

REALIZING THE IDEAL MODEL OF DIGITAL ISLAMIC BOARDING SCHOOLS: A SYSTEMATIC LITERATURE REVIEW ANALYSIS

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Received: June 21, 2025	Revised: August 23, 2025	Accepted: August 29, 2025	Published: September, 2025
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Abstract

To analyze the transformation of Islamic boarding schools (Pesantren) in the digital era, assess the contribution of digital technology to Islamic boarding schools, and propose the ideal model for digital Islamic boarding schools. The study uses a systematic literature review method utilizing the "Publish or Perish" application. Keywords such as "Pesantren Digital" or "Pesantren Technology" or "Pesantren Virtual" or "Islamic Boarding School Digital" or "Islamic Boarding School Technology" or "Islamic Boarding School Virtual" were searched in the global indexing database "Scopus," followed by PRISMA data analysis. The digital transformation model in Islamic boarding schools includes changes in management, administration, learning, and digital skill development for students. The contribution of digital technology is diverse, ranging from improving administration and management, increasing access to digital-based learning, strengthening interactions between Islamic boarding schools, alumni, and the community, developing student skills in utilizing digital tools, and facilitating the spread of Islamic preaching (rahmatan lil alamin). This study implies that integrating digital technologies into Islamic boarding schools offers significant opportunities to improve educational practices and administrative efficiency. This study provides a new perspective on the ideal model of digital Islamic boarding schools using Giddens' perspective of Giddens' four elements.

Keywords: Pesantren; Digital Islamic Boarding School; Virtual Islamic Boarding School; Preaching; Digital Learning.

Abstrak

Untuk menganalisis transformasi pesantren di era digital, menilai kontribusi teknologi digital terhadap pesantren, dan mengusulkan model ideal untuk pesantren digital. Penelitian ini menggunakan metode tinjauan literatur sistematis dengan aplikasi "Publish or Perish". Kata kunci seperti "Pesantren Digital", "Pesantren Teknologi", "Pesantren Virtual", "Islamic Boarding School Digital", "Islamic Boarding



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School Technology", dan "Islamic Boarding School Virtual" dicari di basis data indeks global "Scopus", diikuti dengan analisis data PRISMA. Model transformasi digital di pesantren mencakup perubahan dalam manajemen, administrasi, pembelajaran, dan pengembangan keterampilan digital bagi santri. Kontribusi teknologi digital sangat beragam, mulai dari peningkatan administrasi dan manajemen, peningkatan akses ke pembelajaran berbasis digital, penguatan interaksi antara pesantren, alumni, dan masyarakat, pengembangan keterampilan santri dalam memanfaatkan alat digital, serta memfasilitasi penyebaran dakwah Islam (rahmatan lil alamin). Penelitian ini menyiratkan bahwa integrasi teknologi digital ke dalam pesantren menawarkan peluang besar untuk meningkatkan praktik pendidikan dan efisiensi administrasi. Penelitian ini memberikan perspektif baru tentang model ideal pesantren digital dengan menggunakan perspektif Giddens mengenai empat elemen.

Kata kunci: Pesantren; Pesantren Digital; Pesantren Virtual; Dakwah; Pembelajaran Digital.

A. Introduction

Islamic Boarding School (Pesantren) is a traditional Islamic educational institution with a village community background that has a significant role in shaping the social ethics of (Baequni et al., 2019; Saiin, 2020) and forming, strengthening the identity of noble characters so that they are guaranteed to be accepted in community life (Anam, 2019). In addition, pesantren are known as non-formal educational institutions that can answer the challenges of the times (Pohl, 2006), valid evidence of this was also conveyed by Asrohah and Isbah that pesantren are the only traditional educational institutions that continue to exist, develop and answer various challenges of modernity in the world of education without changing their identity (Asrohah, 2011; Isbah, 2020), a real contribution makes pesantren educational institutions often used as references in various elements, such as politics, public services, and global contemporary issues (Ma'arif, 2018).

The entry of the technological era into the world of education (Ainissyifa, 2019), makes Islamic boarding schools enter a problematic space in making choices between following technological developments perfectly or maintaining tradition (identity; traditional). Winarko and Fatmawati et al. stated that Islamic boarding schools as Indonesian Islamic educational institutions, which specifically have the aim of strengthening the Islamization of education, will consistently synergize with the secular education system (Fatmawati, 2023; Winarko, 2007), so that they are not abandoned by society. Suharto and Fatmawati expressed similar views regarding the need for Islamic boarding schools as traditional Islamic educational institutions to adapt and transform in implementing education that can answer the challenges of the times (Suharto & Fatmawati, 2022). Budiharso et al. provide more

notes on the importance of transforming Islamic boarding schools in the world of technology in the learning element because, in it, there is a transfer of knowledge that must continue to develop according to the needs of the times (Budiharso et al., 2023), so that in the future Islamic boarding schools can produce professional individuals and make fundamental contributions.

This condition is also evident in several research results that have data on the findings of integration between Islamic boarding schools and digitalization (Sholehah, 2023), so that the goal of Islamic boarding schools is to produce graduates who are strong in moral education, religious knowledge and able to adapt to the challenges of digitalization can be achieved optimally (Maulidati & Abbott, 2024). Supriyono revealed that there was a change in perspective on the use and adaptation of Islamic boarding schools in the digital world starting during the Covid-19 pandemic (Supriyono, 2022), such as the presence of virtual Islamic boarding schools as evidence of a new variant of Islamic boarding schools that can adapt without having to erase their identity (Rahman & Asrohah, 2022). The IMMIM Islamic boarding school is valid evidence of the existence of Islamic boarding schools that can answer the challenges of digital technology through integration in language learning (Wekke & Hamid, 2013), through the breakthroughs above, Islamic boarding schools have the primary goal of being able to prepare global graduates without forgetting the identity of their students. In line with Nur et al., who provided data on the Nurul Jadid Probolinggo and Al Hikmah Malang Islamic Boarding Schools, which utilize technology in every learning process to make it enjoyable and strengthen the ties of friendship between alums, so that the Islamic boarding school can optimally sustainably transfer religious and moral values (Nur et al., 2024).

The existence above, in line with Jeff and Nurhaya, that Islamic boarding schools in the technological era take initiative steps by utilizing technology as a medium for educating local communities/students (Ritchey & Muchtar, 2014), so that Islamic boarding schools are still able to keep up with the times and strengthen the main foundation of Islamic boarding schools as educational institutions that are strong in Islamic religious knowledge (Widodo et al., 2023) and follow technological developments (Husni & Rohmah, 2024). Budiharso and Suharto also revealed that integrating Islamic boarding schools in the management/administration elements, which were initially traditional models, is currently undergoing digital technology transformation (Budiharso & Suharto, 2022). This condition is also reinforced by Nilan et al. that Islamic boarding schools, as traditional Islamic educational institutions, have a better educational spirit (Nilan, 2009), with evidence of the success of Islamic boarding schools in following technological developments quickly and optimally (Cholil, 2018).

Based on the data above shows that the existence of Islamic boarding schools as traditional Islamic educational institutions can answer the challenges of digital technology through a transformation in various elements, starting from the virtual Islamic boarding school model (Mukhibat, 2021; Zafi, 2021), strengthening digital literacy of students (Mustas, 2021; Putra, 2019), learning by utilizing digital technology (Abidin, 2020; Arif, 2024; Muhith, 2021; Riski et al., 2024), development of Islamic boarding school teacher competencies (Janawi, 2022; Malla, 2023), administration (Budiharso & Suharto, 2022) and utilization of digitalization as a medium for Islamic boarding school preaching (Fathullah et al., 2023; I. Mustofa, 2024; Nurdin, 2019). The findings of the various research results above tend to be dominated by field research results, so there is still space to conduct more in-depth research on the existence of Islamic boarding schools in the digital technology era using the systematic literature review research method, a new perspective by reviewing various articles that have been published in internationally reputable journals with a specific time. So, the study's objectives are to analyze the transformation of Islamic boarding schools in the digital era, analyze the contribution of digital technology to Islamic boarding schools, and analyze the ideal model of digital Islamic boarding schools.

B. Research Methods

This study uses the systematic literature review (SLR) research method, a method that focuses on reference results that have been published in global databases. This study has three research focuses: 1) the transformation of Islamic boarding schools in the digital era, 2) how digital technology contributes to Islamic boarding schools, and 3) what the ideal model of a digital Islamic boarding school is. Data search was carried out using the "publish or perish" application, Keywords such as "Pesantren Digital "or" Pesantren Technology "or" Pesantren Virtual "or" Islamic Boarding School Digital "or" Islamic Boarding School Technology "or" and Islamic Boarding School Virtual" which are searched in the global indexing database "Scopus," after which the researcher conducted PRISMA data analysis, namely a series of processes starting from planning, identification, feasibility testing and implementation of meta-analysis with relevant theories according to research findings.

Inclusion And Exclusion Of Article Selection

In the systematic literature review research, researchers determined five inclusions and exclusions of publication results. First, the selection of research topics must be based on the research objectives: analyzing the transformation of

Islamic boarding schools in the digital era, the contribution of digital technology to Islamic boarding schools, and the ideal model of digital Islamic boarding schools. Second, publications are selected only on articles published in reputable international journals. Third, selecting research languages uses the global language "English." Fourth, the research period was chosen only in the last ten years (2014-2024). Fifth, in the article search process, researchers use a third-party application "publish or perish" to maintain the credibility of the article with the search keywords "Islamic Boarding School, Digital; Islamic Boarding School, Technology; Islamic Boarding School, Virtual; Islamic Boarding School, Digital; Islamic Boarding School, Technology; and Islamic Boarding School, Virtual;." In the research exclusion, there are also five elements, namely: first, the exclusion of articles that do not discuss the research objectives, namely the transformation of Islamic boarding schools in the digital era, the contribution of digital technology to Islamic boarding schools, and the ideal model of digital Islamic boarding schools. Second, articles other than those published in journals, such as book reviews, proceedings, and conference results, will be issued. Third, issuing articles other than English. Fourth, articles outside the 2014-2024 period. Fifth, articles that do not contain the keywords "Pesantren, Digital; Pesantren, Technology; Pesantren, Virtual; Islamic Boarding School, Digital; Islamic Boarding School, Technology; and Islamic Boarding School, Virtual;".

Filtering Of Published Data Results

Based on the search for publication data conducted by researchers using the publish or perish application on December 1, 2024, on the global database "Scopus", the following data was obtained:

Table 1. Article Publication Search Results

No	Keywords	Year	Databased	Count
1	Pesantren, Digital	2014-2024	Scopus	27
2	Pesantren, Technology	2014-2024	Scopus	51
3	Pesantren, Virtual	2014-2024	Scopus	5
4	Islamic Boarding School, Digital	2014-2024	Scopus	37
5	Islamic Boarding School, Technology	2014-2024	Scopus	62
6	Islamic Boarding School, Virtual	2014-2024	Scopus	4
Count				186

The data found from the search results are 186 articles that match the keywords. After that, the researcher will conduct a research data analysis that shows the results of 48 valid articles that are worthy of in-depth analysis from 48

researchers who collected them on the Zotero application and exported RIS data so that it can display a visualization of the distribution of research results. In detail, the process is as follows: 1) data collection, 2) classification, 3) collection of analysis data and exporting data using the "RIS" format, 4) valid data verification, and 5) entering the validation data in the "RIS" format in the vos viewers application. 5) finished. The results of the visualization of the distribution of research results as in Figure 1. below:

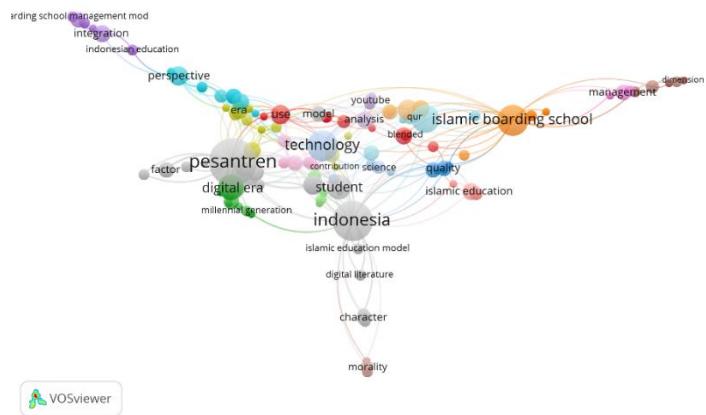
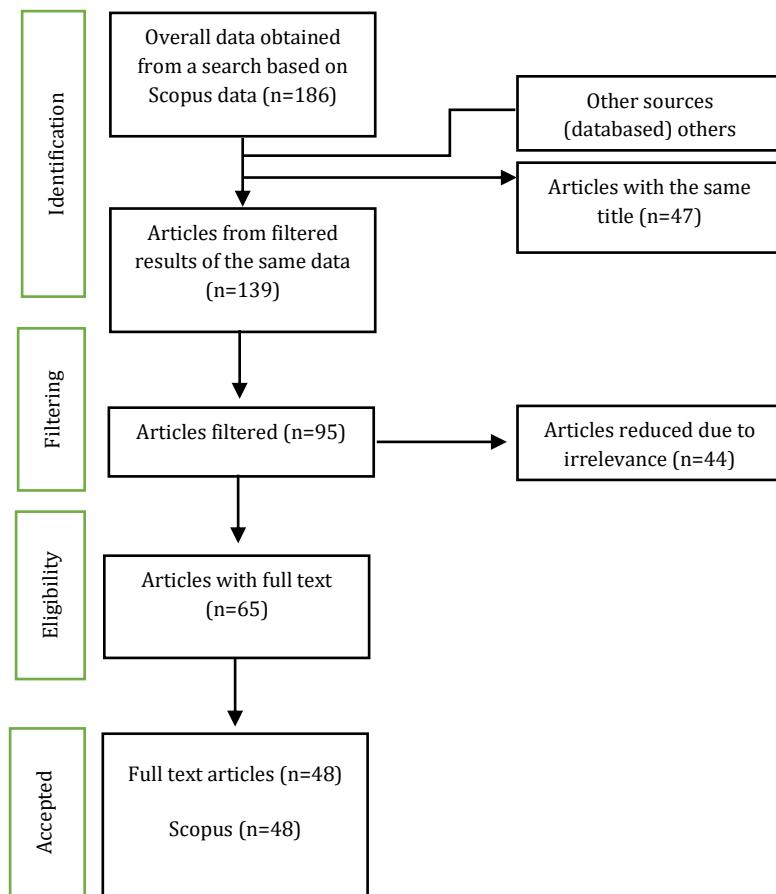


Figure 1. Visualization of research results on Islamic boarding schools, Islamic boarding schools, technology, digital using VOS viewers.

Based on Figure 1. shows a reasonably close relationship between Islamic boarding schools, the digital era, technology, Islamic boarding schools, and Indonesia. The existence shows the suitability of the study's objectives to analyze the transformation of Islamic boarding schools in the digital era, analyze the contribution of digital technology to Islamic boarding schools, and analyze the ideal model of digital Islamic boarding schools.

PRISMA analysis

Based on the data obtained from the Scopus database in accordance with the research objectives, 186 publications were found. Including; articles, book chapters, conferences, proceedings and book reviews, so that PRISMA analysis is needed as in the process below:



C. Result and Discussion

Result

Based on the application-based data collection process findings, published or published in the 2014-2024 period, and adjusted to the research objectives. Then, the research results will be tabulated, including publisher name, volume, no, year of publication, author, author's country of origin, platform (based on publication data), and three research questions, namely: 1) how the form of transformation of Islamic boarding schools in the digital era? (RQ.1) 2) how does digital technology contribute to Islamic boarding schools? (RQ.2) and 3) how the ideal model of a digital Islamic boarding school? (RQ.3).

Table 2. Details Of Publication Results After Prisma Analysis

No	Publisher	Author	Country	Platform	RQ
1	Jurnal Pendidikan Agama Islam, Vol.17 No. 2 2020	Zaenal Abidin	Indonesia	Scopus	1,2
2	Munaddhomah, Vol. 5 No. 4 2024	M Arif et al	Indonesia	Scopus	2,3

3	Eurasian Journal of Educational Research, Vol. 2021 No. 93 2021	Assa'idi	Indonesia	Scopus	1,2
4	Jurnal Pendidikan Agama Islam, Vol. 20 No. 2 2023	Azizah et al	Indonesia	Scopus	1
5	Library Philosophy and Practice Vol. 219 No. 1 2019	Bajari et al	Indonesia	Scopus	1,2,3
6	Kasetsart Journal of Social Sciences, Vol. 42 No. 2 2021	Bajari et al	Indonesia	Scopus	1,2
7	Contemporary Islam, Vol. 13 No. 1 2019	Bubandt et al	Denmark	Scopus	2,3
8	International Journal of Engineering and Technology(UAE), Vol. 7 No. 3 2018	Cholil	Indonesia	Scopus	1,2
9	Jurnal Pendidikan Agama Islam, Vol. 21 No. 1 2024	Darwanto et al	Indonesia	Scopus	1,2
10	Journal of Physics Vol. 2111, No. 1 2021	Djatmiko	Indonesia	Scopus	1,2
11	Munaddhomah: Manajemen Pendidikan Islam, Vol. 4 No. 1 2023	Jurnal Islam, al	Indonesia	Scopus	1,2
12	Journal of Educational and Social Research, Vol 13 No.6 2023	Fatmawati	Indonesia	Scopus	1,2
13	Indonesia and the Malay World, Vol 46 No. 134 2018	Wahyuddin Halim	Indonesia	Scopus	2,3
14	Journal of Physics Vol. 812 No. 1 2017	Hayah	Indonesia	Scopus	1,2
15	International Journal of Supply Chain Management, Vol. 9 No. 2 2020	Huda	Indonesia	Scopus	1,2
16	International Journal of Electrical and Computer Engineering, Vol. 13 No.3 2023	Hamidulloh Ibda' et al	Indonesia	Scopus	1,2
17	International Journal of Scientific and Technology Research, Vol. 8 No. 10 2019	Indra	Indonesia	Scopus	1
18	Journal of Advanced Research in Dynamical and Control Systems, Vol. 12 No. 2 2020	Indra	Indonesia	Scopus	1,2,3
19	International Quarterly for Asian Studies, Vol. 54 No.4	Ismah	Indonesia	Scopus	1,2,
20	Res Militaris, Vol. 12 No. 2	Janawi et al	Indonesia	Scopus	1,2
21	Register: Jurnal Ilmiah Teknologi Sistem Informasi Vol. 1 No. 1 2015	Jannah and Arifin	Indonesia	Scopus	1,2

22	Millah: Journal of Religious Studies, Vol. 23 No. 1 2024	Jusubaidi et al	Indonesia	Scopus	1,2
23	International Journal of Educational Reform 2023	Malla et al	Indonesia	Scopus	1,2,3
24	Nazhruna: Jurnal Pendidikan Islam Vol 6 No. 3 2023	Muhith et al	Indonesia	Scopus	1,2,3
25	International Journal of Innovation, Creativity and Change, Vol. 5 No.2 2019	Mukhibat	Indonesia	Scopus	1,2,3
26	International Journal of Innovation, Creativity and Change, Vol. 8 No. 8 2019	Munifah et al	Indonesia	Scopus	2
27	Cypriot Journal of Educational Sciences, Vol. 17 No. 1 2022	Munifah et al	Indonesia	Scopus	1,2
28	Library Philosophy and Practice, Vol. 21 No. 1 2021	Mustas	Indonesia	Scopus	1,2,3
29	Juris: Jurnal Ilmiah Syariah, Vol. 23. No. 2 2024	Mustofa	Indonesia	Scopus	2,3
30	Nazhruna: Jurnal Pendidikan Islam, Vol. 7 No. 1 2024	Nasution et al	Indonesia	Scopus	2,3
31	Procedia Computer Science, Vol. 234. No. 1 2024	Nuha et al	Indonesia	Scopus	1,2
32	International Journal of Engineering and Advanced Technology, Vol. 8 No. 5 2019	Putra	Indonesia	Scopus	2,3
33	Journal of Islamic Marketing, 2024	Qizam	Indonesia	Scopus	2
34	Contemporary Islam Vol. 18 No. 1 2024	Raya	Indonesia	Scopus	1,2,3
35	Munaddhomah, Vol. 5 No. 2 2024	Riski et al	Indonesia	Scopus	1,2
36	Journal of Religion and Popular Culture, Vol. 26 No.2 2014	Ritchey	United States	Scopus	1,3
37	Journal of Management Information and Decision Sciences, Vol. 24 No. 15	Ritonga et al	Indonesia	Scopus	1,2
38	Journal of Social Education Research, Vol. 12 No. 2 2021	Moh Roqib	Indonesia	Scopus	1,2
39	Jurnal Pendidikan Agama Islam, Vol. 18 No. 2 2021	Rosyidin	Indonesia	Scopus	1,3
40	International Journal of Advances in Applied Sciences, Vol. 13 No. 1 2024	Sitanggang	Indonesia	Scopus	1,2

41	International Language Education, Vol. 8 No. 3 2024	Journal of Subair	Indonesia	Scopus	1,2,3
42	Journal of Physics Vol. 1737 No.1 2021	Supraba	Indonesia	Scopus	1,2
43	Journal of Physics, Vol. 1363. No. 1 2019	Syakroni	Indonesia	Scopus	1,2
44	Pegem Egitim ve Ogretim Dergisi, Vol. 13 No. 1 2022	Yusuf et al	Indonesia	Scopus	2,3
45	Jurnal Pendidikan Agama Islam, Vol. 18 No. 2 2021	Zafi et al	Indonesia	Scopus	1,3
46	Jurnal Ilmiah Islam Futura, Vol. 22 No.2 2022	Zainal	Indonesia	Scopus	1,2
47	Munaddhomah, Vol. 5 No. 2 2024	Zuhri	Indonesia	Scopus	1,2,3
48	Res Militaris, Vol. 13 No. 1 2023	Zulfikar	Indonesia	Scopus	2,3

Discussion

Transformation of Islamic Boarding Schools (Pesantren) in the Digital Era

Islamic boarding schools are traditional Islamic educational institutions that are continually maintained and exist following the developments of the times (Cholil, 2018; Isbah, 2020), Islamic boarding schools can integrate Islamic and general education learning without any disparity in implementation. Azizah et al. exemplified one of the transformations of Islamic boarding schools in maintaining the existence of Islamic boarding schools in the digital era through strengthening Islamic boarding school management (Azizah, 2023; Zainal, 2022), to strengthen the accessibility and quality of Islamic boarding school education in the digital era (Darwanto et al., 2024; Rosyidin, 2021). The transformation of Islamic boarding schools as religious and social educational institutions is an inevitability that cannot be rejected, in line with community support to make Islamic boarding schools educational institutions that can optimize modern infrastructure, such as the use of digitalization in learning in Islamic boarding schools (Roqib, 2021).

Gontor Modern Islamic Boarding School has proven that there are fundamental steps in maintaining Islamic boarding school education that is adaptive to technological developments, especially in the e-learning-based learning process with the yadan-biyadin method (Abidin, 2020; Jusubaidi et al., 2024). Djatmiko et al provide findings on the existence of Islamic boarding schools that transform manual learning of yellow books (turats) into digital-based turats (Djatmiko, 2021; Munifah, 2022; Mustas, 2021; Ritonga et al., 2021). Al-Mizan Islamic Boarding School, Majalengka, has transformed education by establishing a community work training

center for students to utilize (Fathullah et al., 2023; Huda, 2020), as proof that Islamic boarding schools can run effectively and provide students with technological literacy in the digital era (Raya, 2024; Sitanggang, 2024). Without exception, evidence of the benefits of digitalization in learning in traditional Islamic boarding schools in West Java, in terms of health materials, significantly impacts the lives of students in Islamic boarding schools (Bajari, 2019; Hayah, 2017).

Ibda et al. provide data on the existence of Islamic boarding schools in Tumanggung, Central Java, that is technology-literate, namely by utilizing digital learning "maktaba syumilah NU 1.0, as a strengthening of Islamic moderation in Islamic boarding schools (Ibda, 2023), in line with Ritchey, who stated that the presence of digital technology must be able to be utilized by Islamic boarding schools as a tool to provide understanding to the community about the dangers of radicalism movements (Ritchey & Muchtar, 2014). In line with Ismah, who revealed the presence of professional digital novel writers who were born from Islamic boarding school education (Ismah, 2023), this condition strengthens that Islamic boarding schools in the digital technology era have been able to adapt sustainably (Fatmawati, 2023).

The transformation of Islamic boarding schools from traditional to digital technology has consequences that must be calculated precisely in terms of benefits and harms (Assa'idi, 2021; Indra, 2020; Raya, 2024; Syakroni, 2019; Wibowo, 2019), such as the statement by Nuha et al about the importance of Islamic boarding schools utilizing E-Santren in organizing administration (Nuha et al., 2024). In line with the Darul Ulum Kudus Islamic Boarding School, which chose to transform from a conventional educational approach model to digital education, such as the use of virtual ngaji using Facebook, WhatsApp, Instagram, and YouTube media (Mukhibat, 2019; Zafi et al., 2021). line with Raya and Riski et al that Islamic boarding schools that can adapt well to the era of digital technology can improve the quality of Islamic boarding school education (Bajari, 2021; Raya, 2024), the Al Kamil Modern Islamic Boarding School in Cianjur is well-known for being able to optimize digital leadership transformation in Islamic boarding schools to achieve inclusive, innovative and participatory education in Islamic boarding schools (Riski et al., 2024).

Sarwenda et al. found the existence of Islamic boarding schools that transformed the digital era in the agricultural sector, utilizing e-farming as a medium for farming and a digital platform as a marketing tool for Islamic boarding school entrepreneurial products (Sarwenda, 2024). The existence above shows that the choice of Islamic boarding schools to transform in the digital technology era has a positive impact on Islamic boarding school institutions, starting from teachers

(Janawi, 2022; Malla et al., 2023) and students with a background of generations Y, Z, and alpha (Muhith, 2023). The existence of digitalization in Islamic boarding schools has been found in many Islamic boarding schools, starting from digital infrastructure, development of student skills (Subair, 2024), learning processes, and media for preaching (Jannah, 2015; Rifa'i, 2009) Islamic boarding schools to alumni and the community.

Contribution of Digital Technology to Islamic Boarding Schools (Pesantren)

The development of Islamic boarding schools as an Islamic educational institution entity with a traditional predicate (Old-fashioned) can no longer be used as a reference ((Cholil, 2018; Indra, 2019; Subair, 2024), as the findings of the existence of Islamic boarding schools have undergone quite significant transformation, so that Islamic boarding schools deserve to be given the predicate of modern Islamic educational institutions that provide knowledge (Bubandt, 2019; Zulfikar, 2023), science and technology according to the needs of the times (Assa'idi, 2021; Sitanggang, 2024). This condition creates an open space for Islamic boarding schools to carry out optimal development so that they remain in demand by the community. However, important notes about the presence of digital technology and fundamental contributions to Islamic boarding schools raise important questions so that they can be answered objectively. In detail, the existence of accurate contributions of digital technology in Islamic boarding schools (Fatmawati, 2023; Hayah, 2017; Muhith, 2023), as follows:

First, contribution to the development of the administration and management of Islamic boarding schools (Abidin, 2020), Islamic boarding schools in carrying out management transformation are proof of the response to the challenges and developments of the times; Setiawan and Ekaningsih exemplify the existence of Islamic boarding schools that are in the process of paying education fees through virtual accounts (Setiawan & Ekaningsih, 2025), E-Santren as an administrative solution (Nuha et al., 2024), these conditions will be able to increase the efficiency of Islamic boarding school institutions. In addition, the Al-Ustmani Islamic Boarding School in Bondowoso strengthens Islamic boarding school management through strengthening independent digital-based Islamic boarding school businesses (Qizam, 2024; Zaini et al., 2024), these conditions will improve Islamic boarding school infrastructure according to the needs and challenges of the times (Indra, 2020).

Second, the contribution to increasing access to digital-based learning because indirectly access to digital-based learning (Djatmiko, 2021; Jusubaidi et al., 2024; Syakroni, 2019; Zainal, 2022) will be able to develop students' skills in optimizing

technology (Ritonga et al., 2021; Wibowo, 2019), realizing enjoyable learning so that students have a high interest in learning (Ibda, 2023; Putra, 2019; Supraba, 2021). From the teacher's point of view, access to digital-based learning can improve pedagogical competence and teacher discipline (Riski et al., 2024; Yusuf, 2022), so that they can prepare learning optimally (Arif, 2024; Malla et al., 2023). In line with Darwanto et al and Janawi et al who stated that teachers with a pesantren background must be able to adapt by utilizing digital technology as a tool in delivering learning (Darwanto et al., 2024; Janawi et al., 2022), so that teachers must also improve their teaching competencies through seminar and workshop training (Mustas, 2021). Nasution et al emphasized that pesantren as an institution always encourages for teachers to continue to adapt to technological challenges, starting from procuring facilities to establishing partnerships as an effort to strengthen access to digital-based learning (Huda, 2020), so that the learning process can run effectively and efficiently and remain resistant to the pesantren tradition (Nasution et al., 2024).

Third, the contribution of digitalization is to strengthen the interaction between Islamic boarding schools, alumni (Efendy et al., 2023), and the community (Madkur, 2024; Maulana, 2024), the As'adiyah Islamic boarding school in South Sulawesi Province is one example in building relationships and strengthening networks between alumni of Islamic boarding schools through Facebook media to improve the reputation of Islamic religious education (Halim, 2018). The Nurul Ulum Islamic Boarding School also carries out optimization of social media, such as the use of Facebook, Instagram, TikTok and YouTube as a medium for interaction between Islamic boarding schools and the community (Indrioko, 2023), the data above shows that Islamic boarding schools must be able to make digital space an advantage in strengthening interaction between alumni and the community (Maemonah et al., 2023). As noted by Munawaroh and Rahayu, Islamic boarding schools have a main mission in developing Islamic education, namely fostering and strengthening relations with the community (Munawwaroh & Rahayu, 2024), such as the use of digital to provide information on Islamic boarding school hauls (Jannah, 2015), so that the existence of social media becomes an actual medium of benefit.

Fourth, the development of student's skills in utilizing digital technology; the Mambaus Sholihin Islamic boarding school is one example of an Islamic boarding school that provides space for students to develop digital skills properly (Mustas, 2021), several practices for developing students' skills in Islamic boarding schools in utilizing digital technology, such as digital-based learning processes (Bajari, 2019, 2021; Munifah, 2022; Roqib, 2021; Zuhri, 2024), habituation of students' skills in searching for information (Yanti et al., 2024). Training the entrepreneurial spirit of

students (Setiawan, 2024), through the development of the above skills, Islamic boarding schools hope to make students who are adaptive to digital technology (Maulidati & Abbott, 2024), so that the assumption that Islamic boarding schools are backward, old-fashioned, traditional has been broken.

Fifth, the presence of digitalization makes it easier for Islamic boarding schools to spread Islamic preaching rahmatan lil alamin (M. Y. Mustofa et al., 2023), the development of preaching that can only be delivered face-to-face (offline) to virtual preaching (Ismah, 2023; Rifa'i, 2009), through digital media, Facebook (Halim, 2018), website (Supraba, 2021), Supraba, YouTube, WhatsApp and Telegram (Mukhibat, 2019) Rohmatulloh et al. gave an example of the existence of the preaching of KH Ahmad Bahauddin Nursalim (his nickname: Gus Baha') who conveyed the important message of strengthening the moderate character of the Nahdlatul Ulama organization, broadcast live via social media, YouTube, Instagram and TikTok (Rohmatulloh et al., 2022) so that it can reach all elements of society and create a moderate and Islamic community culture (Turhamun et al., 2023).

Based on valid evidence about the contribution of digital technology to Islamic boarding schools, it strengthens the paradigm of Islamic boarding schools that can still exist and adapt to the development of the times (Zulkarnain, 2023). Kardi et al. also revealed that the digital Islamic boarding school trend is also slowly becoming the community's choice, as the emergence of the website www.pesantrenvirtual.com as a source of information for the wider community and a reference in overcoming all life's problems (Kardi et al., 2023). The results of Islamic boarding schools and technology can be an effective solution without reducing traditional Islamic values (Lutfiatun N & Aimah, 2024) as the identity and characteristics that Islamic boarding schools have instilled.

Ideal Model of Digital Islamic Boarding School (Pesantren)

Pesantren is a traditional Islamic educational institution with powerful historical and cultural roots in Indonesia. It has a social role and is directly related to the lowest social structure (M. Bruinessen, 1990; M. V. Bruinessen, 1994; Nilan, 2009). Dhofier added that pesantren is the only guardian and preserver of traditional Islamic culture that continues to exist amidst the challenges of the modern world (Dhofier, 2011; Muhith, 2023). An important note above, Gus Dur provides the view that the existence of pesantren as a subculture that has a mission other than guarding and spreading Islam (Wahid, 2001), but pesantren is present as an agent of social change in society by strengthening the integration of traditional and modern Islamic education models (Fathullah et al., 2023; Malla et al., 2023; Nasution et al., 2024; Putra, 2019; Sarwenda, 2024). So that the birth of the ideal

Islamic boarding school that Islamic scholars dream of is not just a hallucination, one of the series of adaptation processes to technology will make Islamic boarding schools closer to the community (Zafi et al., 2021; Zuhri, 2024) without the limitations of distance and time.

The existence of an ideal Islamic boarding school model is an option that Islamic boarding schools can take to survive various technological challenges (Mukhibat, 2019; Subair, 2024; Yusuf, 2022; Zulfikar, 2023), in line with Giddens' view on the consequences of modernity of traditional educational institutions (Islamic boarding schools) (Giddens, 1990), so that it is necessary to strengthen several elements of Islamic boarding schools through contradictory but complementary phenomena and dynamics, including First, Displacement, and Reembedding, is the process of maintaining the identity of Islamic boarding schools during social change; empirically there is a phenomenon of traditional Islamic boarding schools that are resistant to technological developments (Nisa' & Hidayah, 2025), such as the learning process only using the "halaqah, bandongan and syawir" methods will feel alienated. However, this choice is the right choice amid the importance of maintaining traditional Islamic values to avoid being quickly exposed to negative technological culture (Hollebeek & Belk, 2021; Leidner & Kayworth, 2006). However, it is necessary to respond to the "alienation" of Islamic boarding schools by strengthening the integration of learning with digital technology so that it can reach a more expansive space, such as the development of digital-based books and studies on social media (Bajari, 2019, 2021; Bubandt, 2019; Ritchey, 2014; Zulfikar, 2023).

Second, Intimacy and Impersonality are personal relationships between individuals, namely the relationship between caregivers and students. A norm that cannot be separated from Islamic boarding schools is the emotional and spiritual relationship between teachers and students (Arif, 2024; Arif & Abd Aziz, 2021), so that the presence of digital technology can be a supporter of reducing personal relationships such as the process of paying for Islamic boarding school education based on virtual accounts (Setiawan & Ekaningsih, 2025) and strengthening the digital business of Islamic boarding schools (Zaini et al., 2024). Third, Expertise and Reappropriation, is the balance between expertise and practice based on Islamic knowledge, Islamic boarding schools as Islamic educational institutions must maintain the skills of students by the challenges of digital technology. Such as strengthening digital literacy of students (Fathullah et al., 2023; Malla et al., 2023; Mustas, 2021; Putra, 2019), sharia-based entrepreneurship (Rachmawati et al., 2024; Sarwenda, 2024; Yahya et al., 2024). In addition, Islamic boarding schools can produce students who are experts in making technology, such as the existence of

digital-based yellow books (Meriza et al., 2022), and the maktabah syumilah NU 1.0 (Ibda, 2023) as proof of the existence of Islamic boarding schools in the digital era.

Fourth, Privatism and Engagement are the social roles of Islamic boarding schools, a private foundation that must continue to be strengthened in its implementation, such as the development of digital Islamic preaching content (Darajat et al., 2022; Zakiah et al., 2022), the creation of websites as Islamic preaching by increasing the production of Islamic content (Cahyono et al., 2024; Purbohastuti et al., 2021). So that the ideal Islamic boarding school is an Islamic boarding school as a place to learn and spread digital-based Islamic preaching, especially on social media, such as YouTube (Kuswana & Pauzian, 2023; Raya, 2024; Rohmatulloh et al., 2022), TikTok, Instagram (Amin & Ullah, 2024; Isnaini & Fauzi, 2022; Muvid et al., 2024), Facebook (Halim, 2018), and virtual Islamic boarding school websites. As a concrete step for digitally literate Islamic boarding schools (Indra, 2020), it has a broad reach in society and is a counter narrative to misleading understandings.

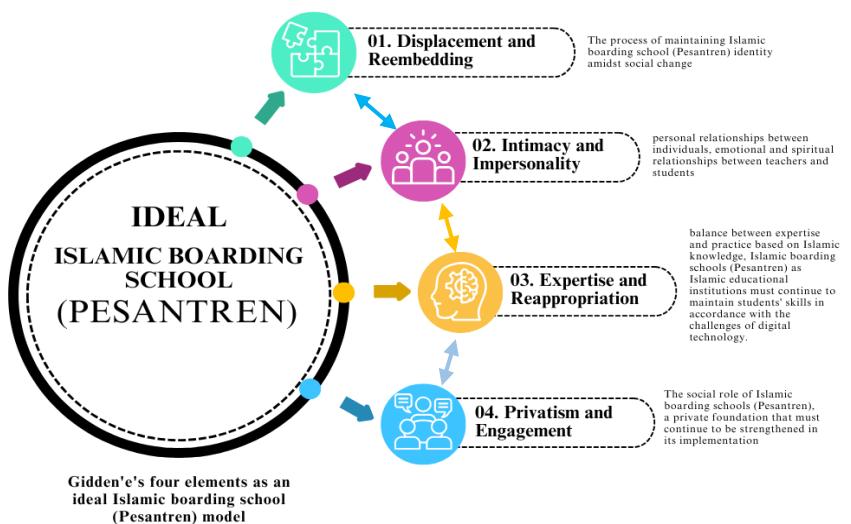


Figure 2. Model of Islamic Boarding Schools from Giddens' four-element perspective

The four elements expressed by Giddens are important in educational institutions, as they are the minimum standard of modern development and massive digital technology (Giddens, 1990). Without exception, the position of Islamic boarding schools as traditional Islamic educational institutions (Azra, 1999; Wahid, 2001) must also be able to remain adaptive to the development of digital technology (M. Y. Mustofa et al., 2023). One concrete step is to implement the four elements of an ideal Islamic boarding school: displacement and re-embedding, intimacy and

impersonality, expertise and reappropriation, and privatism and engagement. Through the above efforts, Islamic boarding schools can still become centers of Islamic education that are relevant, innovative, and have a broad impact without eliminating traditional Islamic values.

D. Conclusion

In short, the transformation of Islamic boarding schools in the digital era can run optimally; this condition can be seen from several empirical research data that mention several digital transformation models, starting from management, administration, learning, formation of digital skills for students, to the fulfillment of digital infrastructure in Islamic boarding schools. The contribution of the existence of digital technology in Islamic boarding schools is very diverse, starting from the development of Islamic boarding school administration and management, increasing access to digital-based learning, strengthening interaction between Islamic boarding schools, alumni, and the community, developing skills for students in utilizing digital and facilitating access to the spread of Islamic preaching which is rahmatan lil alamin. So that the ideal model of Islamic boarding schools is a dream that must be realized, as expressed by Giddens through four important elements in following the development of the modern world and digital technology, namely: displacement and re-embedding, intimacy and impersonality, expertise and reappropriation, and privatism and engagement. Through the above efforts, the ideal Islamic boarding school model can still exist and become a center of Islamic education that is relevant, innovative, and has a broad impact without eliminating traditional Islamic values.

Based on the conclusions above, the theoretical implications of this study are the importance of implementing Giddens' four elements in making Islamic boarding schools ideal in the era of digital technology because, through elements of displacement and re-embedding, intimacy and impersonality, expertise, and reappropriation, and privatism and engagement, Islamic boarding schools will still be able to survive by challenges without eliminating their Islamic education identity. Although limited, this study is still focused on only three problems, namely analyzing the form of Islamic boarding school transformation in the digital era, the contribution of digital technology to Islamic boarding schools, and the ideal model of digital Islamic boarding schools. So, future research suggestions need to be conducted as a case study on Islamic boarding schools that implement the ideal model of Islamic boarding schools through Giddens' four elements.

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