

Building Economic Independence of Islamic Boarding Schools Through the Integration of Digital Business and Entrepreneurship

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Abstract

Islamic boarding schools (pesantren) hold a strategic role in shaping students' character and religious values and fostering socio-economic resilience within communities. Despite their potential, many pesantren still face challenges in achieving financial self-sufficiency. This study investigates the integration of waste management and digital entrepreneurship as a pathway to economic independence for Islamic boarding schools. Utilizing a qualitative case study approach, data were collected from three pesantren through field observations, semi-structured interviews, and document analysis. The findings reveal that daily organic waste, commonly treated as an environmental burden, can be transformed into valuable economic products such as compost, eco-enzymes, and maggot feed. These products, when marketed through e-commerce platforms and supported by sharia-compliant Fintech significantly increases institutional revenue. Furthermore, the active involvement of students in business management and digital marketing enhances their entrepreneurial skills and financial literacy. The integration of digital business strategies with sharia-based circular economy practices emerges as a viable model for promoting pesantren economic independence without compromising religious values.

Keywords: Islamic Boarding School, economic Independence, Digital Business, Entrepreneurship, Sharia Fintech

Abstrak

Pesantren sebagai lembaga pendidikan Islam memiliki peran penting dalam membentuk karakter dan keterampilan santri. Selain itu, pesantren juga memiliki peran strategis dalam mewujudkan kemandirian ekonomi berbasis nilai-nilai keislaman. Namun, banyak pesantren masih menghadapi tantangan dalam aspek ekonomi. Oleh karena itu, penelitian ini bertujuan untuk mengkaji bagaimana kemandirian ekonomi pesantren dapat dibangun melalui pengelolaan sampah yang dihasilkan setiap hari dalam jumlah besar. Sampah di lingkungan pesantren umumnya terbagi menjadi dua jenis, yaitu sampah organik dan sampah anorganik. Sampah anorganik dapat dikumpulkan dan dijual, sedangkan sampah organik dapat dimanfaatkan untuk berbagai keperluan, seperti dijadikan kompos, eco-enzyme, atau sumber pakan bagi maggot. Produk hasil pengolahan sampah organik ini dapat dimanfaatkan dalam lingkungan pesantren atau dijual sebagai produk olahan pesantren untuk meningkatkan pendapatan. Penelitian ini menggunakan pendekatan kualitatif dengan metode studi kasus pada pengelolaan sampah di pesantren. Hasil penelitian menunjukkan bahwa penerapan teknologi digital, seperti e-commerce dan fintech syariah, berkontribusi secara signifikan dalam meningkatkan pendapatan pesantren. Selain itu, penguatan ekosistem kewirausahaan berbasis pesantren melalui pelatihan dan pendampingan juga terbukti mampu meningkatkan keterampilan santri dalam mengelola usaha secara profesional. Dengan demikian, integrasi bisnis digital dan kewirausahaan menjadi solusi strategis dalam membangun kemandirian ekonomi pesantren tanpa meninggalkan nilai-nilai religius yang menjadi landasannya..

Kata Kunci: Pesantren, Kemandirian Ekonomi, Bisnis Digital, Kewirausahaan, Fintech Syariah

Introduction

Islamic boarding schools (pesantren) have long served as centers for religious education and character development in Indonesia.¹ Beyond their educational mandate, these institutions possess untapped potential as engines of socio-economic development, particularly in rural and underserved areas. In recent years, the sustainability of pesantren operations has come under scrutiny due to their heavy dependence on external donations and lack of structured income generating models². Islamic boarding schools are often identified with fairly low environmental conditions, this is due to weak environmental management by the community in Islamic boarding schools, which are generally still traditional³.

One critical yet underexplored avenue for economic empowerment in pesantren is the strategic utilization of waste^{4,5}. Daily activities across kitchens, dormitories, and school facilities produce significant volumes of organic and inorganic waste. Properly managed, this waste can be converted into economically valuable resources, such as compost, eco-enzymes, and maggot-based feed, supporting both environmental and economic objectives⁶. This approach aligns with Maqashid Sharia principles and the Islamic circular economy, emphasizing sustainability, utility, and social welfare⁷.

While prior research has explored pesantren-based cooperatives, agricultural ventures, and entrepreneurship training^{8,9}, the integration of business digitalization and student entrepreneurship in waste management is still limited. Moreover, the potential for fintech and e-commerce to revolutionize waste-to-wealth practices in pesantren has not been adequately studied¹⁰. This study seeks to fill that gap by analyzing how digital business integration can transform waste management into a sustainable source of income, while simultaneously fostering student entrepreneurship and financial literacy within an Islamic framework¹¹.

¹ Siti Chomsiatin Binti Ni'matul Ummah, Happy Susanto, and Miftah Hur Rahman Zh, "Internalization of Social Care Character among Female Santri through the Safari Dakwah Program," *International Journal of Learning and Education* 1, no. 1 (2025): 47–54.

² Abdullah, Muhammad. Pemberdayaan Ekonomi Pesantren: Strategi dan Implementasi. *Jurnal Ekonomi Islam* 15, no. 2 (2020): 112–125

³ Rahmadiani, Mutiara Nurul., Mangunjaya, F. M., Zulham, Muhammad., "Implementasi program ekopesantren di Pondok Pesantren Madinatunnajah, Cilimus", *Jurnal kajian Islam Kontemporer* Vo. 8 No. 2, desember 2024

⁴ Yusuf, M., dan A. H. Latif. "Green Entrepreneurship dalam Pendidikan Islam: Kajian terhadap Program Berbasis Lingkungan di Pesantren." *Jurnal Studi Islam dan Lingkungan* 4, no. 1 (2021): 19–33

⁵ Athia Nur Kamilah and Miftah Hur Rahman ZH, "The Management of Study Time and Part-Time Work for Sharia Economics Students at UIN Sunan Ampel Surabaya," in *International Conference on Islam and Global Civilization 2022, 2023*.

⁶ Zaini, A., dan N. H. Syakir. "Analisis Usaha Berbasis Sampah Rumah Tangga dalam Perspektif Ekonomi Islam." *Jurnal Ekonomi Islam Kontemporer* 7, no. 3 (2022): 88–104

⁷ Hidayat, T., dan I. Zulkarnain. "Ekonomi Sirkular di Lingkungan Pesantren: Potensi dan Implementasi." *Jurnal Lingkungan dan Ekonomi Islam* 6, no. 3 (2022): 54–70

⁸ Mustofa, I., dkk. "Inkubasi Bisnis Pesantren sebagai Strategi Kemandirian Ekonomi." *Jurnal Pendidikan Kewirausahaan Islam* 6, no. 4 (2022): 45–60

⁹ Miftah Hur Rahman Zh, "Implementation of the One Day Three Sentences Technique to Improve the Arabic Ability of Students at Modern Darussalam Gontor," in *International Conference on Islam and Global Civilization, 2021*.

¹⁰ Fauzan, R., dan S. Rahayu. "Peran Fintech Syariah dalam Mendukung Kemandirian Pesantren." *Jurnal Keuangan Islam* 10, no. 1 (2022): 89–102

¹¹ Sulaiman, A., M. Hakim, dan N. Rizqi. "Model Pemberdayaan Ekonomi Berbasis Pesantren di Era

Methods

This study uses a qualitative research design with a case study approach to explore how Islamic boarding schools implement waste-based entrepreneurship through digital integration. Three pesantren were selected to represent 50 pesantren that are members of the eco-pesantren program managed by the Center for Islamic Studies of the National University. Participants of the National University (UNAS) Ecopesantren program consist of 50 Islamic boarding schools spread across Sumatra and Java¹². These Islamic boarding schools have gone through a selection and willingness form to participate in the Ekopesantren program. The Ekopesantren program aims to increase the capacity of Islamic boarding schools in building a green, independent, and environmentally friendly environment. The three were chosen because they have the potential to become agents of change in realizing a sustainable and environmentally friendly Islamic boarding school environment, their involvement shown in organic waste processing and the use of digital tools for business operations¹³.

Data collection was conducted through three primary techniques: (1) direct field observations to document waste management practices and business activities; (2) semi-structured interviews with school administrators, business unit managers, and selected students actively involved in entrepreneurial initiatives; and (3) analysis of internal documents including financial records, training materials, and marketing outputs.

The triangulation of data sources enabled a comprehensive understanding of strategies, supporting mechanisms, and challenges in developing a digital sharia based business ecosystem. The analysis followed thematic coding to identify patterns related to economic output, student involvement, digital technology usage, and religious value integration.

Results

The study found that all three Islamic boarding schools successfully transformed daily organic waste sourced from communal kitchens, canteens, and student dormitories into economically valuable products. These included compost, eco-enzymes, liquid fertilizers, and maggot feed. Table 1 summarizes the waste volumes, processed products, and monthly income generated by each pesantren:

Table 1. Organic waste management and income in three pesantren.

Name Pesantren	Types of garbage	Processed products	Volume of garbage/day	Revenue/month (Rp)	Sales Market
Pesantren X	Organic	Compost, Maggot, Eco-enzyme	±15 kg	±3.500.000	Neighbors, koperasi pesantren
Pesantren Y	Organic	Maggot, Eco-enzyme	±10 kg	±2.750.000	Kios pondok, Social Media

Digital." Jurnal Ekonomi Syariah 9, no. 1 (2021): 77–92

¹² Mangunjaya, F. M., & Edy Hendras Wahyono. (2022). PANDUAN EKOPESANTREN. LP3ES, anggota ikapi

¹³ Rahmadiani, Mutiara Nurul., Mangunjaya, F. M., Zulham, Muhammad., "Implementasi program ekopesantren di Pondok Pesantren Madinatunnajah, Cilimus", Jurnal kajian Islam Kontemporer Vo. 8 No. 2, desember 2024

Pesantren Z	Organic	Maggot, Liquid fertilizer	±20 kg	±4.000.000	Shopee, Social Media
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The data in Table 1 shows that waste can be an income for pesantren from organic waste management. Meanwhile, inorganic waste such as plastic, metal, and paper is sorted, collected, and sold to waste banks or recycling industries. The average additional income from waste management reaches Rp 2- 4 million per month, depending on the volume and type of waste produced. Inorganic waste, while not the primary focus, is also collected and sold to local recycling centers, generating supplementary income.

The sales strategies varied, ranging from traditional community outlets to digital platforms such as Shopee, Instagram, and WhatsApp Business. Notably, pesantren Y and Z have established digital marketing teams composed of senior students who oversee content creation, product promotion, and customer engagement.

In addition, one of the Islamic boarding schools also utilizes sharia fintech (such as sharia crowdfunding platforms) to obtain business capital and fund the development of waste processing technology. Students are not only the object of training, but also active subjects in business management. They are trained in entrepreneurial skills, production management, digital marketing, and Islamic financial literacy. This activity improves the competence of students and prepares them to become Muslim entrepreneurs who care about the environment. Table 2. Student Involvement and Capacity Building Activities.

Table 2. The role of students in business units and digitalization

Activity	Number of students involved	Training received	Training results
Waste production and management	10 student per pesantren	Fermentation Technique, composting selection	Improved production efficiency and quality
Digital marketing	5 student per pesantren	Social media marketing, Content design	Sales increase, and market reach expands
Islamic financial management	3 student per pesantren	Financial literacy, simple accounting	More structured business financial statements

Additionally, some pesantren utilized sharia-compliant fintech, such as Islamic crowdfunding platforms, to secure capital for equipment and production expansion. This financial innovation not only avoids interest-based transactions but also aligns with Islamic economic principles, enhancing stakeholder trust and ethical adherence. Table 3 addresses the use of technology in three pesantren.

Table 3. Utilization of digital technology and Sharia fintech

Name Pesantren	Digital platforms used	Transaction Type	Key benefits
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Pesantren X	-	Sales of compost and eco-enzymes	30% increase in revenue in 6 months
Pesantren Y	Social Media	Sale of fertilizers and maggots	Wider marketing, easy non-cash transactions
Pesantren Z	Sharia Fintech	Funding for the development of production equipment	Earn interest-free of capital

Discussion

The findings of this study affirm the growing potential of Islamic boarding schools (pesantren) as hubs for socio-economic innovation grounded in Islamic values. By integrating waste management with digital entrepreneurship, these institutions are not only addressing environmental concerns but also building sustainable income streams that contribute to their financial independence¹⁴.

This research aligns with previous studies highlighting the capacity of pesantren to serve as centers of community economic empowerment when supported by entrepreneurial education and resource mobilization¹⁵. However, this study adds a novel dimension by demonstrating how digital tools particularly sharia fintech and social media platforms can enhance the scalability and market penetration of pesantren-based enterprises. These digital strategies help bridge the traditional ethos of pesantren with modern economic mechanisms, creating a unique ecosystem of Islamic circular economy¹⁶.

The active involvement of students in the business process further signifies a paradigm shift in pesantren education. Students are no longer mere recipients of religious knowledge but are being equipped with practical entrepreneurial and financial skills, promoting holistic development. This shift is crucial for preparing future Muslim leaders who are both ethically grounded and economically competent¹⁷.

Despite these promising developments, several challenges remain. Limited internet connectivity, especially in rural areas, hampers digital operations. Moreover, the lack of institutional policies regulating business activities within pesantren presents administrative hurdles. These issues highlight the need for multi-stakeholder collaboration involving government agencies, Islamic financial institutions, NGOs, and academic partners to support capacity-building and infrastructure development.

In theoretical terms, this study supports the application of maqashid sharia and maslahah principles in socio-economic innovation, wherein economic activities must align with moral, social, and environmental benefits. The integration of sharia compliant fintech into waste-to-wealth programs exemplifies a practical application of Islamic economic principles in a real-world context.

¹⁴ Rahman, F., dan H. Saputra. "Digitalisasi Ekonomi Pesantren: Studi Kasus Pemanfaatan E-Commerce untuk Produk Santri." *Jurnal Ekonomi dan Bisnis Syariah* 8, no. 2 (2021): 123–135

¹⁵ Mustofa, I., dkk. "Inkubasi Bisnis Pesantren sebagai Strategi Kemandirian Ekonomi." *Jurnal Pendidikan Kewirausahaan Islam* 6, no. 4 (2022): 45–60

¹⁶ Santoso, B., dan L. M. Rachman. "Transformasi Ekonomi Pesantren melalui Pemanfaatan Teknologi Informasi." *Jurnal Sosial dan Ekonomi Islam* 10, no. 1 (2022): 35–50

¹⁷ Fathurrahman, M., dan K. Maulida. "Literasi Keuangan Syariah di Kalangan Santri dan Implikasinya terhadap Kemandirian Ekonomi." *Jurnal Keuangan dan Perbankan Syariah* 6, no. 2 (2023): 101–116

Conclusion

This study demonstrates that the integration of organic waste management, digital entrepreneurship, and sharia-compliant financial tools can significantly enhance the economic independence of Islamic boarding schools. By adopting a circular economy model within an Islamic ethical framework, pesantren not only generate sustainable income but also foster environmental stewardship and student empowerment.

The key novelty of this research lies in its interdisciplinary approach, combining Islamic circular economy, fintech innovation, and student-centered entrepreneurship. This model offers a replicable and scalable framework for pesantren across Indonesia and similar educational institutions in the Muslim world seeking financial autonomy without compromising religious integrity.

To ensure long-term success, pesantren must continue to invest in digital literacy, institutionalize entrepreneurship education, and establish partnerships with stakeholders across sectors. Future research should explore the longitudinal impact of such models and investigate their potential for replication on a national scale.

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