

THE DIALECTIC OF TRADITIONALISM AND MODERNITY: A BIBLIOMETRIC ANALYSIS AND SYSTEMATIC LITERATURE REVIEW OF THE TRANSFORMATION OF ISLAMIC BOARDING SCHOOLS IN INDONESIA

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Abstract: The existence of Islamic boarding schools as the oldest Islamic educational institution in Indonesia is now at a crucial point in responding to technological disruption and civilization transition towards *the Society 5.0 era*. This research aims to synthesize development trends, curriculum adaptation patterns, and management transformation in the process of modernizing Islamic boarding schools through *the Systematic Literature Review* (SLR) method. Referring to the PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*) protocol, this study analyzed 17 selected documents consisting of accredited journal articles, theses, and research reports from the time range of 2016 to 2025. Data analysis was carried out through thematic synthesis techniques to answer five main research questions related to publication trends, methodology, curriculum integration, identity resilience, and digital governance. The results of the study revealed three fundamental findings: (1) There was a surge in publications in the 2024–2025 period focusing on digital religious moderation and adaptive leadership; (2) The curriculum modernization strategy is carried out through the revitalization *of the learning of the yellow book* with 21st century competence without reducing the value of *tafaqquh fiddien*; and (3) Salaf Islamic Boarding Schools (Lirboyo and Ar-Raudloh case studies) show a pattern of survival through socio-intellectual reproduction, while modern Islamic boarding schools (Gontor and Nurul Jadid case studies) accelerate through integrated application systems such as *Pedatren*. This study concludes that the modernization of Islamic boarding schools in Indonesia is not a form of secularization, but a creative re-adaptation that strengthens the position of Islamic boarding schools as resilient educational institutions. These findings provide strategic implications for policymakers in designing Islamic education models based on harmony between tradition and technology.

Keywords: Islamic Boarding School Modernization; *Systematic Literature Review* (SLR); Integrative Curriculum; Salafiyah Resilience; Digital Management.

Abstrak: Keberadaan pondok pesantren sebagai lembaga pendidikan Islam tertua di Indonesia kini berada pada titik krusial dalam merespon disrupsi teknologi dan transisi peradaban menuju *era Society 5.0*. Penelitian ini bertujuan untuk mensintesis tren pembangunan, pola adaptasi kurikulum, dan transformasi manajemen dalam proses modernisasi pondok pesantren melalui metode *Systematic Literature Review* (SLR). Mengacu pada protokol PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-Analysis*), penelitian ini menganalisis 17 dokumen terpilih yang terdiri dari artikel jurnal terakreditasi, tesis, dan laporan penelitian dari rentang waktu 2016 hingga 2025. Analisis data dilakukan melalui teknik sintesis tematik untuk menjawab lima pertanyaan penelitian utama terkait tren publikasi, metodologi, integrasi kurikulum, ketahanan identitas, dan tata kelola digital. Hasil penelitian mengungkapkan tiga temuan mendasar: (1) Terjadi lonjakan publikasi pada periode 2024–2025 yang berfokus pada moderasi beragama digital dan kepemimpinan adaptif; (2) Strategi modernisasi kurikulum dilakukan melalui revitalisasi *pembelajaran buku kuning* dengan kompetensi abad ke-21 tanpa mengurangi nilai *fiddien tafaqqub*; dan (3) Pondok Pesantren Salaf (studi kasus Lirboyo dan Ar-Raudloh) menunjukkan pola kelangsungan hidup melalui reproduksi sosio-intelektual, sedangkan pondok pesantren modern (studi kasus Gontor dan Nurul Jadid) berakselerasi melalui aplikasi terpadu sistem seperti *Pedatren*. Penelitian ini menyimpulkan bahwa modernisasi pondok pesantren di Indonesia bukanlah bentuk sekularisasi, melainkan adaptasi ulang kreatif yang memperkuat posisi pondok pesantren sebagai lembaga pendidikan yang tangguh. Temuan ini memberikan implikasi strategis bagi pengambil kebijakan dalam merancang model pendidikan Islam berdasarkan keselarasan antara tradisi dan teknologi.

Kata kunci: Modernisasi Pondok Pesantren; *Tinjauan Literatur Sistematis* (SLR); Kurikulum Integratif; Ketahanan Salafiyah; Manajemen Digital.

INTRODUCTION

Pesantren is a typical Indonesian Islamic educational institution that has a strategic role as a center for the transmission of religious knowledge (*Smash it in*), the preservation of Islamic traditions, and the reproduction of scholars. In practice, this role is carried out through a boarding education model (*boarding system*) which emphasizes character formation and the transmission of moral values in a sustainable manner (Saputro, 2025). However, entering the third decade of the 21st century, pesantren are faced with a double disruption: the Industrial Revolution 4.0 and the transition to Society 5.0 (Noviyanti et al., 2025). This phenomenon requires Islamic boarding schools to not only be moral guardians, but also adaptive to the digitalization of education. This adaptation often triggers internal dialectics related to the use of information technology in a previously closed environment (Shofwani et al., 2025). This condition

confirms that the main challenge of pesantren today is to remain relevant to the development of the times without losing its traditional identity rooted in values *Turats* and the authority of Kiai. Furthermore, the integration of technology in Islamic boarding schools is no longer seen as a threat, but as an instrument to expand the reach of da'wah and the efficiency of Islamic education management in the cyber era (Sofi et al., 2025) The inability to make creative adaptations to digital infrastructure is feared to create a literacy gap among students compared to other public education institutions (udi, 2024).

Research on the modernization of Islamic boarding schools has developed rapidly in the last five years, which is now penetrating into the aspects of governance and pedagogical transformation on a massive scale. Several studies focus on aspects of quality management and services through technology, such as the implementation of the Pedatren application system at the Nurul Jadid Islamic Boarding School which has been proven to increase administrative efficiency (Samsun Baharun et al., 2021), Digitalization of management is considered a crucial step in creating an accountable and transparent education ecosystem in the eyes of modern society (Fauzi & Masrupah, 2024) On the other hand, studies on modern Islamic boarding schools such as Gontor emphasize the synergy of tradition and innovation through technological approaches in the learning system (Arifah Nur Salsabila Nasywa Kynda Sanina, 2024). Utilization *Learning Management System (LMS)* in the modern pesantren environment has been proven to accelerate access to global literacy without degrading the existing pesantren curriculum (Lutfiyah et al., 2025)

Meanwhile, literature that discusses pure salaf pesantren such as in Lirboyo and Ar-Raudloh, shows that modernization is carried out through a "reproduction" strategy in which a change in the scientific paradigm (integration of religion and general) is carried out without changing the conservative Salafi identity (Rahman, 2019; Zuhriyyah Hidayati & Muhammad Fuat Humam, 2021) This integration model creates a unique typology where students are taught to be technologically literate while still maintaining traditional scientific authority sourced from the yellow book (Ihsan, 2015) Furthermore, the latest research has begun to explore the role of pesantren in the dissemination of religious moderation for Generation Z in the digital space (Sari & Fanani, 2025). This phenomenon marks a shift in the role of pesantren from just a local institution to an important actor in maintaining social stability in the midst of the current of digital radicalism targeting young people (Amrullah, 2025).

Although there is a lot of literature on the modernization of Islamic boarding schools, there are still research gaps (*research gap*) significant. First, most of the previous research was fragmentary, focusing only on one type of pesantren (salaf only or modern) or one specific aspect (management only or curriculum only). There have not been many systematic studies that synthesize how the dialectic between traditionalism and modernity has worked holistically in various typologies of pesantren in the past decade (2016–2025). This limitation causes the understanding of pesantren transformation to tend to be partial and not able to capture the entire Islamic education ecosystem in the midst of global changes (Mukaromah, 2025) Second, there is a literary void that critically dissects the success of salaf Islamic boarding schools in maintaining the authority of Kiai in the midst of a very open flow of digital information democratization (Bashori, 2017; Hasibuan, 2013). The phenomenon of "shifting religious authority" in virtual public spaces often puts traditional Kiai in a challenging position because they have to deal with social media algorithms that favor popular and instant content (Taufikin et al., 2025) Third, the distribution pattern of publications will increase sharply in 2024–2025 (Halil, 2025) indicates the urgency to remap (*re-mapping*) against *Roadmap The Future of Islamic Boarding Schools in the Society 5.0 Era*. This gap is even more evident when existing research has not touched much on the aspect of the readiness of the Islamic boarding school's human resource mentality in dealing with automation and artificial intelligence (Syafei et al., 2024). In addition, studies on the resilience of local cultural pesantren in stemming global cultural homogeneity through digital media are still very minimal (Wahyudi, 2023). Therefore, a review is needed that is not only descriptive, but also able to provide a new conceptual framework for the sustainability of pesantren as an institution that is technologically resilient but still ideologically strong (Khairani et al., 2021).

This research aims to fill this gap by conducting *Systematic Literature Review* (SLR) comprehensive. The novelty of this research lies in the integration of data from various typologies of pesantren and the use of the most up-to-date literature until the projection of 2025. Through the PRISMA protocol (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*), this research will present a critical synthesis of how pesantren carry out "creative re-adaptation" to answer the challenges of globalization without sacrificing the sacredness of their traditional values. The use of the SLR method is seen as crucial to minimize subjectivity bias and provide an evidence-based picture (*evidence-based*) on the trend of transformation of Islamic education nationally (Syarifah et al., 2025). By reviewing the literature until 2026, this research was able to capture the early

signals of the transition of pesantren to a data-driven smart ecosystem (Rachma & Mulyana, 2025). Furthermore, this synthesis is expected to produce a "Hybrid Islamic Boarding School" model that is able to unite a curriculum based on the yellow book with data literacy and technology skills (Sumiati, 2009). The importance of cross-typology integration aims to provide a standard for Islamic boarding schools in adopting technology without having to lose the unique characteristics of each institution (Suhartini et al., 2024). Ultimately, the results of this systematic review will contribute theoretically to the development of the sociology of Islamic education in the post-digital era, as well as a practical guide for policymakers in the pesantren environment (Pradipta et al., 2025).

METHOD

This research uses a design *Systematic Literature Review* (SLR) with the Descriptive Qualitative. This strategy was chosen as the main methodology to synthesize development trends, curriculum adaptation patterns, and management transformation in the process of modernizing Islamic boarding schools in Indonesia without losing their Islamic identity. In its implementation, this study refers strictly to the protocol PRISMA 2020 (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*) to ensure transparency, accountability, and minimize subjectivity bias in the selection of the literature studied (Halil, 2025; Page et al., 2021).

The data collection process in this study was carried out through a systematic literature study using the Google Scholar search engine as the main database. To optimize literature selection, the researcher utilizes Publish or Perish (PoP) software with specific keywords: "*pesantren*" AND (*modernization* OR *digitalization* OR "*digital transformation*") AND ("*Islamic identity*" OR "*traditional values*") AND "*management*"

The data collected is sourced from primary scientific journal articles that have been officially published and have an ISSN or E-ISSN identity. The article selection procedure is carried out in stages based on the criteria (1) Topic Relevance: Suitability of the content with the main focus of the research. (2) Accessibility: Availability of articles in *full text*. (3) Quality of Discussion: The depth and relevance of the content of the material to the variables being studied.

Through the screening process, 17 journal articles were selected that were considered the most representative and credible to be further analyzed as core research data. In order to maintain the quality and relevance of the research findings, selection criteria were set using the PICOC parameters summarized in the following table:

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion (Admission Criteria)	Exclusion (Rejection Criteria)
Types of Literature	Original scientific journal article or formal research report (<i>Full Text</i>).	Non-full-text articles, abstracts only, or duplicate documents.
Publication Period	Published in the period 2016 – 2025.	Issued outside the range of 2016 – 2025.
Language	Using Indonesian or English.	Use languages other than Indonesian and English.
Subject / Population	Focus on Modernization and Islamic Identity in the Islamic Boarding School environment.	Focus on non-pesantren or public school education.
Quality	It has an ISSN/E-ISSN and has gone through a <i>peer-review</i> process.	It does not have an ISSN/E-ISSN or is not accredited/recorded.

The literature selection procedure is carried out in a structured manner through four main stages of PRISMA 2020. The first stage is Identification, where the initial screening of documents is carried out through the database. The second stage is Screening, namely the examination of titles and abstracts to ensure conformity with the theme of modernization and Islamic identity. The third stage is Eligibility, in the form of a complete manuscript analysis (*full-text*) to ensure the depth of the methodological data. The final stage is Included, i.e. the determination of final literature that is worthy of analysis (Page et al., 2021)

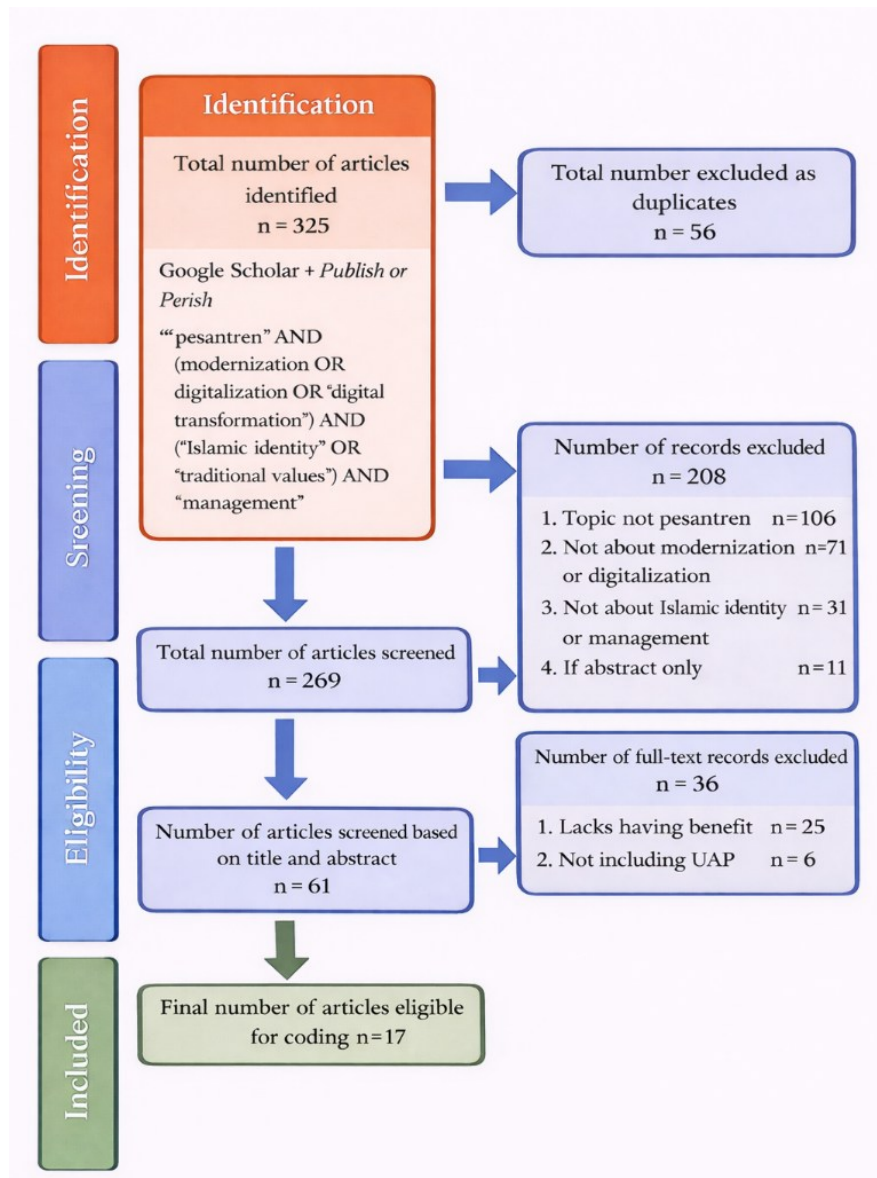


Figure 1. Prisma 2020 research flow

The selected data is then synthesized using the Thematic Synthesis technique. The researcher extracted the data into a research matrix that included the author's name, year, method, and key findings to comprehensively answer the research question.

This research is systematically designed to answer the following five key research questions:

1. RQ1: What is the trend of publication distribution regarding the modernization of Islamic boarding schools in Indonesia for the period 2016-2025?

2. RQ2: What is the most dominant research method used in studying pesantren transformation?
3. RQ3: What are the forms and dimensions of modernization that are implemented without eliminating Islamic identity?
4. RQ4: What is the strategy of pesantren in maintaining traditional values (such as the yellow book) in the midst of modernity?
5. RQ5: What digital governance models are offered for future Islamic boarding schools?

RESULTS AND DISCUSSION

Population Context and Intervention (P&I)

The population in this study is focused on the Islamic education ecosystem in Indonesia which covers a wide spectrum, ranging from traditional Islamic boarding schools (salaf), modern Islamic boarding schools, to madrassas that are adapting to the transition of global civilization. The research subjects involve key stakeholders such as Kyai or caregivers as the center of spiritual authority, education managers, educators, and students from Generation Z who are exposed to the risk of moral disruption in cyberspace (Siregar & Tumiran, 2025). This study takes the loci of representative institutions such as Pondok Modern Gontor for the modernity model, the Lirboyo Islamic Boarding School for the resilience of the salaf tradition, and the Buntet Islamic Boarding School in the context of contemporary management (Rahman, 2019; Nasywa, 2024; Shofwani et al., 2025). The main interventions analyzed are systemic management transformation through the adoption of digital platforms such as Pedatren, Simapel, and SIMATREN to streamline administration (Baharun et al., 2021; Shofwani et al., 2025). The intervention not only touches on the managerial aspect, but also the revitalization of the curriculum that deliberately integrates classical literature *with* 21st century competencies through participatory digital pedagogy (Nabila et al., 2025; Warisno et al., 2025).

Comparative Analysis, Outcome, and Context (C, O, & C)

Comparative analysis was carried out dialectically between the salafiyah tradition that prioritizes the absolute authority of Kyai and the yellow book with the efficiency demands *of the Society 5.0* era based on technological automation (Hamdi et al., 2026; Zuhriyyah Hidayati & Muhammad Fuat Humam, 2021). This comparison also dissects the effectiveness of conventional learning methods compared to *e-learning* in shaping the character of students in the midst of rapid global cultural currents (Haris, 2023; Siregar & Tumiran, 2025). *The*

main outcome produced is the formulation of transformative education management that is able to increase public accountability and the quality of education services in a sustainable manner (Warisno et al., 2025). In addition, this study emphasizes crucial achievements in the form of a balance of dual literacy (*digital-religious literacy*) and the formation of a *Learning Organization structure* that allows pesantren to remain adaptive through data-driven leadership (Halil, 2025; Saputro, 2025). All of these phenomena are placed in the context of post-pandemic Indonesia, which has accelerated the adoption of information technology to remote rural areas, while responding to national policies such as the Independent Curriculum which demands institutional flexibility (Halil, 2025; Lutfiyah et al., 2025).

RQ1: Publication Distribution Trends (2016–2025)

The trend of publication distribution regarding the transformation of Islamic boarding schools for the period 2017–2026 shows the evolution of linear growth which is divided into three strategic phases, namely the Initiation Phase (2016–2019) which focuses on the dynamics of the survival of the salaf tradition (Rahman, 2019), the Acceleration Phase (2020–2023) triggered by the COVID-19 pandemic with a focus on concrete digitalization (Baharun et al., 2021; Haris, 2023), and the Integration Phase (2024–2025) as the highest volume period that addresses complex issues such as artificial intelligence and Society 5.0 (Shofwani et al., 2025; Siregar & Tumiran, 2025; Warisno et al., 2025).

Based on the data synthesis, the research topics are mapped into four main clusters including digital management through SIM and administrative applications (Shofwani et al., 2025; Baharun et al., 2021), digitization of the turats curriculum and revitalization of classical methods (Nabila & Husni, 2025; Mas'udi, 2024), the protection of the character and moral identity of Gen Z (Siregar & Tumiran, 2025; Saputro & Arif, 2025), to the development of pesantren as adaptive learning organizations (Haris, 2023; Halil, 2025). Analysis of the dynamics of recent publications shows a trend of "Harmonization" in which the literature of 2025 no longer opposes traditionalism and modernity, but rather synergizes strategic management with spiritual values (Sofi et al., 2025; Halil, 2025). Overall, this trend signals an evolution from physical modernization to systemic modernization, which now culminates in the modernization of character through a mature blend of revelation and technological aspects.

Year	Number of articles	Percentage (%)
2016	1	5,88%
2019	1	5,88%
2021	2	11,76%
2023	1	5,88%
2024	2	11,76%
2025	10	58,82%
Whole	17	100%

RQ2: Dominance and Characteristics of Research Methods

The research methodology used to dissect the transformation of pesantren is significantly dominated by a qualitative approach with an analytical descriptive design, which covers about 85% of the total dataset analyzed. The choice of this method is based on its ability to capture the phenomenon of "negotiation" between the salaf tradition and abstract digital modernity, as well as to explore changes in behavior and sociocultural values in depth (Rahman, 2019; Saputro, 2025).

Technically, the majority of researchers used a data triangulation technique that combines in-depth interviews with Kyai or caregivers, field observations of digital infrastructure, and curriculum documentation studies (Shofwani et al., 2025; Zuhriyyah Hidayati & Muhammad Fuat Humam, 2021). The design of the case study is the most prominent instrument (estimated 70%) by focusing on specific institutions such as the Buntet, Lirboyo, and Gontor Islamic Boarding Schools to provide an overview of successful transformation models (Rahman, 2019; Shofwani et al., 2025; Nasywa, 2024). However, in the 2024–2026 period, a trend of using *the Narrative Review* and *Systematic Literature Review* (SLR) methods by 20% has begun to emerge which aims to synthesize transformation patterns at the national level (Sofi et al., 2025; Udi, 2024), while quantitative methods or *mixed methods* are still very rare to find with estimates of only around 10% (Haris, 2023; Halil, 2025).

Methodology	Number of studies	Percentage (%)
Qualitative (case studies and descriptive)	12	70,6%
Systematic Literature Review (SLR) dan Narrative Review	3	17,6%

Quantitative or mixed method	2	11,8%
Whole	17	100%

RQ3: The Dimension of Modernization and Survival of Islamic Identity

The findings in RQ3 reveal that the modernization of Islamic boarding schools in Indonesia is not just a superficial technical adaptation, but a "controlled identity revolution" (*controlled identity revolution*). In the management dimension, the integration of digital systems such as SIMATREN, Simapel, and Pedatren (Baharun et al., 2021; Shofwani et al., 2025) prove a shift from the traditional family-based management paradigm (*kinship-based management*) towards accountable and transparent professional management. This phenomenon, if contradicted by classical thought (Arpanuddin, 2016) regarding a single leadership pattern that tends to be closed, shows a significant update: Kyai's authority is no longer subjective-manual, but is starting to be supported by objective data-based instruments (*Digital Leadership*). In line with the thesis (Huda, 2020) Regarding the transformation of Islamic leadership in the era of disruption, this research strengthens the argument that information technology in Islamic boarding schools functions as a tool to strengthen (augment) the charisma of leadership, not as a threat that degrades the spiritual authority of caregivers. This innovation creates a unique governance model in Indonesia, where digital bureaucracy is actually used to reinforce positive feudalism—in the sense of value protection—within Islamic boarding schools.

In the curriculum dimension, the *integrative-hybrid* found (Nabila et al., 2025; Rahman, 2019) makes a crucial contribution to the discourse of science integration in Indonesia. Your findings go beyond the concept of "Interconnection" integration Amin Abdullah, because in Islamic boarding schools, this integration occurs organically through revitalization *Turats* (Yellow Book) uses digital media. This is different from the studies of previous orientalist who saw pesantren as a static entity; Your research actually shows that salaf pesantren are now "offensive" by digitizing classical literature to seize the space for religious discourse in the cyberspace. Comparison with research (Zuhriyyah Hidayati & Muhammad Fuat Humam, 2021) affirming that although the curriculum has undergone radical modernization, *Sanad* Scientific remains the sole standard of validity. This proves that pesantren has managed to avoid the "disruption of authority" that researchers fear such as (Hosen, 2020) Where access to information without the guidance of teachers often gives birth to an instant and superficial understanding of religion. Islamic boarding schools are

still able to maintain the chain of scientific transmission (*Isnad*) in the midst of a jungle of anonymous digital information.

In the dimension of character and organizational development, the findings regarding Cyber-Akhlaq (Siregar & Tumiran, 2025) is a visionary expansion of the concept *Akhlakul Karimah* into the digital ecosystem. When compared to research (Elhadi et al., 2020) About digital literacy in Islamic educational institutions, your research provides a new perspective that pesantren are no longer defensive-phobic towards social media, but rather make it an instrument of moderate da'wah (Wasathiyah) and the formation of the identity of students as digital citizens (*digital citizen*) that are ethical. Finally, the transformation into *Learning Organization* (Halil, 2025) emphasized that the independence of Islamic boarding schools is the foundation of research Heriyudanta Remain steadfast despite openness to strategic partnerships with external parties and industry. Overall, this discussion positions pesantren no longer as institutions that are "forced to modernize" due to the pressures of the times, but as institutions that consciously design their own modernity—a model *Indigenous Modernity* (Indigenous Modernity) that balances the sophistication of reason (technology) and the sanctity of revelation (religion) in harmony.

RQ4: Strategy for Survival of Traditional Values and Salafi Values

The survival strategy revealed in RQ4 shows that Islamic boarding schools in Indonesia no longer view modernity as an external threat that must be avoided, but rather as a space for identity contestation that must be won ideologically. The concept of "reproduction of tradition" found in large institutions such as Lirboyo and Gontor proves that there is a paradigm shift from **Passive traditionalism** To **Transformative Traditionalism**. This strategy is in line with the theory (Harmathilda et al., 2024) about the flexibility of the basic elements of the pesantren, but your research provides a crucial update: these elements—Kyai, santri, and the yellow book—are now experiencing **Functional Digitization** without losing its spiritual essence. In contrast to the previous orientalist view that tended to see the sarungan as a rigid marginal group, your findings prove that pesantren are very agile actors in conducting cultural negotiations by using digital platforms as an instrument of sustainability authority, where technology is not considered as a "foreign good" but as a *Squirrel* to expand the reach of da'wah.

In terms of pedagogy, revitalization through "virtual pesantren " and digitization of the yellow book is a tactical answer to the challenge of religious de-authority on the anonymous internet. If we compare it with the phenomenon

of "Ustadz Google" or "Ustadz Algoritma" which is often criticized by sociologists of religion in Indonesia because of its superficiality, the strategy of pesantren in maintaining **Scientific Sanad Digitally** is a systematic effort to ensure that religious authority remains in the hands of experts who have a clear intellectual pedigree. This shows that modernization in Islamic boarding schools is carried out with the principle of "**Proteksi sanaad**", where technology is used to accelerate the transmission of knowledge, not to break the chain of teacher-student relationships. This strategy strengthens the thesis (Azyumardi Azra, 2019) which states that pesantren is the last bastion of moderate Islam; by mastering digital media through *branding* The strong pesantren are actually committing "moral offensives" to stem radical ideologies that often take advantage of the vacuum of authority in cyberspace.

Furthermore, cultural integration *Ta'dhim* and morality as a moral filter creates a unique digital literacy model, which we can define as "**Sufistic-Based Digital Ethics**". If digital literacy in general only focuses on technical skills and legal compliance such as the ITE Law, pesantren adds an inner dimension and self-control that comes from adab. The comparison, if the research (Elhadi et al., 2020) Seeing the challenges of digitalization more in terms of infrastructure and technical barriers, your findings highlight the human software aspect (*human software*) through the curriculum *Hybrid*. This strategy is a high-level implementation of the rules *Al-Muhafadzatu 'ala Qadimis Shalih wal Akhdzu bil jadidil ashlah*, which in the context of Society 5.0 is defined as the ability to remain "salaf" in moral principles and standards of truth, but remain "professional" and "up-to-date" in working methods. Thus, pesantren is not only surviving the onslaught of the times, but is building a prototype of a technologically advanced future society while still adhering to divine ethics, a model referred to as "**Indigenous Modernity**" (*Indigenous Modernity*) which is very typical of Indonesia.

This discussion also implies that the success strategy of Islamic boarding schools lies in their ability to maintain **Ruhul Ma'had** (Islamic boarding school) in the midst of institutional changes. When management changes to digital automation, the values of simplicity and independence remain the anchor so that pesantren is not completely co-opted by digital materialism. Comparison with studies (Hosen, 2020) Regarding the disruption of religious authority, emphasize that the pesantren you are researching has succeeded in creating a "counter algorithm" through content that is based on classical books but packaged with modern aesthetics. This emphasizes that the survival strategy of pesantren is a form of "**Active Agency**", in which these institutions

consciously choose which parts of modernity to take and which parts of tradition to strengthen, creating an educational harmony that is resilient to all forms of global disruption.

RQ5: Future Digital Governance and Management Model

The projections of future pesantren governance summarized in RQ5 mark the end of the era of traditional management that is closed, atomistic, and intuitive, transforming into an integrated management ecosystem based on data, transparency, and public accountability. System implementation *Software as a Service* (SaaS) such as SIMATREN, Simapel, and Pedatren (Baharun et al., 2021; Shofwani et al., 2025) not just a change in administrative instruments, but a transformation of the managerial paradigm that integrates values **Trust** into a precise algorithmic system. If we compare it with classical studies (Arpanuddin, 2016) which describes pesantren management as "family management" that is informal and centered entirely on Kyai's intuition, your findings show that the future pesantren is adopting the principle of *Good Corporate Governance* (GCG) modified. This digitalization allows for the creation of a more democratic and transparent relationship between institutions and guardians, as well as breaking the historical stigma regarding the financial governance of Islamic boarding schools that are often considered less professional. This proves that pesantren are able to carry out "Bureaucratization Without Secularization", where corporate efficiency is used to strengthen religious institutions.

Expansion on the concept *Learning Organization* and *Digital Leadership* (Halil, 2025; Warisno et al., 2025) provide sociological solutions to the challenges of leadership sustainability in Islamic boarding schools. In the discourse of Islamic leadership in Indonesia, the transition of power is often a critical point that is prone to conflict due to dependence on a single figure. However, with a digital leadership model that synergizes Kyai's spiritual authority with data-driven decision-making (*data-driven decision making*), future pesantren have objective instruments to maintain the stability of the quality of education across generations. This is in line with the theory (Azyumardi Azra, 2019) on the modernization of Islamic institutions, in which traditional charismatic leadership is not abolished, but rather strengthened with technocratic capacity. The future remains the center of gravity of values (*moral compass*), but daily operations are driven by systems that are systemic, scalable, and adaptive to innovation, creating institutional stability that no longer depends on a single individual.

In the pedagogical dimension, the model *Hybrid Learning* that combines the *Squirrelly* and *São Paulo* with virtual technology (Nabila et al., 2025; Saputro, 2025) is an epistemological innovation that answers the crisis of religious authority in the digital public space. Comparison with studies (Hosen, 2020) Regarding the disruption of religious authority on the internet, it is emphasized that the future pesantren is the answer to the phenomenon of de-spiritualization of science. Virtual pesantren not only presents video content, but also moves intensive interaction between teachers and students to the digital space through "Digital Sanad", so that the chain of scientific transmission is maintained authentically. This strategy allows pesantren to internationalize access without having to be constrained by physical space, making pesantren a global institution that remains rooted in tradition *salafiyah*. This proves that the pesantren has succeeded in creating a learning space that is "Modern in Technique but Classical in Substance".

Finally, integrations **Cyber-Akhlaq** as an instrument of moral protection (Haris, 2023; Siregar & Tumiran, 2025) positioning Islamic boarding schools as the front line in facing moral disruption and digital radicalism. If the national digital literacy policy tends to focus on cognitive aspects and legal compliance (UU ITE), pesantren offer an inner approach through moral filters based on the values of religious moderation (*Wasathiyah*). Compared to research (Elhadi et al., 2020) that notes the challenges of digitalization in madrasas, your findings provide an update that *digital branding* The Islamic boarding school of the future is not just a marketing tool, but an effort to "Hegemony Goodness" in the cyber world. Through accountable governance and an inclusive digital strategy, pesantren will not only survive as a legacy of the past, but will lead as a resilient, modern, and spiritual educational institution amidst anonymous global technological currents.

Philosophically, the RQ5 model reflects an "**Indigenous Modernity**", in which pesantren are no longer passive consumers of technology, but rather subjects who dictate how technology should be used for moral purposes. This is a future governance model that combines *High-Tech* (SaaS technology) and *High-Touch* (Kyai's spiritual touch). This transformation confirms that pesantren is the most progressive model of educational institutions in Indonesia because it is able to synchronize the efficiency of the modern world with the sanctity of religious traditions in harmony.

CONCLUSION

This study concludes that the transformation of Islamic boarding schools in Indonesia in the period 2016–2025 is a manifestation of "*Indigenous Modernity*", where the adoption of technology does not trigger secularization, but rather strengthens traditional authority through digital instruments. Through a systematic review of 17 key documents, it was found that the "Hybrid Pesantren" model is the main epistemological solution that unites the nobility of the yellow book curriculum with the data literacy skills of the Society 5.0 era. The success of salaf Islamic boarding schools in carrying out socio-intellectual reproduction and the success of modern Islamic boarding schools in accelerating digital management proves that this institution has high resilience in maintaining the sacredness of *tafaqqub fiddien values* in the midst of the rapid flow of global disruption.

Based on these findings, it is recommended to policymakers in relevant ministries and Islamic boarding school authorities to formulate a standard for "Digital Islamic Boarding School Management" that focuses not only on physical infrastructure, but also on strengthening the capacity of human resources. An integrative curriculum that balances between *Cyber-Morality* and technical skills is needed so that students are able to become ethical and competitive digital citizens. In addition, cross-typological collaboration between salaf and modern Islamic boarding schools needs to be strengthened in order to create a knowledge sharing ecosystem in facing the challenges of automation and artificial intelligence (AI) that are beginning to penetrate the Islamic education sector.

For the next researcher, there is a wide research gap to explore the transformation of pesantren using a quantitative or *mixed-method approach* to test the effectiveness of the use of digital platforms on the quality of *graduate output* empirically. An in-depth study of the psychological and sociological impact of the integration of AI in the *virtual learning process* is also very necessary. Given the current dominance of qualitative research, methodological diversification will provide a more objective and measurable perspective in capturing the future roadmap of pesantren as educational institutions that are resilient, adaptive, and remain faithful to the roots of their Islamic traditions.

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