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Kiai's Leadership in Developing Sustainable Financing for Digital Islamic Boarding Schools

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Abstract

Digital transformation in Islamic boarding schools requires financing that can be sustained while supporting changes in institutional processes, human resource capacity, and technological infrastructure. This study examines how *kiai* leadership develops sustainable financing to support digital transformation at Padepokan Kiai Mudrikah Kembang Kuning, Pamekasan. The study employed a qualitative approach with an intrinsic case study design. Data were collected through non-participant observation, 11 substantive in-depth interview sessions with seven purposively selected informants, and documentation conducted during June-November 2025. Data were analyzed through condensation, display, and conclusion drawing and verification using the interactive approach of Miles, Huberman, and Saldaña. The findings show five interconnected financing strategies, namely diversification of financing sources, strengthening partnership networks, development of a digital financing system, empowerment of internal resources, and development of digital infrastructure. These strategies operated through strategic direction, resource mobilization, delegation, coordination, financial control, and institutional capacity development. The study contributes a case-derived analytical framework of transformational *kiai* leadership that explains how *kiai* leadership connects resource mobilization, financial governance, and digital capability to support sustainable institutional transformation. The framework is context-specific and offers analytical transferability for Islamic boarding schools with similar leadership and resource conditions.

Keywords: *Kiai Leadership, Sustainable Financing, Digital Islamic Boarding School, Digital Transformation, Islamic Education Management.*

INTRODUCTION

Digital technology has transformed educational institutions by changing teaching, administration, communication, and institutional services. Islamic boarding schools have also responded to these changes through the use of digital technology in education and institutional management. Maulana et al. explain that the digital revolution has created

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new demands for *pesantren* to adapt their educational and institutional practices.[1] These developments indicate that digital change in *pesantren* increasingly affects multiple institutional functions.

This study distinguishes digitalization from digital transformation. Digitalization refers to the use of digital technologies to improve existing activities, such as digital reporting, online communication, electronic payment, and technology-based administration. Badrudin and Nugraha illustrate this process through the implementation of a website-based academic reporting system in *pesantren*.[2] Digital transformation has a broader scope because it involves changes in organizational processes, institutional practices, and organizational capabilities. Hanelt et al. conceptualize digital transformation as organizational change shaped by the diffusion and integration of digital technologies.[3] Research in education further shows that digital transformation requires a systematic approach that connects technology with organizational processes, leadership, and institutional change.[4] The distinction is important because the adoption of individual digital tools does not necessarily constitute digital transformation at the institutional level.

Based on this distinction, this study defines a digital Islamic boarding school as a *pesantren* that integrates digital technology across several institutional functions, including learning, academic and administrative management, financial governance, institutional publication and da'wah, human resource development, and technological infrastructure. Internet access, a website, or a social media account alone is therefore insufficient to classify a *pesantren* as digital. The classification refers to the integration of digital technology into educational, administrative, financial, communicative, and organizational activities. Research on *pesantren* management indicates that technology adoption has expanded beyond learning activities toward institutional administration and management.[5]

Digital transformation requires continuing financial resources because technological infrastructure, digital services, human resource development, maintenance, and institutional adaptation generate ongoing costs. Sustainable financing in this study refers to the capacity of an educational institution to secure, manage, diversify, and

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[1] Ridwan Maulana Rifqi Muzakky, Rijaal Mahmuudy, and Andhita Risko Faristiana, "Transformasi Pesantren Menghadapi Era Revolusi Digital 4.0," *Aladalah: Jurnal Politik, Sosial, Hukum Dan Humaniora* 1, no. 3 (June 11, 2023): 241–55, https://doi.org/https://ejournal.stidkiarrahmah.ac.id/index.php/MASJIDUNA/article/view/211.

[2] Muhamad Badar Badrudin and Mulyawan Safwandy Nugraha, "Integrasi Teknologi Digital Dalam Sistem Pengelolaan Akademik Pesantren: Studi Implementasi Website Rapor," *Cendekia: Jurnal Ilmu Pengetahuan* 5, no. 1 (2025): 10–19, https://doi.org/10.51878/cendekia.v5i1.4078.

[3] André Hanelt, René Bohnsack, and David Marz, "A Systematic Review of the Literature on Digital Transformation : Insights and Implications for Strategy and Organizational Change," no. July (2021), https://doi.org/10.1111/joms.12639.

[4] Aidan Michael et al., "Social Sciences & Humanities Open Digital Transformation in Education : Critical Components for Leaders of System Change," *Social Sciences & Humanities Open* 8, no. 1 (2023): 100479, https://doi.org/10.1016/j.ssaho.2023.100479.

[5] Ahmad Tantowi, Muhammad Ali Gunawan, and Abdullah Ibrahim, "Optimizing Islamic Boarding School Management in the Digital Era: Analysis of Technology Effectiveness in Administration and Operations," *Munaddhomah: Jurnal Manajemen Pendidikan Islam* 6, no. 2 (June 4, 2025): 295–309, https://doi.org/10.31538/MUNADDHOMAH.V6I2.1738.

maintain financial resources over time so that strategic programs and institutional capacities can continue. The concept concerns financial continuity and the capacity to sustain institutional functions rather than the availability of funds for individual activities. The OECD associates financial sustainability with adequate resources, effective resource use, strategic planning, and revenue diversification to maintain institutional activities over time.[6]

Research on *pesantren* financing has examined productive economic activities, philanthropic resources, economic independence, and digital financial management. Kurniady et al. show how income-generating units can support educational goals and institutional sustainability.[7] This literature demonstrates that *pesantren* can strengthen financial capacity through internally generated resources and institutional economic activities. Yet existing studies provide limited explanation of how financial resources are connected to leadership processes and directed toward continuing digital transformation.

Kiai leadership provides the leadership dimension of this problem. The *kiai* occupies a central position in determining institutional direction and mobilizing organizational resources. Syihabuddin examines transformational *kiai* leadership in *pesantren* development during the digital era and demonstrates its role in institutional transformation.[8] This study therefore understands *kiai* leadership as leadership exercised by the *kiai* in directing institutional change, mobilizing organizational members, and aligning institutional resources with strategic objectives.

This study adopts transformational leadership theory as its primary theoretical perspective. Transformational leadership explains how leaders facilitate organizational change by articulating direction, motivating organizational members, developing their capabilities, and aligning individual and institutional interests with broader organizational goals. Bass and Avolio establish these processes as central dimensions of transformational leadership and organizational effectiveness.[9] Research on leadership and digital transformation in higher education also identifies transformational leadership as a prominent perspective for understanding institutional change.[10] This perspective is relevant because the present study examines how *kiai* leadership directs institutional change through the mobilization and development of financial and organizational resources. Terms such as adaptive, participatory, distributive, or dialogic may describe particular practices observed empirically, but they are not treated as separate leadership

[6] Oecd Countries, *The Financial Sustainability of Higher Education: Insights from Policy in OECD Countries* (Paris: OECD Publishing, 2025).
[7] Dedy Achmad Kurniady et al., "Strategic Resource Management in Islamic Boarding Schools: The Role of Income-Generating Units in Supporting Educational Goals," *Al-Tanzim: Jurnal Manajemen Pendidikan Islam* 8, no. 4 (December 22, 2024): 1360–75, https://doi.org/10.33650/AL-TANZIM.V8I4.9660.
[8] Muhammad Arif Syihabuddin, "Kepemimpinan Transformasional Kyai Dalam Pengembangan Pesantren Di Era Digital: Studi Di Pondok Pesantren Mambaus Sholihin Gresik," *Miyah: Jurnal Studi Islam* 20, no. 01 (July 4, 2024): 123–52, https://doi.org/10.33754/MIYAH.V20I01.990.
[9] Bernard M. Bass and Bruce J. Avolio, *Improving Organizational Effectiveness through Transformational Leadership* (Thousand Oaks, CA: Sage Publications, 1994).
[10] Alba Carvalho, Helena Alves, and João Carlos Leitão, "What Research Tells Us about Leadership Styles, Digital Transformation and Performance in State Higher Education?," *International Journal of Educational Management* 36, no. 2 (2022), https://doi.org/10.1108/IJEM-11-2020-0514.

theories in this study.

Existing studies reveal three related areas of research that remain insufficiently connected. Studies of digital transformation show that technological change involves organizational processes, institutional capabilities, and leadership rather than technology adoption alone.[11] Research in education further connects digital transformation with leadership and systemic institutional change.[12] Studies of leadership and digital transformation in higher education identify transformational leadership as a prominent perspective for understanding institutional change.[13] Research on *pesantren* has separately examined *kiai* leadership, digitalization, and institutional financing.[14] These studies provide valuable explanations within their respective areas, but limited attention has been given to how *kiai* leadership connects sustainable financing with digital transformation in Islamic boarding schools.

The unresolved issue concerns how *kiai* leadership connects sustainable financing with the continuing process of digital transformation. Previous studies explain the role of leadership, the use of digital technologies, and the development of financial resources, but provide limited explanation of the leadership process that connects these dimensions within one institutional setting. More specifically, it remains insufficiently understood how *kiai* leadership directs financial capacity toward technological and organizational change while maintaining the educational purposes and institutional characteristics of *pesantren*. This gap provides the basis for examining sustainable financing as part of the leadership process that supports digital transformation.

Islamic Boarding School Padepokan Kiai Mudrikah Kembang Kuning, Pamekasan, was purposively selected because the site provides access to organizational processes linking *kiai* leadership, financing development, and digital transformation. The site provides access to actors involved in institutional decision-making, financial management, productive economic activities, and digital development. These characteristics provide an appropriate setting for examining how leadership and financing operate within an institution undergoing digital transformation. The case was selected for its analytical value in addressing the research gap rather than on the assumption that it represents Islamic boarding schools generally.

The conceptual contribution of this study is to extend transformational leadership theory to the relationship between sustainable financing and digital transformation in Islamic boarding schools. The study conceptualizes sustainable financing as a leadership-mediated process through which institutional resources are directed toward continuing digital and organizational change. This perspective extends discussion of *kiai* leadership

[11] Hanelt, Bohnsack, and Marz, "A Systematic Review of the Literature on Digital Transformation : Insights and Implications for Strategy and Organizational Change."
[12] Michael et al., "Social Sciences & Humanities Open Digital Transformation in Education : Critical Components for Leaders of System Change."
[13] Carvalho, Alves, and Leitão, "What Research Tells Us about Leadership Styles, Digital Transformation and Performance in State Higher Education?"
[14] Syihabuddin, "Kepemimpinan Transformasional Kyai Dalam Pengembangan Pesantren Di Era Digital: Studi Di Pondok Pesantren Mambaus Sholihin Gresik."

beyond educational and organizational direction toward the financial conditions that support technological development and institutional adaptation. The contribution is conceptual and grounded in a specific Islamic boarding school setting rather than presented as a claim of statistical generalization.

Accordingly, this study addresses the following research question: How does *kiai* leadership develop sustainable financing to support digital transformation at Islamic Boarding School Padepokan Kiai Mudrikah Kembang Kuning Pamekasan?

METHOD

This study employed a qualitative case study approach to examine *kiai* leadership in developing sustainable financing for digital Islamic boarding schools.[15] The research was conducted at Islamic Boarding School Padepokan Kiai Mudrikah Kembang Kuning, Pamekasan, which was purposively selected as an information-rich case because of its diversified financing sources, productive business units, partnership networks, and technology-supported financial management. The unit of analysis was the leadership practices and financing mechanisms through which the *kiai* directed, mobilized, and managed resources to support digital transformation. The main fieldwork was conducted from June to November 2025.

Seven informants participated in the study, comprising the main director, directors responsible for foreign-language development, multimedia development, human-resource development, business-unit development, Qur'anic recitation development, and life-skill and undergraduate vocational college development, who also served as treasurer. Informants were purposively selected based on their involvement, experience, and knowledge of leadership, financial management, productive business activities, and digital development.[16] The *kiai,* as the principal leadership actor, was interviewed directly in his capacity as the main director. Eleven in-depth interview sessions were conducted. Interview data were examined alongside related observation and documentary evidence to support method triangulation.[17] Interviews were audio-recorded, while non-participant observation focused on productive business activities, financing practices, digital financial administration, institutional coordination, and technology use. Documents included financial reports, assistance and partnership records, business-unit data, program proposals, activity reports, organizational structures, and digital development records. The researcher served as the primary instrument, supported by interview and observation guides and a documentation format.[18]

Data analysis followed the interactive model of Miles, Huberman, and Saldaña

[15] Robert E. Stake, *The Art of Case Study Research* (Thousand Oaks, CA: Sage Publications, 1995); John W. Creswell and Cheryl N. Poth, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches, 4th Ed* (Thousand Oaks, CA: Sage Publications, 2018).
[16] Lexy J. Moleong, *Metodologi Penelitian Kualitatif* (Bandung: PT Remaja Rosdakarya, 2018).
[17] Norman K. Denzin and Yvonna S. Lincoln, *The Sage Handbook of Qualitative Research, 5th Ed* (Thousand Oaks, CA: Sage Publications, 2018).
[18] Sugiyono, *Metode Penelitian Kualitatif* (Bandung: Alfabeta, 2020).

through data condensation, data display, and conclusion drawing and verification.[19] The researcher coded interview, observation, and documentary data according to the research focus, grouped related codes into categories and subthemes, and refined them into themes through repeated comparison. The five themes presented in the findings emerged through this iterative process. Evidence from interviews, observations, and documents was compared to identify convergent and divergent information and to verify interpretations. Emerging conclusions were repeatedly checked against the empirical evidence.

Trustworthiness was established through credibility, transferability, dependability, and confirmability.[20] Credibility was supported through source and technique triangulation by comparing information across informants and across interviews, observations, and documents. Relevant findings were rechecked and confirmed with informants. Transferability was supported through contextual descriptions of the research setting and financing practices, while dependability and confirmability were supported through systematic documentation and verification of the research process and empirical evidence. The researcher was not a santri or member of the *pesantren* and held no institutional position there. Institutional permission was obtained before fieldwork. Awareness of the hierarchical relationship between the *kiai* and other *pesantren* members was maintained through open-ended questioning and comparison of accounts from participants with different institutional roles. Participant information was treated confidentially and used for academic purposes.

RESULTS AND DISCUSSION

The leadership of *kiai* in the context of digital Islamic boarding schools has developed from traditional leadership based on religious authority to strategic leadership that is integrative, transformational, and adaptive to institutional change. The main findings of the study show that the sustainability of digital Islamic boarding school financing is built through five interrelated aspects: diversification of financing sources, strengthening social capital-based partnership networks, developing a digital financing system, empowering the internal resources of the Islamic boarding school, and gradually strengthening the technological infrastructure. This model positions *kiai* leadership as an integrative factor capable of connecting the economic, technological, social, and cultural aspects of the Islamic boarding school organization within a single institutional system that supports the sustainability of the Islamic boarding school's digital transformation.

Diversification of Financing Sources

The findings show that Padepokan Kiai Mudrikah developed diversified financing sources to support its digital transformation. The financing structure included the *kiai*'s personal resources, entrepreneurs, donors, parents, students, alumni, productive business activities, and government assistance. The diversification expanded the available financial resources beyond routine institutional funding. It also provided access to non-

[19] Matthew B. Miles, A. Michael Huberman, and Johnny Saldaña, *Qualitative Data Analysis: A Methods Sourcebook, 4th Ed* (Thousand Oaks, CA: Sage Publications, 2020).
[20] Denzin and Lincoln, *The Sage Handbook of Qualitative Research, 5th Ed*.

financial support, particularly digital equipment and operational assistance. The evidence indicates that financing diversification was developed as part of the *pesantren*'s institutional strategy for sustaining digital programs rather than as a short-term fundraising activity.

Table 1. Development of Sustainable Financing for Digital Islamic Boarding Schools

No.	Development Aspect	Form of Implementation
1.	Diversification of funding sources	Development of productive business units through fish farming, chicken and goat farming, office supply and photocopy shops, as well as a program to rent out boarding school facilities as alternative funding to support operational and boarding school digitization programs
2.	Strengthening Partnership Networks	Collaboration with alumni, donors, government agencies, and external partners for financial support, human resource training, and technological infrastructure
3.	Digital financing system	Implementation of payment applications and digital communication platforms to improve administrative efficiency, expand public donations, and ensure financial transparency
4.	Empowerment of internal resources	Structured involvement of students, administrators, and educators in the management of productive business units and institutional digital activities
5.	Development of digital infrastructure	Incremental allocation of funding for internet networks, educational multimedia, publishing platforms, and digital da'wah media

The main director described the development of external financing as follows:

> *"For the private sector, we cooperate with five entrepreneurs, consisting of two entrepreneurs from Pamekasan and one each from Surabaya, Malang, and Sidoarjo. There are also non-Muslim donors from Surabaya and Jakarta who provide incidental assistance. We also have permanent donors who support the salaries of managers and part of the electricity costs, which reach around IDR 6–7 million per month."*[21]

The interview provides concrete evidence of financing diversification. The *pesantren* maintained relationships with five entrepreneurs across four locations and received additional support from donors in Surabaya and Jakarta. Permanent donors contributed to manager salaries and part of the electricity costs. The variety of financing actors indicates that the *pesantren* did not rely exclusively on one external source. The different forms of support also show that diversification involved both financial resources and institutional needs associated with digital development.

The kiai also described how financing opportunities were developed through collective decision-making:

> *"The strategy for developing pesantren financing sources is carried out collaboratively and openly through top-down and bottom-up approaches. The kiai, administrators, and teachers are given space to contribute ideas for developing funding sources, such as cooperation with entrepreneurs, alumni, and CSR opportunities. All initiatives are discussed through deliberation in internal*

[21] KI-01, Main Director, in-depth interview, June 19, 2025. Translated by the researcher.

forums so that they remain aligned with the direction of pesantren policy."[22]

This evidence shows that the *kiai* combined strategic authority with internal participation. Financing opportunities were discussed before implementation, while responsibilities were distributed among institutional actors. The mechanism reduced the separation between leadership decisions and financing implementation. It also indicates that diversification was not simply the result of external opportunities. It depended on an internal process for identifying, discussing, selecting, and implementing financing opportunities.

Observation data provide additional evidence of the internal side of financing diversification. The researcher observed several productive business activities, including fish farming, chicken and goat farming, ATK and photocopy services, and rental services for student facilities. These activities were managed as part of the *pesantren*'s productive economic activities.[23] The observation supports the interview evidence that financing diversification included internally generated resources. It also provides a distinction between having several funding sources and developing institutional capacity to generate resources internally.

Documentary evidence further supports this finding. The research documentation included financial reports, assistance and cooperation documents, business-unit data, program proposals, and activity reports.[24] Documentation of digital facilities also shows the availability of technology equipment, including smart TVs used in *pesantren* activities.[25] These documents provide supporting evidence for the existence of financing-related activities and the institutional resources associated with digital development. The documents therefore complement the interview and observation data rather than serving as independent proof of financial sustainability.

The data also reveal a limitation within the diversification strategy. The kiai identified donor dependence as a continuing concern: *"The biggest challenge we face is dependence on donors, because there is a concern that assistance may stop at any time."*[26] This statement introduces an important tension. A diversified financing network can expand access to resources, but dependence on external donors may still create financial vulnerability. The presence of several funding relationships does not automatically establish financial sustainability. Sustainability requires the capacity to maintain financing when a particular donor or partner withdraws. The *pesantren* therefore responded to this risk through productive business activities and efforts to diversify financing sources further.

This finding is consistent with research on the economic independence of Islamic boarding schools. Mi'raj et al. explain that *pesantren* economic independence can be

[22] KI-01, Main Director, in-depth interview, June 16, 2025. Translated by the researcher.
[23] Researcher, non-participant observation of productive business activities, 2025.
[24] Research documentation, financial reports, assistance and cooperation documents, business-unit data, program proposals, and activity reports, 2025.
[25] Research documentation, digital facilities at Padepokan Kiai Mudrikah Kembang Kuning, 2025.
[26] KI-01, Main Director, in-depth interview, 2025. Translated by the researcher.

strengthened through the development and optimization of institutional economic resources.[27] Kurniady et al. similarly show that income-generating units can strengthen the financial capacity of Islamic boarding schools and support educational objectives.[28] Anwar et al. also associate economic independence with the management and optimization of productive economic potential.[29] Hamzah further shows that *pesantren*-based entrepreneurship and the management of productive business units can strengthen economic independence while developing entrepreneurial capacity among santri.[30] These studies support the role of diversified and productive resources in strengthening institutional financial capacity.

This finding is consistent with research on the economic independence of Islamic boarding schools. Mi'raj et al. explain that *pesantren* economic independence can be strengthened through the development and optimization of institutional economic resources. Kurniady et al. similarly show that income-generating units can strengthen the financial capacity of Islamic boarding schools and support educational objectives. Anwar et al. also associate economic independence with the management and optimization of productive economic potential. These studies support the role of diversified and productive resources in strengthening institutional financial capacity.

The present finding extends these studies by explaining the leadership mechanism behind financing diversification. The kiai mobilized personal resources, developed relationships with entrepreneurs and donors, involved internal actors in financing discussions, and connected external support with institutional priorities. His religious and institutional legitimacy helped establish relationships with external supporters, while the *pesantren*'s visible development programs provided concrete objects for financial support. Financing diversification therefore operated through a combination of leadership direction, social relationships, and institutional resource development.

The finding also qualifies the assumption that more financing sources necessarily mean greater financial sustainability. The evidence shows a trade-off between resource expansion and donor dependence. External support can accelerate digital development, especially when technology procurement requires resources beyond routine income. At the same time, reliance on external supporters creates uncertainty when assistance is temporary. The development of productive business units therefore becomes relevant not simply as an additional source of income but as an effort to reduce vulnerability within the financing structure.

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[27] Denizar Abdurrahman Mi'raj, Irham Zaki, and Fatin Fadhilah Hasib, "Economic Independence of Islamic Boarding Schools," *Amwaluna: Jurnal Ekonomi Dan Keuangan Syariah* 7, no. 2 (August 2, 2023): 174–84, https://doi.org/10.29313/AMWALUNA.V7I2.7778.

[28] Achmad Kurniady et al., "Strategic Resource Management in Islamic Boarding Schools: The Role of Income-Generating Units in Supporting Educational Goals."

[29] Mustofa Anwar et al., "Optimizing the Economic Independence of Sharia-Based Islamic Boarding Schools," *International Journal of Islamic Economics* 6, no. 01 (May 11, 2024): 58–66, https://doi.org/10.32332/IJIE.V6I01.8944.

[30] Akhmad Fauzi Hamzah, "Santripreneur : A Model of Islamic Economic Management Through Pesantren -Based Entrepreneurship Education," *Al-Jadwa: Jurnal Studi Islam* 5, no. 2 (2026): 235–50, https://doi.org/10.38073/aljadwa.4592.

From the perspective of transformational leadership, the kiai's role lies in directing organizational resources toward institutional change. He did not merely administer existing funds. He mobilized external networks, encouraged internal participation, identified financing opportunities, and connected resources with digital development priorities. This process illustrates how transformational leadership can operate through resource mobilization. The leadership process changes not only how people participate but also how the organization identifies and uses resources to sustain institutional transformation.

The evidence therefore suggests four interconnected mechanisms: diversification, mobilization, alignment, and risk reduction. Diversification expands the financing base. Mobilization connects the *pesantren* with internal and external resources. Alignment directs those resources toward institutional priorities. Risk reduction requires productive economic activities and continued diversification to address dependence on external donors. This framework provides a more precise understanding of sustainable financing. Sustainability does not mean simply having many sources of income. It refers to the capacity to maintain and renew resources while reducing vulnerability and continuing to finance institutional transformation.

Strengthening Partnership Networks

The findings show that Padepokan Kiai Mudrikah strengthened its partnership networks through collaboration with entrepreneurs, alumni, government institutions, and other external stakeholders. The network provided access not only to financial resources but also to information, cooperation opportunities, program development, and institutional capacity building. The partnership process involved deliberation, shared participation, and division of roles. This pattern positioned partnership development as a social and organizational mechanism that supported the *pesantren*'s digital development.

The *kiai* played a central role in directing partnership development while providing opportunities for internal participation. The development of external cooperation was connected to the *pesantren*'s institutional direction and discussed through internal deliberation. As stated by the Main Director:

> *"The strategy for developing pesantren financing is carried out collaboratively and openly through top-down and bottom-up approaches. The kiai, managers, and teachers are given space to contribute to developing funding sources, such as cooperation with entrepreneurs, alumni, and CSR opportunities. All initiatives are discussed through deliberation in internal forums so that they remain aligned with the pesantren's policy direction."*[31]

The statement indicates that the *kiai* combined leadership direction with internal participation in developing external relationships. Managers and teachers could contribute ideas concerning potential partners and funding opportunities. Internal deliberation functioned as a mechanism for assessing external opportunities and aligning them with the *pesantren*'s policy direction. Partnership development therefore became

[31] KI-01, Main Director, in-depth interview, June 16, 2025. Translated by the researcher.

part of institutional decision-making rather than a process based solely on the personal initiative of the *kiai*.

This pattern was reinforced by the Director of Business Unit Development:

> *"The strategy for developing pesantren financing is carried out through a collaborative approach and collective deliberation. Every opportunity for cooperation, whether with entrepreneurs, alumni, or other external parties, is discussed collectively so that it remains aligned with the direction of digital pesantren development."*[32]

The two accounts show consistency between the leadership and operational levels. Partnership opportunities were not treated as automatic sources of support. They were discussed collectively and considered according to the development direction of the digital *pesantren*. This process allowed the *kiai* to retain responsibility for institutional direction while involving other organizational actors in developing and assessing partnership opportunities.

The partnership network involved more than entrepreneurs and alumni. The *pesantren* developed non-formal collaboration with the Manpower and Transmigration Office for digital skills training. It also established relationships with ASUS and Intel in relation to technology devices and with Telkom Indonesia for internet infrastructure. Relationships with media organizations, including Radar Madura, Kompas.com, and tvOne, supported institutional publication. The *kiai* described these relationships as flexible arrangements designed to support *pesantren* digitalization.

These partnerships provided different forms of institutional support. Cooperation with government institutions supported training, relationships with technology companies provided access to technological resources, internet partnerships supported connectivity, and media relationships expanded publication opportunities. The network therefore connected the *pesantren* with external knowledge, technology, infrastructure, and communication channels.

The partnership network was also reflected in the involvement of various *pesantren* actors and community members in institutional and social activities. Observation identified interactions among managers, teachers, students, alumni, and community members through educational, religious outreach, training, and *pesantren* development activities. Community groups and communication media were also used to coordinate activities, disseminate information, and strengthen relationships among *pesantren* members and the wider community.[33]

Documentary records included cooperation and assistance records, program documentation, activity reports, communication records, and documentation of digital development activities. These records show that partnership relationships were connected to institutional programs and activities. The documentation also indicates the use of

[32] BU-01, Director of Business Unit Development, in-depth interview, October 2, 2025. Translated by the researcher.
[33] Researcher, observation (Thursday, June 5, 2025).

communication channels and institutional activities to maintain relationships among internal and external stakeholders.[34]

The partnership pattern was characterized by collaboration and social capital. Relationships with entrepreneurs, alumni, government institutions, media organizations, and the wider community created channels through which the *pesantren* could access resources and opportunities. The involvement of different actors also strengthened shared ownership and responsibility for *pesantren* development. Partnership therefore extended beyond financial transactions and became part of the *pesantren*'s institutional network.

The flexible character of the partnerships also created a limitation. Some cooperation was non-formal and adjusted to specific program needs. This flexibility enabled the *pesantren* to respond to opportunities without being constrained by rigid institutional arrangements. At the same time, the continuity of some external support depended on the sustainability of relationships with particular partners. Partnership development therefore needed to be accompanied by internal capacity and other financing mechanisms.

This finding is consistent with Syaikhu and Faruq, who argue that digital development in Islamic boarding schools requires the integration of technological innovation with *pesantren* traditions and institutional relationships.[35] The present finding extends this perspective by showing that such relationships are also mobilized to support practical needs of digital development through training, technology, infrastructure, and publication.

The finding also corresponds with Aspandi et al., who identify dialogic leadership as a basis for participatory communication and shared decision-making in managing Islamic boarding schools for the digital generation.[36] At Padepokan Kiai Mudrikah, this participatory pattern appears in the involvement of managers and teachers in discussing partnership opportunities, while the *kiai* retains responsibility for aligning cooperation with the institutional direction.

The role of the *kiai* in mobilizing external stakeholders also relates to Syihabuddin's study of transformational leadership in *pesantren* development during the digital era.[37] The present study adds a financing perspective by showing how the *kiai* connects external relationships with resources required for digital transformation. Kurniady et al. likewise demonstrate that strategic resource management in Islamic boarding schools can strengthen institutional capacity through the development and

[34] Research documentation, cooperation records, program documentation, activity reports, communication records, and digital development documentation, 2025.

[35] Ach Syaikhu and Dukan Jauhari Faruq, "Islamic Boarding School Management in the Digital Era: Integrating Tradition and Innovation in Islamic Education," *FALASIFA : Jurnal Studi Keislaman* 16, no. 02 (November 29, 2025): 120–30, https://doi.org/10.62097/FALASIFA.V16I02.2474.

[36] Ade Aspandi et al., "Dialogic Leadership in Managing Islamic Boarding Schools for the Digital Generation," *Al-Tanzim: Jurnal Manajemen Pendidikan Islam* 9, no. 4 (November 14, 2025): 1217–30, https://doi.org/10.33650/AL-TANZIM.V9I4.10754.

[37] syihabuddin, "Kepemimpinan Transformasional Kyai Dalam Pengembangan Pesantren Di Era Digital: Studi Di Pondok Pesantren Mambaus Sholihin Gresik."

mobilization of resources.[38] Afkarina et al. show that cooperation can support digital development by connecting institutional needs with external technological resources and capabilities.[39]

The present finding therefore extends previous studies by showing that partnership networks at Padepokan Kiai Mudrikah operate across financial, human resource, technological, infrastructure, and publication needs. The network functions as more than a social relationship or fundraising channel. It expands organizational capacity by connecting external resources with internal institutional programs. This pattern positions social capital as a resource that can be converted into practical support for digital transformation.

From the perspective of Transformational Leadership Theory, the *kiai's* role is evident in his capacity to establish direction, mobilize stakeholders, and connect external opportunities with institutional priorities. The *kiai* communicates the *pesantren*'s development direction while involving managers and teachers in identifying and discussing partnership opportunities. This combination of direction and participation reflects transformational leadership through stakeholder mobilization and collective engagement in organizational change.[40]

The mechanism can be understood through four interconnected processes, namely relationship building, strategic communication, collective deliberation, and resource linkage. Relationship building expands access to external stakeholders. Strategic communication conveys the *pesantren*'s development direction. Collective deliberation assesses cooperation opportunities according to institutional needs. Resource linkage converts external relationships into practical support for financing, training, technology, infrastructure, and publication.

The findings indicate that strengthening partnership networks became a strategic mechanism for expanding the *pesantren*'s access to external resources and institutional capabilities. The *kiai* provided direction and maintained external relationships, while managers and teachers participated in identifying and discussing cooperation opportunities. The resulting network complemented internal financing and resources and strengthened support for digital development. Partnership therefore functioned not merely as an additional financing channel, but as a leadership mechanism that connected social capital with the institutional requirements of digital transformation.

Digital Financing System

The findings show that Padepokan Kiai Mudrikah developed a digital financing system to improve the management, monitoring, and control of institutional financing. The system uses PSP Mobile, non-cash transactions, layered approval through One-Time Password (OTP), digital transaction records, and real-time monitoring. Financial

[38] Achmad Kurniady et al., "Strategic Resource Management in Islamic Boarding Schools: The Role of Income-Generating Units in Supporting Educational Goals."
[39] Nadia Afkarina et al., "Cooperative Digitalization Development Strategy at Baitul Hikmah Islamic Boarding School," *Al Itmamiy Jurnal Hukum Ekonomi Syariah (Muamalah)* 7, no. 1 (June 29, 2025): 11–20, https://doi.org/10.55606/AI.V7I1.1571.
[40] Bass and Avolio, *Improving Organizational Effectiveness through Transformational Leadership*.

responsibilities are also divided among those submitting requests, the treasurer, and the authorized party responsible for final approval. The data were coded into digital transactions, financial control, role separation, and real-time monitoring, grouped into the category of digital financial governance, and developed into the theme Digital Financing System.

The *kiai* directed the development of the financing system by establishing clear financial procedures and separating responsibilities among different actors. He explained:

> *"To support digital transformation, we implement a strict, transparent, and accountable financing system through a clear division of responsibilities. The treasurer manages financing, while fund disbursement requires layered approval through an OTP system from the leadership. Expenditures are made non-cash and managed by different parties to avoid conflicts of interest. We also use the PSP Mobile application as a digital financing platform and WhatsApp groups to monitor transactions. Students are also required to obtain their guardians' approval for non-cash purchases through the application. These rules are applied as a form of discipline, control, and transparency in managing pesantren digital financing."*[41]

The statement indicates that digital financing was designed as an organizational control system rather than simply as an electronic payment facility. The *kiai* established the direction of the system, while financial responsibilities were distributed among different actors. Non-cash transactions, layered approval, and digital monitoring created a sequence of control from financial requests to expenditure. The involvement of guardians in student transactions also extended financial control beyond the *pesantren*'s internal administration.

The treasurer had a specific role in processing financial requests and ensuring that transactions met the required conditions. She explained:

> *"As treasurer, I receive, verify, and manage all requests for needs from each area of the pesantren. All financing processes are directed through a digital system and non-cash payments using the PSP Mobile application so that they are more transparent, orderly, and easy to monitor. Every transaction must have clear supporting data before it is processed further. In addition to facilitating financial reporting, this system also helps the pesantren leadership monitor the use of funds in real time. Through this mechanism, financial management becomes more accountable and minimizes errors and misuse in the administration of pesantren financing."*[42]

The treasurer's account shows that digital financing was integrated with the administrative workflow. Financial requests were received and verified before processing, while supporting data were required for each transaction. PSP Mobile

[41] KI-01, Main Director, Interview (Tuesday, June 16, 2025), 09:00 WIB. Translated by the researcher.
[42] TR-01, Treasurer and Director of Life Skill and Undergraduate Vocational College Development, Interview (Monday, November 17, 2025), 08:30 WIB. Translated by the researcher.

facilitated non-cash payments, financial reporting, and real-time monitoring. The system therefore linked financial administration with verification and control rather than treating digital payment as a separate activity.

The authorization mechanism further strengthened the control structure. The final disbursement of funds was assigned to an authorized officer through an OTP mechanism connected to leadership approval. Each transaction passed through verification before authorization, and digital records allowed subsequent monitoring and evaluation. This separation created a distinction between financial administration and authorization, reducing the concentration of financial control in a single role.[43]

Non-cash transactions were also applied to student expenditure. Students used a digital transaction system connected to their guardians, allowing expenditure to be monitored and controlled. Observation showed that financial administration used digital devices and mobile-based applications for recording, monitoring, and reporting transactions. Communication groups also supported coordination between the treasurer and other actors involved in financial management.[44]

The digital financing system created several linked control points. Financial needs were submitted, verified by the treasurer, authorized through layered approval, paid through non-cash transactions, and recorded digitally. Real-time monitoring allowed the leadership to follow financial activities after transactions were processed. This structure strengthened traceability because financial activities generated digital records that could be reviewed during monitoring and evaluation.

The system also had an educational dimension. The requirement for guardian approval in student non-cash transactions introduced students to controlled digital spending while allowing guardians to participate in financial supervision. Digital financing therefore served both administrative and educational purposes. It supported institutional financial control while creating opportunities for students to become familiar with disciplined digital financial practices.

The evidence also indicates a boundary to the system. Digital financing was developed specifically within the financial management domain through PSP Mobile, non-cash transactions, OTP authorization, and digital monitoring. Its existence should not be interpreted as evidence that every aspect of *pesantren* governance had undergone digital transformation. Rather, the system represents a functional digitalization of financial management that contributes to the broader transformation of the *pesantren*.

This finding is consistent with Wardi et al., who found that digital transformation of Islamic boarding school financial systems can improve the efficiency of transaction management and financing administration.[45] Fauzi et al. likewise found that digitalization of information and financial governance can strengthen transparency and accountability

[43] Research documentation, digital financing records, PSP Mobile, financial administration records, and documentation of the financing authorization process, 2025.
[44] Researcher, Observation (Sunday, June 15, 2025).
[45] Moh Wardi et al., "Digital Transformation of Islamic Boarding School Financial System; Formulation, Implementation and Evaluation," *Munaddhomah: Jurnal Manajemen Pendidikan Islam* 5, no. 4 (November 28, 2024): 461–82, https://doi.org/10.31538/MUNADDHOMAH.V5I4.1388.

in Islamic boarding school management.[46] Badrudin and Nugraha show that digital technology can also be integrated into *pesantren* administrative systems to improve institutional information management.[47] Tantowi et al. further demonstrate that technology can improve administrative and operational effectiveness in Islamic boarding schools.[48]

The present finding extends these studies by showing that digital financing at Padepokan Kiai Mudrikah combines technology with differentiated organizational responsibilities. PSP Mobile and non-cash transactions provide the technological layer, while verification, OTP authorization, role separation, and real-time monitoring provide the organizational control layer. The system therefore works through the interaction between digital tools and leadership-directed procedures.

From the perspective of Transformational Leadership Theory, the *kiai's* role is evident in initiating changes to established financing practices and directing organizational actors to operate within the new system. The change involved moving financial administration toward digital transactions, layered authorization, and real-time monitoring. The *kiai* also distributed specific responsibilities while retaining oversight of the overall financing process.[49] This pattern shows transformational leadership through organizational change, direction-setting, and mobilization of institutional actors.

The mechanism can be summarized through four interconnected processes, namely digital transaction management, verification and role separation, layered authorization, and real-time monitoring. Digital transaction management records financial activities electronically. Verification and role separation distribute financial responsibilities. Layered authorization provides control before funds are released. Real-time monitoring enables leadership to follow financial activities and evaluate their use. These processes integrate technological tools with organizational procedures.

The findings indicate that the Digital Financing System at Padepokan Kiai Mudrikah functions as a digitally supported financial control mechanism. PSP Mobile, non-cash transactions, OTP authorization, digital records, and real-time monitoring are integrated with differentiated financial responsibilities. The *kiai* provides direction and oversight, while the treasurer and other authorized actors perform specific functions within the system. The system therefore supports efficiency, traceability, transparency, and accountability while serving as one functional component of the *pesantren*'s broader digital transformation.

Empowerment of Internal Resources

The findings show that Padepokan Kiai Mudrikah empowered its internal

[46] Rahmat Fauzi et al., "Digitizing Information in Islamic Boarding Schools: Efforts to Enhance Transparency and Accountability in Governance," *Tarbawi: Jurnal Keilmuan Manajemen Pendidikan* 11, no. 02 (August 24, 2025): 293–304, https://doi.org/10.32678/TARBAWI.V11I02.11423.
[47] Badrudin and Nugraha, "Integrasi Teknologi Digital Dalam Sistem Pengelolaan Akademik Pesantren: Studi Implementasi Website Rapor."
[48] Tantowi, Gunawan, and Ibrahim, "Optimizing Islamic Boarding School Management in the Digital Era: Analysis of Technology Effectiveness in Administration and Operations."
[49] Bass and Avolio, *Improving Organizational Effectiveness through Transformational Leadership*.

resources by developing the competencies, responsibilities, and participation of teachers, administrators, students, alumni, and digital teams. The strategy involved competency-based placement, practical training, mentoring, digital team development, regeneration, incentives, and direct involvement in productive and digital activities. Internal resources were therefore treated not only as users of digital technology but also as actors who developed and operated digital programs. This approach strengthened the institution's capacity to sustain digital development through its own human resources.

The empowerment process began with the identification and placement of internal personnel according to their competencies. The *kiai* prioritized former students and alumni who were willing to serve and had familiarity with *pesantren* culture. Personnel were placed according to their abilities in technology, design, multimedia, and digital content, while those with limited competencies received additional training and mentoring. The Main Director explained:

> *"Capacity development prioritizes recruiting former students and alumni who are willing to serve, then placing them according to their competencies in technology, design, and digital content. The pesantren also provides training for those who are not yet competent. Alumni are prioritized because they understand pesantren culture, making it easier to integrate technology with tradition and support digitalization programs."*[50]

The practice shows that empowerment was based on existing institutional resources rather than relying entirely on external recruitment. Alumni and former students were considered strategic because they already understood the values and organizational practices of the *pesantren*. Competency-based placement then connected individual abilities with specific digital functions. Training and mentoring were used to address competency gaps. This process allowed the *pesantren* to develop digital capabilities while maintaining continuity with its institutional culture.

The development of digital competencies was implemented through practical learning. Training covered information technology, multimedia, graphic design, social media management, video editing, and digital content production. Teachers and students were involved directly in producing digital content and supporting *pesantren* programs. External expertise was also used through periodic multimedia workshops, while alumni participated as mentors and facilitators in practical activities.[51]

Practical involvement transformed training into direct work experience. Teachers and students did not only receive technical instruction but also applied their skills to real institutional activities. This arrangement created opportunities for learning through practice, transfer of knowledge, and gradual development of competence. Digital skills therefore developed through the interaction between training and actual responsibilities.

The *pesantren* also established a more structured division of digital

[50] KI-01, Main Director, Interview (Thursday, June 19, 2025), 08:45 WIB. Translated by the researcher.
[51] MD-01, Director of Multimedia Development, Interview (Monday, August 11, 2025), 09:00 WIB. Translated by the researcher.

responsibilities. A specific structure was created for human resource development and multimedia management. K. Badruddin Amin was appointed Director of Human Resource Development, while Ust. Samsul Arifin was assigned responsibility for multimedia and digital content. Both worked under the coordination of the Main Director. The structure was accompanied by a gradual regeneration process through the selection and preparation of competent students and administrators as future digital personnel.[52]

The formation of these roles distributed responsibility for digital development across the organization. It also reduced dependence on individual technical expertise by creating a structure through which knowledge and responsibilities could be transferred. Regeneration became part of the sustainability mechanism because students and administrators were prepared to continue digital programs as existing personnel changed roles.

Internal resources were also empowered through participation in digital activities. Observation showed the involvement of alumni, teachers, and students in social media management, content production, digital documentation, and learning media development. New cadres were also involved in digital programs through mentoring and practical activities.[53] These activities indicate that digital development was integrated into everyday institutional work rather than assigned exclusively to a small technical group.

The empowerment process was supported by incentives and leadership example. The *pesantren* provided honoraria, monthly allowances, operational support, and recognition for personnel who contributed actively to digital programs. The kiai also demonstrated the use of digital technology through social media, CCTV, and cloud-based administration. Such practices provided both material and symbolic support for personnel involved in digital development.[54]

These incentives worked together with direct participation in digital activities. Personnel received opportunities to develop competence, access technological facilities, and obtain operational support. The leadership example also showed that digital technology was expected to become part of routine institutional work. Empowerment therefore combined capability development with motivation and opportunities to apply newly acquired skills.

The effectiveness of internal resource development was assessed through practical competence and participation in structured programs. Programs such as *One Day One Ayat*, *One Hadith One Presentation*, *One Week Three Languages*, *One Person One Laptop*, and *One Activity One Paragraph* integrated religious learning, communication, literacy, and digital competence. Digital evaluation tools, including digital reports, Google Forms, barcode cards, and activity documentation, were used to monitor progress.[55]

[52] KI-01, Main Director, Interview (Thursday, June 19, 2025), 08:45 WIB. Translated by the researcher.
[53] Researcher, Observation (Monday, June 15, 2025).
[54] TR-01, Treasurer and Director of Life Skill and Undergraduate Vocational College Development, Interview (Monday, November 17, 2025), 08:30 WIB; Researcher, Observation (Monday, June 15, 2025).
[55] Researcher, Observation (Monday, June 15, 2025).

A challenge remained in the unequal level of initial digital competence among teachers, administrators, and students. The development process therefore required continuous training, mentoring, competency mapping, and practical experience. The *pesantren* responded by prioritizing personnel with existing digital potential while providing learning opportunities for those whose skills were still limited. This response indicates that empowerment was treated as a gradual process rather than an immediate outcome of technology provision.

The finding is consistent with Syaikhu and Faruq, who show that digital development in Islamic boarding schools involves integrating digital literacy, institutional efficiency, and character development with the active involvement of internal *pesantren* resources.[56] Syafi'i likewise identifies the leadership of the *kiai* as an important factor in developing human resources and strengthening institutional cooperation in Islamic boarding schools.[57] The present finding extends these studies by connecting internal resource empowerment directly with productive activities and the sustainability of digital transformation.

The finding also relates to Aspandi et al., who identify dialogic leadership and participatory decision-making as relevant to managing Islamic boarding schools in the digital era.[58] At Padepokan Kiai Mudrikah, participation extends beyond decision-making to practical involvement in digital production, multimedia management, documentation, and institutional programs. Kurniady et al. further show that institutional resource management requires the development and mobilization of internal capacities to support educational objectives.[59]

From the perspective of Transformational Leadership Theory, the *kiai's* role is evident in his capacity to develop people, delegate responsibilities, create opportunities for participation, and encourage organizational actors to adopt new competencies. The *kiai* did not simply introduce digital technology. He reorganized responsibilities, developed digital teams, supported training, and prepared new cadres. This process reflects transformational leadership through individualized development, intellectual stimulation, and the mobilization of organizational members toward institutional change.[60]

The empowerment mechanism can be summarized through four interconnected processes, namely competency-based placement, practical capacity development, participatory delegation, and continuous regeneration. Competency-based placement connects personnel with appropriate digital functions. Practical capacity development builds skills through training and direct experience. Participatory delegation gives

[56] Syaikhu and Faruq, "Islamic Boarding School Management in the Digital Era: Integrating Tradition and Innovation in Islamic Education."
[57] Syafi'i Syafi'i, "Peran Kepemimpinan Kiai Dalam Meningkatkan Mutu Pendidikan (Studi Kasus Di Pondok Pesantren Bahrul Maghfiroh Kota Malang)," *Leadership: Jurnal Mahasiswa Manajemen Pendidikan Islam* 1, no. 1 (November 26, 2019): 18–35, https://doi.org/10.32478/leadership.v1i1.318.
[58] Aspandi et al., "Dialogic Leadership in Managing Islamic Boarding Schools for the Digital Generation."
[59] Achmad Kurniady et al., "Strategic Resource Management in Islamic Boarding Schools: The Role of Income-Generating Units in Supporting Educational Goals."
[60] Bass and Avolio, *Improving Organizational Effectiveness through Transformational Leadership*.

teachers, administrators, students, and alumni opportunities to contribute to digital programs. Continuous regeneration transfers knowledge and responsibility to new personnel.

The findings indicate that empowering internal resources strengthened the *pesantren*'s capacity to sustain digital development through its own human resources. The *kiai* provided direction, opportunities, incentives, and organizational structures, while teachers, administrators, students, and alumni developed and applied digital competencies through practical activities. This process reduced dependence on individual expertise and strengthened the continuity of digital programs. Internal resource empowerment therefore functioned as a leadership mechanism that connected human capability, organizational participation, and sustainable digital transformation.

Development of Digital Infrastructure

The development of digital infrastructure at Islamic Boarding School Padepokan Kiai Mudrikah Kembang Kuning, Pamekasan, followed needs assessment, priority setting, gradual procurement, user assistance, maintenance, and evaluation. The facilities included smart TVs, laptops, cameras, CCTV, Wi-Fi networks, barcode-based administration, digital reports, Google Forms, PSP Mobile, and the *pesantren* website. These facilities supported learning, administration, monitoring, communication, and digital publication.

The *kiai* determined strategic priorities based on proposals from the internal team and institutional needs. Infrastructure development was guided by a roadmap documented in *Membangun Peradaban Literasi di Bumi Kembang Kuning* and the subsequent *Wisma Digital* development concept. The planning involved managers, teachers, staff, and stakeholders, while technical proposals were discussed through internal meetings before strategic decisions were made.

> *"Every development of digital facilities begins with identifying the needs submitted by each division. The proposals are discussed in the pesantren development meeting to determine priorities according to needs and financing capacity. After approval, procurement is carried out gradually through support from business units, donors, and pesantren partners."*[61]

The infrastructure development had a measurable scale. The *pesantren* had 17 smart TVs, 9 cameras, 16 CCTV units, and 142 laptops, consisting of 125 units for santri, 5 for teachers, 7 in the library, and 5 in the teachers' room. Observation confirmed the use of smart TVs, laptops, internet and Wi-Fi networks, and CCTV for institutional activities.[62] The infrastructure was therefore not limited to procurement but was incorporated into learning, administration, monitoring, and digital activities.

Infrastructure planning was also connected to human resource readiness. The Director of Human Resource Development explained that learning needs and human resource readiness were mapped before procurement priorities were determined.

[61] KI-01, Main Director, Interview, June 19, 2025, 08:45 WIB. Translated by the researcher.
[62] Researcher, Observation, July 16, 2025.

> *"In developing digital infrastructure, we first map learning needs and human resource readiness through internal meetings. From this mapping, procurement priorities are then established, such as laptops, smart TVs, and digital administrative systems according to the development needs of the pesantren."*[63]

Maintenance formed part of the infrastructure strategy. The Director of Multimedia Development reported that the multimedia team conducted technology needs assessment, prepared equipment proposals, strengthened internet connectivity, performed periodic maintenance, and evaluated facility use. The team also coordinated with ASUS, Intel, and Telkom to support device and network stability. The Treasurer confirmed that procurement was administratively recorded and that periodic maintenance was included in financial planning.

> *"Every procurement of devices, such as laptops, smart TVs, and internet network needs, is recorded and administratively supervised so that the use of funds remains transparent and properly targeted. The pesantren also prepares a budget for periodic maintenance of digital devices so that the available facilities can continue to be used optimally and sustainably."*[64]

The data also reveal a tension between infrastructure expansion and financial sustainability. Digital infrastructure requires continuing expenditure for connectivity, maintenance, technical support, and future development. External partnerships can support procurement and technical needs, but they do not eliminate the *pesantren*'s responsibility for ongoing financing. The gradual procurement strategy therefore allows technological development to follow institutional priorities and financing capacity rather than requiring simultaneous expansion of all facilities.

The data form a sequence of data → code → category → theme. Interview data identified needs assessment, priority setting, gradual procurement, user readiness, maintenance, and external cooperation. These were coded as needs-based planning, incremental procurement, technical management, user assistance, maintenance, and partnership, forming the category strategic digital infrastructure management and the theme Development of Digital Infrastructure. Observation and documentation supported evidence of facility use, planning, procurement, and maintenance.

The finding is consistent with previous studies that associate digital development in Islamic boarding schools with technological infrastructure and institutional adaptation. Fauzi et al. identify technological infrastructure as one component required for developing digital Islamic boarding schools.[65] Wijaksono and Albadri show that technology-based infrastructure can support educational development in Islamic boarding

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[63] HR-01, Director of Human Resource Development, Interview, September 9, 2025, 09:30 WIB. Translated by the researcher.

[64] TR-01, Treasurer and Director of Life Skill and Undergraduate Vocational College Development, Interview, November 17, 2025, 08:30 WIB. Translated by the researcher.

[65] Ahmad Fauzi, Muhamad Arif, and Ali Mustofa, "Realizing the Ideal Model of Digital Islamic Boarding Schools: A Systematic Literature Review Analysis," *MUMTAZ : Jurnal Pendidikan Agama Islam* 5, no. 2 (September 30, 2025): 419–48, https://doi.org/10.69552/MUMTAZ.V5I2.3288.

schools.[66] Afkarina et al. demonstrate that institutional cooperation can support technology development in Islamic boarding schools.[67]

Viewed through Transformational Leadership Theory, the *kiai* functions as the strategic actor who establishes priorities, mobilizes resources, and delegates technical responsibilities to relevant divisions. The process demonstrates that digital infrastructure is not simply the acquisition of devices. It requires integration between financing, technology, human resource readiness, maintenance, and institutional coordination. Sustainable infrastructure development therefore depends on the institution's capacity to continuously manage and maintain digital resources rather than merely increase the number of digital facilities.

Table 2. Integrative *Kiai* Leadership Model in Sustainable Financing of Digital Islamic Boarding Schools

Leadership Dimensions	Strategic Mechanisms	Institutional Impact
Diversification of Financing Sources	Mobilization and integration of productive business units, donors, alumni, entrepreneurs, and other funding sources	Broader financing base to support digital development
Strengthening Partnership Networks	Strategic communication, relationship building, collaboration, and internal deliberation	Expanded access to financial, technological, and institutional resources
Digital Financing System	Non-cash transactions, digital records, role separation, authorization, and transaction monitoring	More traceable and structured financial administration
Empowerment of Internal Resources	Competency-based placement, training, mentoring, delegation, and regeneration	Stronger internal capacity for digital programs
Development of Digital Infrastructure	Needs-based planning, gradual procurement, technical delegation, maintenance, and external technical support	More sustained use of digital learning, administration, communication, and publication facilities

The finding can therefore be formulated as Development of Digital Infrastructure. At Padepokan Kiai Mudrikah, digital infrastructure developed through needs-based planning, gradual procurement, user assistance, technical management, periodic maintenance, and cooperation with technology partners. The provision of 17 smart TVs, 9 cameras, 16 CCTV units, and 142 laptops demonstrates the material development of the digital environment. Its sustainability depends on the continuing integration of financial planning, technical capacity, maintenance, external support, and institutional coordination.

The five findings are synthesized into a case-derived framework of transformational *kiai* leadership in sustainable financing for digital Islamic boarding

[66] Agung Wijaksono and Albadri Albadri, "Modernizing Mountain Education: Establishing A Technology-Based Islamic Boarding School To Enhance Learning Quality," *As-Sidanah : Jurnal Pengabdian Masyarakat* 7, no. 1 (April 15, 2025): 64–77, https://doi.org/10.35316/ASSIDANAH.V7I1.64-77.
[67] Afkarina et al., "Cooperative Digitalization Development Strategy at Baitul Hikmah Islamic Boarding School."

schools. The framework shows how the *kiai* connects financing diversification, partnership networks, digital financing, internal resource empowerment, and digital infrastructure through strategic direction, resource mobilization, delegation, coordination, and institutional change. These domains are interconnected rather than separate managerial activities. Financing diversification provides resources for digital development, partnerships expand access to external resources, digital financing structures financial administration, internal resource empowerment develops implementation capacity, and infrastructure development converts resources into operational digital facilities. The framework therefore explains how transformational leadership operates across financial, organizational, human, and technological domains.

The framework also reveals several tensions within the leadership process. The *kiai* retains strategic authority while managers, teachers, and technical teams participate in planning and implementation, creating a balance between authority and participation. Digital modernization also requires adaptation while maintaining established *pesantren* practices. The concentration of strategic authority in the *kiai* may create organizational dependence on the leadership figure when major decisions remain closely associated with the *kiai*. Delegation distributes implementation responsibilities but does not necessarily eliminate this dependence. Financial sustainability cannot be equated with multiple funding sources because continued operation also requires financial control, human resource capacity, maintenance, and resource mobilization. Likewise, digital transformation extends beyond applications and devices to changes in organizational processes and institutional practices. The framework is therefore proposed as a case-derived analytical framework, not a validated or universally generalizable model.

CONCLUSION

The main conclusion of this study is that sustainable financing for digital transformation depends on the ability of *kiai* leadership to connect resource mobilization, financial governance, and digital capability within one institutional process. At Padepokan Kiai Mudrikah, leadership combines strategic authority with participation, delegation, resource coordination, and organizational change. This pattern is better understood as hybrid and integrative leadership practice, in which financial resources are mobilized, governed, and converted into human and technological capabilities for continuing digital development.

The study contributes a case-derived framework of transformational *kiai* leadership that explains the connection between sustainable financing and digital transformation in a *pesantren* setting. The framework is not intended as a universally applicable leadership model. Its potential lies in analytical transferability to *pesantren* with similar characteristics, particularly institutions with centralized *kiai* leadership, productive economic activities, external partnership networks, developing digital financial governance, and ongoing investment in digital human resources and infrastructure. Practically, the framework can guide *pesantren* leaders in aligning financing diversification, financial governance, human resource development, and infrastructure planning.

This study has several limitations. It employed a single qualitative case study selected purposively, so the findings are context-specific and cannot be statistically generalized to other Islamic boarding schools. The evidence also draws predominantly from internal institutional perspectives, although interview accounts were compared with observation and documentary evidence. The study did not provide a longitudinal evaluation of financial sustainability or measure the long-term contribution of individual financing sources to digital development. The framework should therefore be treated as a case-derived analytical framework, rather than a validated or universally generalizable model.

Future research should examine the framework through comparative multi-case and longitudinal studies involving *pesantren* with different leadership structures, financing patterns, and levels of digital development. Quantitative or mixed-method research could assess financial sustainability through measurable indicators such as revenue continuity, financing resilience, resource allocation, and dependence on external support. Further research could also evaluate the institutional effects of digital transformation on educational, administrative, financial, and organizational performance.

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