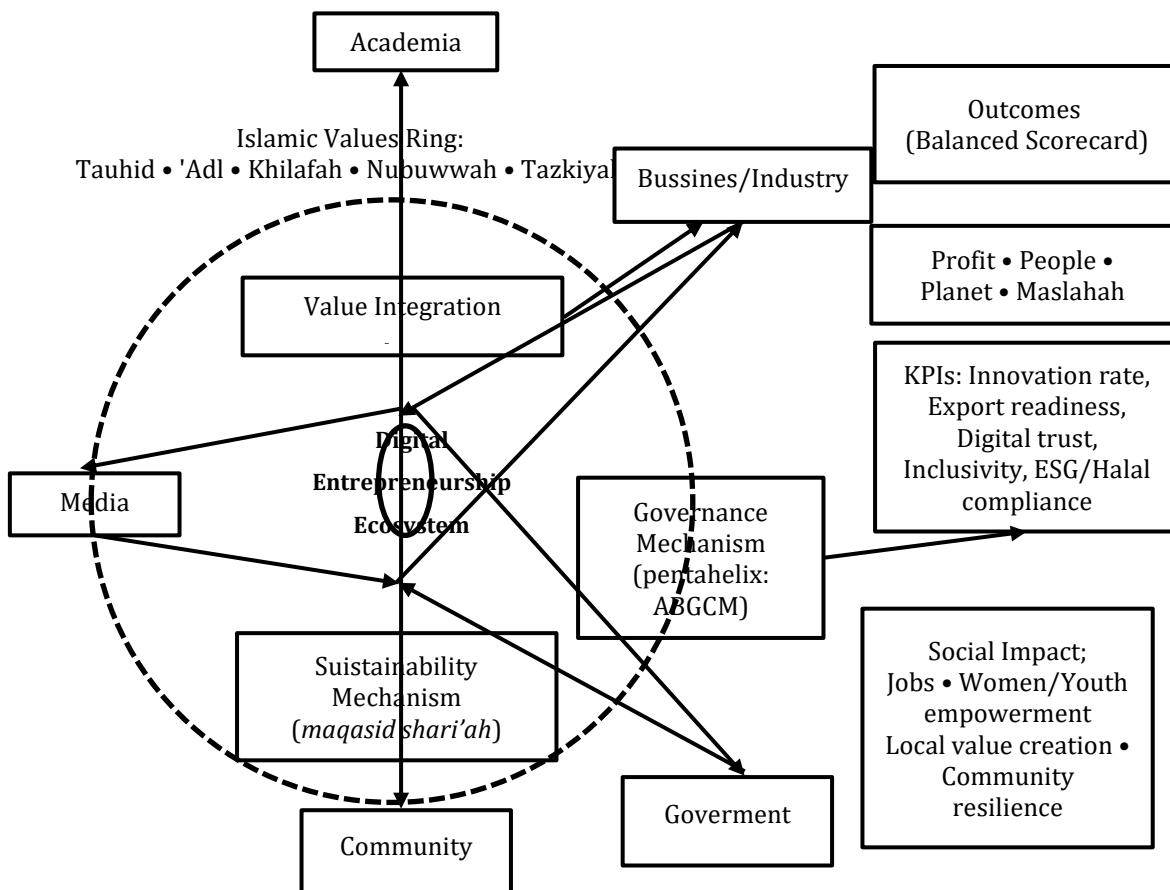


Figure 1. Islamic Pentahelix Digital Entrepreneurship Model (IPDEM)

CONCLUSION

The success of digital entrepreneurship transformation in Indonesia is determined not only by technological adaptability but also by the depth of moral and spiritual values that underpin economic practices. An analysis of two case studies, Kapiten Nusantara and Superheru Snack Factory, demonstrates that the Pentahelix model (academics, businesses, government, communities, and media) serves as an effective collaborative platform for strengthening innovation capacity and social empowerment based on Islamic values. The integration of the principles of monotheism, *adl* (law), *khilafah* (caliphate), *nubuwwah* (prophecy), and *tazkiyah* (community service) in digital governance has been shown to foster ethical orientation, social trust, and economic sustainability. Cross-actor collaboration not only increases the competitiveness and market expansion of MSMEs but also provides economic *da'wah* (Islamic outreach) that balances spiritual and professional dimensions. Thus, digitalization serves as an instrument of social *da'wah*—connecting innovation, ethics, and blessings. -and as a means of realizing social justice in a values-based economy.

Theoretically, this research constructs the Islamic Pentahelix Digital Entrepreneurship Model (IPDEM) as a synthesis of knowledge-based collaboration and ethical-spiritual embeddedness. This model places three main mechanisms: value integration, collaborative governance, and a sustainability mechanism based on the *maqāṣid al-shari'ah* (Islamic principles) that balance profit, people, planet, and *maslahah*. Practically, IPDEM serves as a roadmap for the government, academics, and business actors in developing an ethical and inclusive digital ecosystem, oriented towards long-term welfare. The government can use it as a policy reference in strengthening digital literacy and the halal economy; academics can use it to expand cross-disciplinary research on ethics and innovation; while MSMEs can adopt it as a basis for governance based on Islamic values. Thus, this research emphasizes the contribution of Islamic economics in broadening the horizon of digital entrepreneurship theory towards Islamic sustainable entrepreneurship that balances economic sustainability, social justice, and spirituality.

Author's Contribution

Haqiqotus Sa'adah : Contribute to formulating research ideas, collecting data, processing data, and interpreting data

Siswanto and Ahmad Djalaluddin: Contributing to writing systematics, researchmethods, analyzing interpretation results.

Acknowledgements

The author is grateful to those who helped in the completion of this article, especially during the data collection process and article review.

Declaration of Competing Interest

The author declares that there is no conflict of interest.

Ethical Approval

Ethical approval No patient-identifying parts in this paper were used or known to the authors. Therefore, no ethical approval was requested.

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