



From Tradition to Transformation: Alumni Networks, Digital Leadership, and Entrepreneurial Innovation in Strengthening *Pesantren* Sustainability

Muhammad Idris^{1*}, Akhmad Fauzi Hamzah²

^{1,2} Universitas Islam Internasional Darullughah Wadda'wah, Pasuruan, Indonesia

¹muh.idris@gmail.com, ²akhmadfauzihamzah@uiidalwa.ac.id

*Correspondence

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Abstract

This study examines the transformation of *pesantren* in responding to social change and the challenges of the digital era. Using a qualitative approach with a case study design, data were collected through in-depth interviews, observations, and documentation involving institutional leaders and relevant stakeholders. The findings reveal that *pesantren* transformation extends beyond technological adaptation and involves broader institutional changes in educational orientation, leadership practices, entrepreneurial development, and social networking. *Pesantren* have increasingly adopted adaptive strategies through digital competency development, entrepreneurship programs, and institutional innovation while maintaining their religious values and identity. Leadership plays a crucial role in directing institutional change, particularly through adaptive and value-based approaches that support organizational development. Furthermore, alumni networks contribute significantly to institutional sustainability by strengthening social support and institutional legitimacy. Despite facing challenges such as technological disparities, infrastructure limitations, and human resource readiness, *pesantren* demonstrate considerable potential to remain relevant and sustainable in contemporary society. This study highlights that the transformation of *pesantren* is not merely a process of modernization but represents a strategic effort to balance religious traditions with evolving societal demands.

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INTRODUCTION

Islamic boarding schools (*pesantren*) are no longer positioned merely as traditional religious educational institutions but have evolved into social, educational, and economic institutions that contribute significantly to community empowerment. This transformation has occurred alongside increasing demands for institutional independence, social change, and the development of technology- and network-based economies. In contemporary developments, *pesantren* not only function as centers for the transmission of Islamic knowledge and the formation of religious character but also serve as centers for entrepreneurship development and community economic empowerment based on Islamic values. A bibliometric study indicates that the theme of

pesantren entrepreneurship has grown significantly and intersects with issues of leadership, governance, community strengthening, and institutional economic sustainability.¹

The rapid advancement of digital technology has driven fundamental changes in the management of educational institutions, including *pesantren*. Digital transformation not only affects learning processes but also organizational governance, human resource development, institutional communication, and economic development strategies. In the *Society 5.0* era, educational institutions are required to develop adaptive capacities toward technology to maintain relevance and competitiveness.² In the context of *pesantren*, such adaptability becomes increasingly important because these institutions are challenged to preserve their religious identity while simultaneously responding to contemporary socio-economic changes.

Research on strengthening *pesantren* competitiveness reveals that the integration of digital technology, community involvement, and alumni engagement are crucial factors in maintaining institutional sustainability.³ The use of digital media not only enhances instructional effectiveness but also expands institutional visibility and supports the development of economic self-sufficiency. These findings suggest that the success of *pesantren* today depends not solely on religious authority but also on their ability to adapt to the digital environment.

In terms of economic development, *pesantren* have begun implementing community-based entrepreneurial models and digital transformation initiatives. Such strategies include strengthening entrepreneurial skills, providing digital technology training, building business networks, and collaborating with external stakeholders.⁴ Vocational-based *pesantren* institutions have also developed digital creative economy products through training in digital marketing, social media management, and technology-based product development.⁵ Furthermore, digital training within *pesantren* environments has been shown to contribute to technological literacy, digital marketing skills, and students' abilities to develop technology-based businesses.⁶ These findings demonstrate that digitalization has become a critical instrument in developing *pesantren* economic ecosystems.

These transformations place *pesantren* leaders in highly strategic positions. Leadership within *pesantren* is no longer limited to religious authority but now encompasses managerial

¹ Lina Marlina, "Pesantren and Entrepreneurship: Thematic Map and Conceptual Implication," *The Economic Review of Pesantren* 3, no. 2 (2026), <https://doi.org/10.58968/erp.v3i2.704>.

² Sabingatun Dewi Masitoh and Dwi Purbowati, "Enhancing Teacher Professionalism in Indonesia: Challenges and Strategies for Digital Technology Utilization in the Society 5.0 Era," *HEUTAGOGIA: Journal of Islamic Education* 4, no. 2 (2024): 219–36, <https://doi.org/10.14421/hjie.2024.42-06>.

³ Indah Tristianingrum et al., "Strengthening the Competitiveness of Islamic Boarding Schools: Strategic Insights from a Pondok Pesantren," *Indonesian Research Journal in Education |IRJE|* 10, no. 1 (2026): 364–76, <https://doi.org/10.22437/irje.v10i1.51587>.

⁴ Abdur Rouf et al., "Entrepreneurship in Islamic Education Institutions: Pesantren Strategy in Responding to the Industrial Revolution 4.0," *Tafkir: Interdisciplinary Journal of Islamic Education* 5, no. 2 (2024): 250–65, <https://doi.org/10.31538/tijie.v5i2.1115>.

⁵ Dwi Erma Shofiana et al., "Implementation of Vocational High School as a Center of Excellence through Digital Products to Develop Islamic Boarding School-Based Entrepreneurship," *Journal of Pedagogy and Education Science* 4, no. 03 (2025): 600–610, <https://doi.org/10.56741/IISTR.jpes.001110>.

⁶ Wahyudi Widodo et al., "Digital Work Training in Islamic Boarding Schools: A Strategic Model for Enhancing Santri Employability and Reducing Youth Unemployment in Urban Indonesia," *Munaddhomah: Jurnal Manajemen Pendidikan Islam* 7, no. 2 (2026): 248–59, <https://doi.org/10.31538/munaddhomah.v7i2.2646>.

capacity, innovation, networking, and digital adaptation. Research on the *Kiai-preneurs* model demonstrates that *pesantren* leadership has evolved into a hybrid model combining religious authority with modern entrepreneurial management approaches.⁷ Such a leadership model contributes to building *pesantren* economic ecosystems through the integration of Islamic values, business unit development, and the adoption of digitalization in institutional economic activities.

One of the most critical functions of such leadership is supervision. Within educational contexts, supervision is not merely understood as monitoring activities but also as a process of guidance, control, evaluation, and assistance for organizational activities. Supervision ensures that institutional programs are implemented in accordance with organizational vision and objectives. Previous studies indicate that supervisory functions significantly contribute to improving organizational quality through continuous development and capacity enhancement of human resources.⁸

The advancement of digital technology has subsequently introduced a new paradigm of supervision in which digital competence becomes an essential component of leadership capacity. Digital-based supervision enables leaders to manage information, strengthen communication, and coordinate organizational activities more effectively.⁹ Digital supervisory competencies include strategic leadership, digital culture development, human resource enhancement, and technology-based facilitation processes.¹⁰ Other studies reveal that digital leadership significantly influences organizational culture, knowledge sharing, and institutional effectiveness within educational environments.¹¹ Likewise, digital leadership contributes to the development of digital culture and enhances the competencies of organizational members in educational institutions.¹²

Social media has become one of the primary instruments within this digital transformation process. Platforms such as WhatsApp and Instagram offer rapid communication, low-cost interaction, and extensive community-based networking opportunities. In the context of economic development, social media functions not only as an information platform but also as a medium for marketing, promotion, and strengthening social networks.

⁷ Istianatul Imamah and Siti Aimah, "Kiai-Preneurs: A Case Study of Entrepreneurial Leadership Models in the Economic Transformation of *Pesantren*," *Ta'dibuna: Jurnal Pendidikan Islam* 15, no. 1 (2026): 61–86, <https://doi.org/10.32832/tadibuna.v15i1.21872>.

⁸ Lukman Hakim, "The Role of Madrasah Principal in Teacher Performance Supervision," *AL-ISHLAH: Jurnal Pendidikan* 13, no. 1 (2021): 794–98, <https://doi.org/10.35445/alishlah.v13i1.711>.

⁹ Safeyah Tawil and Aladdin Tarawneh, "Enhancing Education Quality Through Modern Technology: Electronic Educational Supervision as a Case Study," in *Artificial Intelligence in the Digital Era: Economic, Legislative and Media Perspectives*, ed. Nidal Al-Ramahi et al. (Springer Nature Switzerland, 2026), https://doi.org/10.1007/978-3-031-89771-9_77.

¹⁰ Ansar Ansar et al., "Development and Psychometric Evaluation of a Stakeholder Perception Scale of Supervisors' Digital Competencies for Performance Excellence (SDC-PE)," *Frontiers in Education* 10 (January 2026): 1703439, <https://doi.org/10.3389/educ.2025.1703439>.

¹¹ Sadia Anwar and Ummi Naiemah Saraih, "Digital Leadership in the Digital Era of Education: Enhancing Knowledge Sharing and Emotional Intelligence," *International Journal of Educational Management* 38, no. 6 (2024): 1581–611, <https://doi.org/10.1108/IJEM-11-2023-0540>.

¹² Faizal Lukman and Evan Keandre Yune, "Digital Leadership and Teacher Digital Competence as Keys to Successful Integration of Digital Culture in Education," *Development: Studies in Educational Management and Leadership* 4, no. 1 (2025): 21–36, <https://doi.org/10.47766/development.v4i1.3381>.

On the other hand, alumni play a strategic role in *pesantren* development. Alumni should not merely be regarded as educational outcomes but also as social capital capable of supporting institutional sustainability. Manaf and Kurniawan (2024) found that alumni networks within *pesantren* are built upon emotional relationships between *santri* and *kiai*, creating strong loyalty, institutional attachment, and social connectedness.¹³ These alumni networks contribute to strengthening institutional reputation, sustainability, and the broader social role of *pesantren* within society.

This phenomenon can be observed at *Pondok Pesantren Jilussalamah Al-Islami*, which utilizes social media to support alumni business development. Alumni affiliated with *Ikatan Keluarga Besar Jilussalamah (IKRAJIS)* manage micro, small, and medium enterprises (MSMEs), particularly souvenir businesses specializing in products from Kandangan City. Interestingly, promotional activities are conducted collectively through the involvement of *pesantren* leaders, teachers, parents, and the broader *pesantren* community via WhatsApp and Instagram. One initiative known as *Gerakan Jum'at Status (GJS)* serves as a community-based digital promotional strategy conducted collaboratively.

Several previous studies have examined aspects of *pesantren* entrepreneurship, digital transformation, alumni networking, and leadership. Rouf et al. (2024)¹⁴ investigated *pesantren* strategies in developing entrepreneurship to respond to the Industrial Revolution 4.0. Imamah and Aimah (2026) examined the *Kiaipreneurs* leadership model in *pesantren* economic transformation. Tristianingrum et al. (2026)¹⁵ explored strategies for strengthening *pesantren* competitiveness through digitalization and alumni engagement, while Manaf and Kurniawan (2024)¹⁶ focused on alumni network management in urban *pesantren* contexts.

Nevertheless, previous studies have generally examined *pesantren* leadership, digital media, entrepreneurship, and alumni networking separately. Limited studies have integrated the supervisory role of *pesantren* leaders as a mechanism for directing and controlling alumni business networking through social media. Moreover, research specifically positioning alumni as primary actors in business development through community-based digital promotional strategies remains limited.

Based on these research gaps, this study offers a novel perspective by integrating concepts of *pesantren* leadership supervision, digital leadership, social media utilization, and alumni business network strengthening. The novelty of this study lies in analyzing the supervisory role of *pesantren* leaders in directing community-based digital promotional strategies through *Gerakan Jum'at Status (GJS)* as a model for strengthening alumni business networks in the digital era. Therefore, this study aims to analyze how leaders of *Pondok Pesantren Jilussalamah Al-Islami*

¹³ Sofwan Manaf and Muhammad Irfanudin Kurniawan, "ALUMNI MANAGEMENT AND NETWORKING OF ISLAMIC EDUCATION INSTITUTIONS IN URBAN AREAS: A STUDY OF *PESANTREN* DARUNNAJAH JAKARTA AND *PESANTREN* DARUSSALAM GONTOR," *Akademika : Jurnal Pemikiran Islam* 29, no. 2 (2024): 215–36, <https://doi.org/10.32332/akademika.v29i2.9600>.

¹⁴ Rouf et al., "Entrepreneurship in Islamic Education Institutions."

¹⁵ Tristianingrum et al., "Strengthening the Competitiveness of Islamic Boarding Schools."

¹⁶ Manaf and Kurniawan, "ALUMNI MANAGEMENT AND NETWORKING OF ISLAMIC EDUCATION INSTITUTIONS IN URBAN AREAS."

perform supervisory functions in establishing collaboration with alumni, utilizing social media as a promotional instrument, and maintaining *pesantren* identity and values within digital entrepreneurial practices.

METHOD

This study employed a qualitative approach using a case study design to examine the supervisory role of *pesantren* leadership in utilizing social media to strengthen alumni business networks in the digital era. The study focused on supervisory processes, forms of guidance and monitoring, and leadership strategies in directing digital-based promotional activities. The research was conducted at *Pondok Pesantren Jilussalamah Al-Islami*, which was selected due to its implementation of community-based digital promotion through the *Gerakan Jum'at Status* (GJS) initiative involving *pesantren* leaders, teachers, parents, and alumni communities.

Research participants were selected purposively based on their involvement and relevance to the research focus. Informants included the *pesantren* leader, alumni association administrators, alumni business managers, teachers, and parents of students.¹⁷ Data sources consisted of persons, places, and documents. Data were collected through in-depth interviews, participant observation, and documentation to obtain comprehensive information regarding supervisory practices and alumni business networking activities.¹⁸

To ensure data trustworthiness, source and time triangulation techniques were employed. Data analysis was conducted continuously using the interactive model of Miles and Huberman, involving data reduction, data display, and conclusion drawing.¹⁹ The analysis emphasized identifying patterns of leadership supervision and understanding how supervisory practices contribute to strengthening alumni business networks through social media utilization.

RESULTS AND DISCUSSION

***Pesantren* Transformation in Responding to Social Change and the Digital Era**

Technological developments and social changes have encouraged *pesantren* to undertake various forms of institutional adaptation. This transformation is not only related to the use of technology but also involves changes in how *pesantren* prepare students to meet the evolving needs of society. Today, *pesantren* are expected not only to maintain their role as institutions of religious education but also to develop additional competencies that are relevant to contemporary societal dynamics.

Based on interview findings, participants explained that changes in societal needs have become one of the primary factors driving the development of *pesantren* educational systems.

¹⁷ John W. Creswell and Vicki L. Plano Clark, *Designing and Conducting Mixed Methods Research* (SAGE Publications, 2017).

¹⁸ Hardani Hardani et al., *Metode Penelitian Kualitatif & Kuantitatif* (CV. Pustaka Ilmu, 2020).

¹⁹ Matthew B. Miles et al., *Qualitative Data Analysis: A Methods Sourcebook*, 3rd ed. (SAGE Publications, 2014).

“Nowadays, societal needs are different. Students are no longer expected to understand only religious knowledge, but they also need to keep up with technological developments and possess additional skills.” (Interview with Informant A)

This statement reflects an awareness that *pesantren* transformation has become a strategic necessity for maintaining institutional relevance amid ongoing social changes. However, the changes implemented are not intended to eliminate the core characteristics of *pesantren*, but rather to adapt them to contemporary developments. This finding aligns with Rouf et al. (2024),²⁰ who found that *pesantren* have begun developing digital skills training, technology-based curriculum enhancement, and collaborative partnerships as responses to the demands of the Industry 4.0 era.

Furthermore, the transformation process has been carried out while maintaining the identity and foundational values of *pesantren*.²¹ Another informant emphasized that modernization is perceived as strengthening educational approaches rather than altering institutional principles. “What changes is not the *pesantren*’s values, but the way we adapt them to current needs.” (Interview with Informant B)

These findings indicate that *pesantren* strive to create a balance between tradition and innovation. This result supports the study of Tristianingrum et al. (2026),²² which found that strengthening *pesantren* competitiveness can be achieved through technological integration, educational enhancement, and adaptive institutional strategies. Therefore, *pesantren* transformation should not merely be understood as a technical adjustment but rather as an effort to sustain institutional relevance in responding to the challenges of the digital era.

The Role of Leadership in Directing *Pesantren* Development

Leadership plays a central role in determining the direction of institutional development in *pesantren*. Unlike other educational institutions, leadership in *pesantren* is not limited to administrative functions but also encompasses moral, cultural, and spiritual authority.²³ Therefore, decisions made by leaders, particularly *kiai*, significantly influence institutional adaptation and innovation processes. Based on interview findings, participants explained that institutional transformation and development are highly dependent on leadership support and vision. “Any institutional change usually depends on the leader. When the leader supports innovation and development, adaptation becomes easier to implement.” (Interview with Informant C)

²⁰ Rouf et al., “Entrepreneurship in Islamic Education Institutions.”

²¹ Moh Solehuddin, “Leading by Example: Transformational Leadership Strategies in Shaping Multidimensional Religiosity of Madrasa Students,” *Kawruh: Journal of Islamic Studies* 1, no. 1 (2026): 1–14; Faisol Hakim, “A Model for Vocational Curriculum Management in Senior High Schools to Enhance Graduate Independence,” *Nawasena: Interdisciplinary Journal of Islamic Studies* 1, no. 1 (2026): 24–36; Welli Yanto and Akhmad Fauzi Hamzah, “Implementation of the Madrasah Head’s Academic Supervision Strategy in Improving the Quality of Beginning Teachers,” *Hastabrata: Journal of Business and Management Studies* 1, no. 1 (2026): 20–30.

²² Tristianingrum et al., “Strengthening the Competitiveness of Islamic Boarding Schools.”

²³ Li Zhang and Tommy Shih, “Collective and Individual Social Capital and the Impact on Incubator Tenants’ Graduation,” *Journal of the Knowledge Economy* 14, no. 3 (2023): 2692–722, <https://doi.org/10.1007/s13132-022-00994-z>; Chutirut Prasongmanee et al., “Competency Experience-Based Training (CEBT) Model with Ubiquitous Community of Practice (U-CoP) to Enhance Transformation Digital Supervisor,” *International Education Studies* 15, no. 5 (2022): 146–52; Noemí Pérez-Macías et al., “Entrepreneurial Intention among Online and Face-to-Face University Students: The Influence of Structural and Cognitive Social Capital Dimensions,” *Journal of International Entrepreneurship* 19, no. 3 (2021): 434–67, <https://doi.org/10.1007/s10843-020-00280-6>.

The statement indicates that leadership functions as a driving force for institutional change. In the *pesantren* context, leaders are not only policy makers but also role models whose decisions shape organizational culture and influence the acceptance of new ideas. Consequently, leadership support becomes a crucial factor in ensuring that institutional transformation can be implemented effectively.

This finding is consistent with Anwar and Saraih (2024),²⁴ who emphasized that digital leadership contributes positively to organizational knowledge sharing and institutional adaptability in educational settings. Similarly, Lukman and Yune (2025)²⁵ found that leadership plays an important role in enhancing digital competence and strengthening institutional digital culture. The findings also suggest that leadership models in *pesantren* are evolving in response to contemporary challenges. Rather than relying solely on traditional religious authority, *pesantren* leaders increasingly integrate managerial and entrepreneurial approaches in institutional development. This finding supports Imamah and Aimah (2026),²⁶ who introduced the concept of *Kiai-preneurs*, referring to a leadership model that combines religious authority with entrepreneurial and modern management practices. “*A pesantren leader today must not only understand religious matters but also be able to respond to social changes and institutional needs.*” (Interview with Informant D) These findings indicate that leadership in *pesantren* is becoming more adaptive and responsive to changing circumstances. Therefore, institutional development in *pesantren* depends not only on maintaining traditional authority but also on the ability of leaders to integrate innovation while preserving the institution’s core values and identity.

Strengthening Santri Digital Competencies in the Contemporary Era

The increasing integration of digital technology into various aspects of social life has created new demands for educational institutions, including *pesantren*. Beyond providing religious knowledge, *pesantren* are now expected to equip students with competencies that enable them to adapt to technological developments and contemporary work environments. Digital literacy, technological skills, and adaptive learning capacities have become important elements in preparing students for future challenges. Based on interview findings, participants explained that the development of digital competencies among students has gradually become an important concern within *pesantren* educational programs. “*Today students need additional competencies because the realities they face outside the pesantren environment are very different. Digital skills are now becoming increasingly important.*” (Interview with Informant E)

This finding indicates that *pesantren* are increasingly aware of the importance of preparing students with broader competencies beyond traditional religious education. Developing digital skills is viewed not as a replacement for religious learning but as a complementary effort to enhance students’ readiness for social and professional life. This finding is in line with Widodo et al. (2026),²⁷ who found that digital training programs in *pesantren* improved technological literacy

²⁴ Anwar and Saraih, “Digital Leadership in the Digital Era of Education.”

²⁵ Lukman and Yune, “Digital Leadership and Teacher Digital Competence as Keys to Successful Integration of Digital Culture in Education.”

²⁶ Imamah and Aimah, “Kiai-Preneurs.”

²⁷ Widodo et al., “Digital Work Training in Islamic Boarding Schools.”

and created broader employment opportunities for students. Similarly, Rouf et al. (2024)²⁸ reported that *pesantren* have begun integrating technology-oriented training and curriculum development to respond to the challenges of the Industry 4.0 era.

However, the implementation of digital competency development remains accompanied by several challenges, including differences in technological access and varying levels of readiness among students and educators. Therefore, strengthening digital competencies requires not only facilities and infrastructure but also sustainable institutional support and capacity development. Overall, *pesantren* increasingly recognize digital competency development as an essential component of educational transformation in the contemporary era.

***Pesantren* Entrepreneurship as a Strategy for Institutional Independence**

In addition to educational transformation, *pesantren* have increasingly expanded their role in promoting economic empowerment and institutional sustainability. Entrepreneurship has become one of the strategic approaches adopted by *pesantren* to strengthen institutional independence while simultaneously providing practical competencies for students. Entrepreneurial activities are not solely viewed as economic initiatives but also as educational processes that integrate values, skills, and social responsibility. Based on interview findings, participants explained that entrepreneurial activities in *pesantren* are designed not only to generate income but also to cultivate independence among students. “*The goal is not simply economic benefit. We want students to learn responsibility, independence, and how to create opportunities.*” (Interview with Informant F)

The statement illustrates that entrepreneurship in *pesantren* extends beyond financial considerations and functions as part of character and competency development. Through entrepreneurial practices, students are expected to develop practical experiences and adaptive skills that may benefit them after completing their education. This finding supports Anggadwita et al. (2021),²⁹ who argued that entrepreneurship in *pesantren* contributes not only to institutional growth but also to strengthening stakeholder capacities and promoting community empowerment. Similarly, Imamah and Aimah (2026)³⁰ found that entrepreneurial leadership in *pesantren* combines religious values with modern management approaches to support institutional economic transformation. Furthermore, entrepreneurship initiatives in *pesantren* increasingly incorporate innovation and technological adaptation. Marlina (2026)³¹ emphasized that *pesantren* entrepreneurship has evolved into a strategic instrument for institutional sustainability and social empowerment. Therefore, entrepreneurship can be understood as an important mechanism through which *pesantren* maintain institutional resilience while responding to contemporary economic challenges.

Alumni Networks and Institutional Social Support

²⁸ Rouf et al., “Entrepreneurship in Islamic Education Institutions.”

²⁹ Grisna Anggadwita et al., “Empowering Islamic Boarding Schools by Applying the Humane Entrepreneurship Approach: The Case of Indonesia,” *International Journal of Entrepreneurial Behavior & Research* 27, no. 6 (2021): 1580–604, <https://doi.org/10.1108/IJEER-11-2020-0797>.

³⁰ Imamah and Aimah, “Kiai-Preneurs.”

³¹ Marlina, “*Pesantren* and Entrepreneurship.”

Alumni networks play a significant role in strengthening institutional sustainability and expanding the social influence of *pesantren*. Beyond functioning as former students, alumni often serve as strategic partners who contribute to institutional development through social, intellectual, and professional networks. Their involvement reflects the continuing relationship between *pesantren* and graduates beyond the formal educational process. Based on interview findings, participants explained that alumni maintain strong emotional and institutional connections with the *pesantren* even after completing their studies. “*Although they have graduated, many alumni still actively participate in pesantren activities and contribute according to their capacities.*” (Interview with Informant G)

This finding indicates that alumni relationships within *pesantren* are not merely administrative but are built upon shared values, emotional attachment, and long-term commitment. Such relationships create social capital that may strengthen institutional reputation and support future development initiatives. This finding is consistent with Manaf and Kurniawan (2024),³² who found that alumni networks in *pesantren* are strongly influenced by philosophical values and emotional relationships formed during the educational process. Similarly, Fauzi (2025)³³ emphasized that alumni function as informal actors who help build institutional legitimacy and reputation through value-based stewardship practices. Furthermore, alumni networks contribute not only through material support but also by expanding institutional visibility and creating collaborative opportunities. Therefore, alumni should be understood as strategic assets whose involvement strengthens both institutional resilience and social legitimacy.

Challenges and Future Prospects of *Pesantren* Development

Despite various efforts toward institutional transformation, *pesantren* continue to face multiple challenges in responding to contemporary educational and social changes. Rapid technological development, differences in digital readiness, infrastructure limitations, and human resource capacity remain significant issues affecting institutional adaptation processes. Based on interview findings, participants explained that one of the primary challenges lies in balancing institutional values with ongoing societal change. “*The challenge is not only technological adaptation but also ensuring that change does not weaken the core values of the pesantren.*” (Interview with Informant H)

This finding suggests that *pesantren* transformation involves more than technical adaptation. Institutional leaders and stakeholders face the challenge of maintaining the identity and values of *pesantren* while simultaneously responding to external demands and modernization pressures.

This result supports Masitoh and Purbowati (2024),³⁴ who identified technological adaptation, digital literacy disparities, and continuous competency development as major

³² Manaf and Kurniawan, “ALUMNI MANAGEMENT AND NETWORKING OF ISLAMIC EDUCATION INSTITUTIONS IN URBAN AREAS.”

³³ Ahmad Fauzi, “Silent Reputation Builders: How *Pesantren* Alumni Intellectual Networks Shape Institutional Legitimacy Through Value-Based Stewardship,” *JURNAL ISLAM NUSANTARA* 9, no. 2 (2025): 302–15, <https://doi.org/10.33852/jurnalnu.v8i2.590>.

³⁴ Masitoh and Purbowati, “Enhancing Teacher Professionalism in Indonesia.”

challenges for educational institutions in the Society 5.0 era. Similarly, Nasef (2025)³⁵ emphasized that educational transformation requires not only technological integration but also organizational readiness and continuous professional development.

Despite these challenges, the future prospects of *pesantren* remain promising. Institutional flexibility, strong community support, leadership adaptation, and expanding social networks provide important foundations for sustainable development. Therefore, *pesantren* possess significant potential to continue evolving as adaptive educational institutions capable of integrating religious values with contemporary societal needs.

CONCLUSION

The findings indicate that *pesantren* transformation in the contemporary era involves multidimensional changes extending beyond technological adaptation. Institutional transformation encompasses educational development, leadership practices, entrepreneurship initiatives, and the strengthening of social networks to respond to changing societal needs. *Pesantren* increasingly recognize the importance of integrating additional competencies, particularly digital skills, to prepare students for broader social and professional contexts.

Leadership emerged as a central factor influencing institutional development and adaptation processes. The role of *pesantren* leaders extends beyond administrative responsibilities and includes guiding institutional values and directing innovation initiatives. At the same time, entrepreneurship programs contribute not only to institutional sustainability but also to the development of student independence and practical competencies.

The study also demonstrates that alumni networks function as strategic social capital that strengthens institutional legitimacy and long-term development. Through emotional attachment and value-based relationships, alumni continue contributing to *pesantren* sustainability beyond formal educational processes. Although challenges related to technological readiness, infrastructure, and institutional capacity remain present, *pesantren* show strong potential to adapt and evolve while preserving their religious identity. Therefore, *pesantren* transformation should be understood as a dynamic process of balancing tradition and innovation in response to contemporary educational and societal changes.

DECLARATION OF AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In the preparation of this manuscript, the author(s) utilized Gemini to assist with synthesizing diverse background information and developing the initial organizational framework of the study. All outputs were subsequently reviewed and revised by the author(s), who assume full responsibility for the final content of the publication.

³⁵ Mohamed Yahia Nasef, "A Proposed Perspective for Developing Educational Supervision in Egypt in the Digital Era," *International Journal of Recent Education Research*, ahead of print, July 1, 2025, <https://doi.org/10.21608/ijrer.2025.387825.1021>.

REFERENCES

- Anggadwita, Grisna, Leo-Paul Dana, Veland Ramadani, and Reza Yanuar Ramadan. "Empowering Islamic Boarding Schools by Applying the Humane Entrepreneurship Approach: The Case of Indonesia." *International Journal of Entrepreneurial Behavior & Research* 27, no. 6 (2021): 1580–604. <https://doi.org/10.1108/IJEER-11-2020-0797>.
- Ansar, Ansar, Arismunandar Arismunandar, Rasdiana Rasdiana, Siti Ma'rifatin, Fantika Vera Entrinasari, and Rizqi Nindhiani. "Development and Psychometric Evaluation of a Stakeholder Perception Scale of Supervisors' Digital Competencies for Performance Excellence (SDC-PE)." *Frontiers in Education* 10 (January 2026): 1703439. <https://doi.org/10.3389/educ.2025.1703439>.
- Anwar, Sadia, and Umami Naiemah Saraih. "Digital Leadership in the Digital Era of Education: Enhancing Knowledge Sharing and Emotional Intelligence." *International Journal of Educational Management* 38, no. 6 (2024): 1581–611. <https://doi.org/10.1108/IJEM-11-2023-0540>.
- Creswell, John W., and Vicki L. Plano Clark. *Designing and Conducting Mixed Methods Research*. SAGE Publications, 2017.
- Fauzi, Ahmad. "Silent Reputation Builders: How *Pesantren* Alumni Intellectual Networks Shape Institutional Legitimacy Through Value-Based Stewardship." *JURNAL ISLAM NUSANTARA* 9, no. 2 (2025): 302–15. <https://doi.org/10.33852/jurnalnu.v8i2.590>.
- Hakim, Faisol. "A Model for Vocational Curriculum Management in Senior High Schools to Enhance Graduate Independence." *Nawasena: Interdisciplinary Journal of Islamic Studies* 1, no. 1 (2026): 24–36.
- Hakim, Lukman. "The Role of Madrasah Principal in Teacher Performance Supervision." *AL-ISHLAH: Jurnal Pendidikan* 13, no. 1 (2021): 794–98. <https://doi.org/10.35445/alishlah.v13i1.711>.
- Hardani, Hardani, Helmi Andriani, Ria Istiqomah, et al. *Metode Penelitian Kualitatif & Kuantitatif*. CV. Pustaka Ilmu, 2020.
- Imamah, Istianatul, and Siti Aimah. "Kiai-preneurs: A Case Study of Entrepreneurial Leadership Models in the Economic Transformation of *Pesantren*." *Ta'dibuna: Jurnal Pendidikan Islam* 15, no. 1 (2026): 61–86. <https://doi.org/10.32832/tadibuna.v15i1.21872>.
- Lukman, Faizal, and Evan Keandre Yune. "Digital Leadership and Teacher Digital Competence as Keys to Successful Integration of Digital Culture in Education." *Development: Studies in Educational Management and Leadership* 4, no. 1 (2025): 21–36. <https://doi.org/10.47766/development.v4i1.3381>.
- Manaf, Sofwan, and Muhammad Irfanudin Kurniawan. "ALUMNI MANAGEMENT AND NETWORKING OF ISLAMIC EDUCATION INSTITUTIONS IN URBAN AREAS: A STUDY OF *PESANTREN DARUNNAJAH JAKARTA* AND *PESANTREN DARUSSALAM GONTOR*." *Akademika : Jurnal Pemikiran Islam* 29, no. 2 (2024): 215–36. <https://doi.org/10.32332/akademika.v29i2.9600>.
- Marlina, Lina. "*Pesantren* and Entrepreneurship: Thematic Map and Conceptual Implication." *The Economic Review of Pesantren* 3, no. 2 (2026). <https://doi.org/10.58968/erp.v3i2.704>.

- Masitoh, Sabingatun Dewi, and Dwi Purbowati. "Enhancing Teacher Professionalism in Indonesia: Challenges and Strategies for Digital Technology Utilization in the Society 5.0 Era." *HEUTAGOGIA: Journal of Islamic Education* 4, no. 2 (2024): 219–36. <https://doi.org/10.14421/hjie.2024.42-06>.
- Miles, Matthew B., A. Michael Huberman, and Johnny Saldana. *Qualitative Data Analysis: A Methods Sourcebook*. 3rd ed. SAGE Publications, 2014.
- Nasef, Mohamed Yahia. "A Proposed Perspective for Developing Educational Supervision in Egypt in the Digital Era." *International Journal of Recent Education Research*, ahead of print, July 1, 2025. <https://doi.org/10.21608/ijrer.2025.387825.1021>.
- Pérez-Macías, Noemí, José-Luis Fernández-Fernández, and Antonio Rúa-Vieites. "Entrepreneurial Intention among Online and Face-to-Face University Students: The Influence of Structural and Cognitive Social Capital Dimensions." *Journal of International Entrepreneurship* 19, no. 3 (2021): 434–67. <https://doi.org/10.1007/s10843-020-00280-6>.
- Prasongmanee, Chutirut, Panita Wannapiroon, and Prachyanun Nilsook. "Competency Experience-Based Training (CEBT) Model with Ubiquitous Community of Practice (U-CoP) to Enhance Transformation Digital Supervisor." *International Education Studies* 15, no. 5 (2022): 146–52.
- Rouf, Abdur, Fatah Syukur, and Samsul Maarif. "Entrepreneurship in Islamic Education Institutions: *Pesantren* Strategy in Responding to the Industrial Revolution 4.0." *Tafkir: Interdisciplinary Journal of Islamic Education* 5, no. 2 (2024): 250–65. <https://doi.org/10.31538/tijie.v5i2.1115>.
- Shofiana, Dwi Erma, Imron, and M. Tohirin. "Implementation of Vocational High School as a Center of Excellence through Digital Products to Develop Islamic Boarding School-Based Entrepreneurship." *Journal of Pedagogy and Education Science* 4, no. 03 (2025): 600–610. <https://doi.org/10.56741/IISTR.jpes.001110>.
- Solehuddin, Moh. "Leading by Example: Transformational Leadership Strategies in Shaping Multidimensional Religiosity of Madrasa Students." *Kawruh: Journal of Islamic Studies* 1, no. 1 (2026): 1–14.
- Tawil, Safeyah, and Aladdin Tarawneh. "Enhancing Education Quality Through Modern Technology: Electronic Educational Supervision as a Case Study." In *Artificial Intelligence in the Digital Era: Economic, Legislative and Media Perspectives*, edited by Nidal Al-Ramahi, Abdalmuttaleb M. A. Musleh Al-Sartawi, and Mohammad Kanan. Springer Nature Switzerland, 2026. https://doi.org/10.1007/978-3-031-89771-9_77.
- Tristianingrum, Indah, Aris Dwi Nugroho, and Suci Fitriani. "Strengthening the Competitiveness of Islamic Boarding Schools: Strategic Insights from a Pondok *Pesantren*." *Indonesian Research Journal in Education |IRJE|* 10, no. 1 (2026): 364–76. <https://doi.org/10.22437/irje.v10i1.51587>.
- Widodo, Wahyudi, Saifuddin Chalim, Nuur Halimatus Saadiah Masrukhin, Yandri Susanto, Fadly Usman, and Muhammad Husnur Rofiq. "Digital Work Training in Islamic Boarding Schools: A Strategic Model for Enhancing Santri Employability and Reducing Youth

- Unemployment in Urban Indonesia.” *Munaddhomah: Jurnal Manajemen Pendidikan Islam* 7, no. 2 (2026): 248–59. <https://doi.org/10.31538/munaddhomah.v7i2.2646>.
- Yanto, Welli, and Akhmad Fauzi Hamzah. “Implementation of the Madrasah Head’s Academic Supervision Strategy in Improving the Quality of Beginning Teachers.” *Hastabrata: Journal of Business and Management Studies* 1, no. 1 (2026): 20–30.
- Zhang, Li, and Tommy Shih. “Collective and Individual Social Capital and the Impact on Incubator Tenants’ Graduation.” *Journal of the Knowledge Economy* 14, no. 3 (2023): 2692–722. <https://doi.org/10.1007/s13132-022-00994-z>.