

**Transforming the Digital Ecosystem of Islamic Boarding Schools:  
Evidence from Ash-Shiddiqi Islamic Boarding School, Muaro Jambi**Suci Fitriani<sup>1\*</sup>, Mukhtar<sup>2</sup>, Muhamad Taridi<sup>3</sup>Universitas Islam Negeri Sulthan Thaha Saifuddin Jambi, Indonesia <sup>\*1, 2, 3</sup><sup>1</sup>email: [sucifitriani@uinjambi.ac.id](mailto:sucifitriani@uinjambi.ac.id)<sup>2</sup>email: [mukhtar@uinjambi.ac.id](mailto:mukhtar@uinjambi.ac.id)<sup>3</sup>email: [taridi@uinjambi.ac.id](mailto:taridi@uinjambi.ac.id)**Abstract**

Digital transformation has become a strategic imperative for educational institutions, including Islamic boarding schools, in responding to the challenges and competition of the digital era. This study aims to analyze the transformation of the digital ecosystem and its role in enhancing competitive advantage in Khalafiah Islamic boarding schools through a case study of Ash-Shiddiqi Islamic Boarding School in Muaro Jambi. This research employs a qualitative approach with a case study design. Data were collected through in-depth interviews, observations, and document analysis involving pesantren leaders, teachers, and students. The data were analyzed using thematic analysis. The findings reveal that digital ecosystem transformation at Ash-Shiddiqi Islamic Boarding School involves the implementation of iPad-based learning, the staged development of students' digital literacy, the utilization of digital media for institutional communication and branding, and digital governance supported by strong leadership. This transformation not only improves learning quality and institutional capacity but also enhances transparency, stakeholder engagement, and institutional competitiveness. The study concludes that a well-structured digital ecosystem constitutes a new and powerful source of competitive advantage for Khalafiah Islamic boarding schools when aligned with institutional values and governance.

**Keywords:** Digital Transformation; Digital Ecosystem; Islamic Boarding School; Competitive Advantage; Case Study.

**Abstrak**

Transformasi digital telah menjadi tuntutan strategis bagi lembaga pendidikan, termasuk pondok pesantren, dalam menghadapi dinamika dan persaingan di era digital.

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Penelitian ini bertujuan untuk menganalisis transformasi ekosistem digital serta perannya dalam meningkatkan keunggulan bersaing Pondok Pesantren Khalafiah melalui studi kasus di Pondok Pesantren Ash-Shiddiqi, Kabupaten Muaro Jambi. Penelitian ini menggunakan pendekatan kualitatif dengan desain studi kasus. Data dikumpulkan melalui wawancara mendalam, observasi, dan analisis dokumen yang melibatkan pimpinan pesantren, pendidik, serta santri. Analisis data dilakukan menggunakan analisis tematik. Hasil penelitian menunjukkan bahwa transformasi ekosistem digital di Pondok Pesantren Ash-Shiddiqi mencakup penerapan pembelajaran berbasis iPad, pengembangan literasi digital santri secara bertahap, pemanfaatan media digital untuk komunikasi dan branding institusi, serta tata kelola digital yang didukung oleh kepemimpinan pesantren. Transformasi ini tidak hanya meningkatkan kualitas pembelajaran dan kapasitas internal lembaga, tetapi juga memperkuat transparansi, keterlibatan pemangku kepentingan, dan daya saing pesantren. Penelitian ini menyimpulkan bahwa ekosistem digital merupakan sumber keunggulan bersaing baru bagi pondok pesantren Khalafiah apabila dikembangkan secara terstruktur dan selaras dengan nilai serta tata kelola kelembagaan.

**Kata kunci:** Transformasi Digital, Ekosistem Digital, Pondok Pesantren, Keunggulan Bersaing, Studi Kasus

## A. Introduction

The rapid advancement of digital technologies has significantly reshaped educational landscapes worldwide, pushing traditional institutions to adapt in order to maintain relevance and effectiveness. Islamic boarding schools (pondok pesantren), as enduring educational pillars in Muslim societies, are similarly challenged to integrate digital innovations while preserving their

traditional identity. Recent studies indicate that digital transformation within pesantren can enhance learning processes and institutional management, especially when technology complements religious values and pedagogical goals (Ibrhaim et al., 2025).

Despite these opportunities, pesantren often grapple with infrastructure limitations and the need to balance modern digital tools with

existing cultural and religious frameworks. Transforming the digital ecosystem in such institutions goes beyond introducing new technologies, it involves restructuring curriculum, teacher competencies, and organizational strategies to effectively incorporate digital systems into daily operations without eroding core Islamic teachings. Digital integration in Islamic education management offers both challenges and opportunities that have significant implications for institutional quality and inclusivity

Digital ecosystem transformation is not merely the adoption of information and communication tools; it represents a strategic shift that can enable pesantren to respond to contemporary educational demands more effectively. Integration of digital tools improves administrative efficiency, facilitates communication with stakeholders, and creates dynamic learning environments that resonate with today's digital native learners. For example, research in Islamic education management finds that digital transformation can lead to more inclusive and effective educational services by addressing gaps in access

and providing opportunities for pedagogical innovation (Istibana & Aimah, 2025).

Furthermore, digital integration supports pesantren in enhancing competitive advantage by improving institutional visibility, operational agility, and educational outcomes. Through strategic use of digital platforms, Islamic boarding schools can foster broader engagement with students and communities, enriching both the traditional religious curriculum and modern competencies. This integration aligns with broader educational trends that prioritize adaptive learning environments and digital literacy, which are essential for sustaining relevance in the digital era (Nugroho & Astutik, 2024).

Although existing literature highlights digital transformation in Islamic educational contexts broadly, there is limited empirical research focusing specifically on digital ecosystem transformation within Khalafiah Islamic boarding schools—a unique educational model that combines classical Islamic teachings and modern educational systems. Most available

studies address general digitalization trends or narrow aspects of pedagogy, leaving a gap in understanding how digital ecosystems are designed, implemented, and leveraged to strengthen competitive advantage in pesantren contexts.

More importantly, there is a lack of detailed case studies examining local pesantren environments like Ash-Shiddiiqi Islamic Boarding School in Muaro Jambi, which face distinct contextual factors such as regional resource constraints, unique community expectations, and institutional cultures. Case-focused research is needed to produce nuanced insights into practical strategies, leadership roles, and contextual challenges that pesantren encounter during digital transformation processes. This gap presents an opportunity to deepen understanding of digital adaptation practices in Islamic education that maintain religious integrity while fostering modern relevance.

This study aims to investigate the digital ecosystem transformation at Khalafiah Islamic boarding schools through an in-depth case study of Ash-

Shiddiiqi Islamic Boarding School in Muaro Jambi. Specifically, it seeks to explore the key components of digital transformation, identify strategic practices and challenges, and evaluate their contribution to enhancing the institution's competitive advantage in the digital era. The goal is to produce empirical evidence that enriches academic discourse and provides actionable insights for pesantren leaders and policymakers.

By focusing on a real-world case, this research intends to bridge existing knowledge gaps and offer a contextualized framework that pesantren can adopt to optimize digital integration while safeguarding their religious mission. The outcomes are expected to provide theoretical contribution to digital education literature and practical guidance for Islamic boarding schools aspiring to leverage digital ecosystems as drivers of institutional excellence.

## **B. Method**

This study adopts a qualitative approach using a case study design to explore the process of digital ecosystem transformation in Khalafiah Islamic boarding schools. The case study

approach enables an in-depth understanding of digital transformation as a complex phenomenon embedded within its real-life institutional context.

The research was conducted at Ash-Shiddiqi Islamic Boarding School in Muaro Jambi, selected purposively due to its active implementation of digital technologies in educational and managerial practices. Data were collected through in-depth interviews, observations, and document analysis, involving pesantren leaders, teachers, administrative staff, IT personnel, and students.

Data analysis was carried out using thematic analysis, involving data reduction, coding, theme identification, and interpretation. To ensure research trustworthiness, triangulation of data sources and methods was applied. Ethical considerations were addressed through informed consent, confidentiality, and respect for institutional values.

### C. Result and Discussion

#### Digital Transformation of Learning Practices

The findings indicate a fundamental transformation in learning practices through the adoption of iPad-based

instruction. Digital devices have replaced printed textbooks, enabling students to access learning materials, online references, and multimedia content more efficiently.

“Now we use iPads for learning. All materials are digital in one device. We can access the internet to find additional references and watch learning videos.” (Student 1)

“From grade 7 to grade 12, all students are now using iPads in daily learning activities.” (Pesantren Leader)

The findings demonstrate that the adoption of iPad-based learning represents a substantial transformation from conventional textbook-centered instruction to digitally mediated learning. This shift enables centralized access to learning materials, multimedia resources, and online references, thereby increasing efficiency and learner autonomy. The daily and structured use of digital devices across all grade levels indicates that digital learning is institutionalized rather than experimental.

This transformation also reflects a move toward learner-centered pedagogy, where students actively seek information, engage with multimedia content, and participate in project-based

learning. The replacement of printed materials reduces logistical constraints while expanding access to diverse and up-to-date knowledge sources.

The findings of this study show that the adoption of iPads has reshaped traditional learning into digitally mediated instruction. This shift reflects a broader global trend in education where digital tools enhance access to diverse, up-to-date learning resources and support learner autonomy. Digital transformation in education is not only about technology use but also about altering pedagogical practices to create more adaptive and interactive learning environments (Prayogi et al., 2025).

This result resonates with prior research in Islamic boarding schools, where digital integration improves specific educational outcomes, such as Qur'anic memorization and understanding, while also presenting challenges related to infrastructure and balancing tradition with innovation (Hasan et al., 2023).

By moving away from textbook dependency to device-based learning, Ash-Shiddiqi demonstrated an application of digital transformation that

aligns with global patterns identified in broader educational research, emphasizing the role of digital technologies in enhancing accessibility and quality of learning (Mukul & Büyüközkan, 2023)

### **Development of Students' Digital Literacy and Creative Skills**

Digital literacy development is systematically implemented through extracurricular programs and a tiered competency system. Students are trained not only to consume digital content but also to create educational and promotional digital products.

“We have levels—level one for basic skills, level two for creating digital works, and level three where students can work independently and responsibly.” (Pesantren Leader)

“We are taught how to make videos, edit content, and manage social media through digital extracurricular activities.” (Student 2)

The tiered digital competency system (Level 1–3) reflects a structured approach to developing students' digital literacy. Rather than allowing unrestricted access to technology, the pesantren regulates digital engagement through progressive skill development

and evaluation. This approach ensures that students move from basic operational skills to creative production and responsible digital autonomy.

Extracurricular programs focused on content creation further strengthen students' creative and critical digital skills. This indicates that digital literacy is conceptualized not only as technical proficiency but also as creative and ethical digital engagement.

This approach aligns with frameworks of digital literacy that emphasize cognitive, creative, and ethical dimensions (Lilian, 2022). Prior studies suggest that structured digital literacy programs are essential in preventing negative digital behaviors while maximizing educational benefits (Tang & Chaw, 2016).

In the pesantren context, earlier research often reports concerns regarding uncontrolled internet use (Setiawan, 2012). This study contributes new insight by demonstrating how a regulated and staged digital literacy model can address these concerns while fostering creativity. Thus, the findings support the argument that digital literacy development must be embedded within

institutional values and governance structures.

### **Institutional Digital Innovation and Media Integration**

The pesantren actively integrates digital platforms into institutional communication and branding strategies. Social media and digital media infrastructure play a key role in increasing institutional visibility and public engagement.

“Now Ash-Shiddiiqi can be accessed easily through YouTube, Instagram, and Facebook. We already have an official channel and digital content.” (Pesantren Leader)

“There is a recording studio now, so videos for learning and documentation look more professional.” (Student 1)

The integration of social media platforms, official websites, and a recording studio illustrates how digital technology is utilized for institutional communication, documentation, and branding. Digital media are not only informational tools but also strategic instruments for shaping public perception and institutional identity.

The involvement of students in content production indicates participatory digital innovation, where

learners contribute directly to the digital ecosystem. This participatory approach enhances students' digital competencies while strengthening institutional visibility.

This finding aligns with studies on digital branding in educational institutions, which emphasize the role of social media in enhancing reputation, transparency, and stakeholder engagement (Peruta & Shields, 2018). Research on Islamic educational institutions similarly notes that digital platforms are increasingly important for institutional sustainability and outreach (Nikmatullah et al., 2023)

The presence of a digital studio reflects an advanced stage of digital maturity, supporting the notion that infrastructure investment is a critical component of digital ecosystem development (Adner, 2017). This study extends prior research by highlighting how pesantren leverage digital media not only for promotion but also for internal capacity building.

### **Digital Ecosystem as a Source of Competitive Advantage**

The digital ecosystem enhances the pesantren's competitiveness by

increasing transparency, strengthening stakeholder trust, and differentiating it from more traditional pesantren.

“Parents can see our activities in real time through social media, so the pesantren feels more open and transparent.” (Student 2)

“Using iPads and digital systems makes this pesantren different from others.” (Student 1)

The digital ecosystem enhances the pesantren's competitive advantage by increasing transparency, accessibility, and differentiation. Digital platforms allow parents and stakeholders to monitor activities in real time, fostering trust and institutional credibility.

The combination of digital learning systems, media presence, and governance structures positions the pesantren as a modern yet values-based institution. This differentiation strengthens its appeal in an increasingly competitive educational landscape.

This finding aligns with the resource-based view and digital strategy literature, which argue that digitally embedded capabilities can function as strategic assets (Bharadwaj et al., 2013). In education, digital ecosystems have been shown to enhance institutional competitiveness through improved

service quality and stakeholder engagement (Subramaniam, 2020).

#### **D. Conclusion**

This study examined the transformation of the digital ecosystem in a Khalafiah Islamic boarding school and its implications for institutional competitiveness. The findings reveal that digital transformation in pesantren is not limited to the adoption of educational technology but represents a holistic and strategic process involving digital learning practices, digital literacy development, institutional media integration, and governance structures. The implementation of iPad-based learning, supported by structured digital literacy programs and tiered competency levels, demonstrates a systematic effort to integrate technology into the core educational process while maintaining institutional values.

Furthermore, the study shows that the development of digital infrastructure such as digital media platforms and a recording studio plays a critical role in strengthening institutional visibility, transparency, and stakeholder engagement. Leadership driven digital

governance ensures that technology adoption is aligned with long-term institutional goals and ethical considerations. These elements collectively form a digital ecosystem that enhances not only learning quality but also organizational capacity and adaptability.

Most importantly, this study extends existing literature on pesantren competitiveness by demonstrating that digital ecosystems constitute a new and powerful source of competitive advantage for Islamic boarding schools. Unlike prior studies that primarily emphasize curriculum quality and physical facilities, this research highlights digitally embedded capabilities as strategic assets that differentiate pesantren in an increasingly competitive educational landscape. By embedding digital transformation within institutional values and governance structures, Islamic boarding schools can leverage digital ecosystems to achieve sustainable competitiveness without compromising their religious and educational identity.

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