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KIAI LEADERSHIP AND INFORMATION GOVERNANCE IN PESANTREN: A LITERATURE-BASED CONCEPTUAL ANALYSIS

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Abstract

Kiai leadership plays an important role in determining institutional policies, organizational management, and the development of information systems within Islamic boarding schools (pesantren). Along with the advancement of information technology, pesantren face increasing demands to manage information effectively, accurately, systematically, and accessibly to support educational activities, administrative processes, and decision-making. In the context of Management Information Systems (MIS), kiai leadership is not only concerned with decision-making and the development of Islamic values but also involves guiding the use of information and technology in pesantren governance. This study aims to conceptually analyze the relationship between kiai leadership and information governance in pesantren through a review of relevant literature. This research employs a qualitative approach using a literature review method by examining scholarly sources discussing kiai leadership, pesantren management, management information systems, and information governance. The analysis is conducted descriptively by identifying relevant concepts, leadership roles, and information management principles that address the needs of pesantren. The conceptual review indicates that kiai leadership can serve as an important factor in shaping information management policies, encouraging technology adoption, strengthening coordination among organizational units, and promoting accountability and trust in data management. Effective information governance also requires human resource support, clear task allocation, standardized data management procedures, information security, and adequate technological infrastructure. This study concludes that kiai leadership and information governance are interconnected aspects that can support the effectiveness of pesantren management. Therefore, integrating adaptive leadership, Islamic values, and structured information management can provide a conceptual foundation for developing Management Information Systems in pesantren.

Keywords: *Kiai Leadership; Information Governance; Islamic Boarding Schools; Management Information Systems; Literature Review.*

INTRODUCTION

Developments in information technology have brought changes to many aspects of organizational management, including Islamic educational institutions such as pesantren. Pesantren function not only as educational institutions that teach religious knowledge and shape the character of students (*santri*) but also as organizations that require structured management of administration, data, communication, and information. In the context of Management Information Systems (MIS), information plays an important role in supporting educational activities, the

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management of santri data, the administration of educators, the delivery of information to parents, and decision-making by pesantren leaders. Using digital technology can help improve the efficiency and accuracy of information management, but its application needs to be adjusted to the needs, characteristics, and values that underlie pesantren life. Nugroho and Astutik (2024) explain that the use of digital technology in pesantren education can support the learning process, although its application also faces challenges related to infrastructure and institutional readiness. Therefore, developing information systems in pesantren needs to be understood not merely as the use of technology but as part of efforts to improve the quality of institutional governance.

Kiai leadership is an important element in determining the direction of development and management of pesantren. The kiai holds the position of religious leader, educator, moral guide, and director of institutional policy. This position means that the kiai's decisions and directions can influence the acceptance of change, the division of responsibilities, and the implementation of information management systems in the pesantren environment. In facing technological developments, kiai leadership is required to preserve pesantren traditions while opening space for innovation that suits institutional needs. Bahri, Wahid, and Najiburrahman (2024), in their study of pesantren digital transformation, show that the kiai plays a role in encouraging the use of technology to improve educational services, including through an online registration system. These findings show that leaders' involvement is relevant to the process of using technology in pesantren. Thus, kiai leadership needs to be examined in relation to information management, particularly in setting policy, directing the use of technology, and ensuring that the information managed can support institutional needs.

As the need for information management grows, pesantren also face a number of challenges, such as data recording that is not yet integrated, a limited number of human resources with technological skills, and suboptimal use of information systems to support decision-making. Information governance relates not only to the storage and delivery of data but also covers the accuracy of information, the division of access authority, data security, and the responsibility of those who manage it. If information is not managed in a structured way, administrative processes and coordination among units can be hindered, potentially affecting the effectiveness of pesantren management. In this regard, the study by Bahri et al. (2024) shows that the use of digital platforms in pesantren can increase transparency and communication efficiency between institutional managers and the community. However, these benefits need to be supported by clear policy, competent human resources, and continuous supervision. Therefore, information governance needs to be positioned as an important part of the Management Information System so that available information can be used appropriately to support operations and the achievement of pesantren goals.

The relationship between kiai leadership and information governance also relates to efforts to balance institutional modernization with the preservation of pesantren values. Applying technology should not erase the distinctive character of pesantren, which upholds religious values, respect for teachers, *amanah*, deliberation (*musyawarah*), and devotion (*khidmah*). On the contrary, technology can be used to strengthen the implementation of these values through information management that is more orderly, transparent, and accountable. Hafidurrahman (2025), in a study on kiai digital leadership based on pesantren values, explains that digitalization can support transparency, accountability, and efficiency without replacing the kiai's authority. The study also highlights the importance of the values of *amanah*, *syura* (deliberation), and *khidmah* in guiding digital change in the pesantren environment. This finding provides a conceptual basis that the success of information governance depends not only on technological sophistication but also on a leader's ability to set policy direction, build trust, divide responsibilities, and ensure that technology use remains in line with institutional identity. Thus, kiai leadership can be understood as a strategic element in building pesantren information governance that is adaptive and grounded in Islamic values.

Although research on pesantren digital transformation and kiai leadership has grown, the relationship between kiai leadership and information governance from a Management Information System perspective still needs more focused study. Some studies emphasize technology use in learning, improving the quality of educational services, or applying digital leadership. Yet information management also includes planning information needs, collecting and

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processing data, storage, information distribution, access control, and its use as a basis for decision-making. The relationships among these aspects need to be understood so that implementing information systems does not stop at using applications but truly supports institutional governance. Based on the studies by Nugroho and Astutik (2024) and Hafidurrahman (2025), it can be understood that technology use in pesantren requires attention to institutional readiness, leadership support, and the preservation of values that form pesantren identity. However, the findings of those studies do not directly prove that all pesantren already have effective information governance. Therefore, a literature-based conceptual analysis is needed to identify the links among the kiai's role, information governance principles, and the application of Management Information Systems in the pesantren context.

Based on this description, this study aims to conceptually analyze the relationship between kiai leadership and pesantren information governance through a review of relevant literature. The discussion focuses on the kiai's role in directing information management policy, the use of Management Information Systems, strengthening institutional coordination, and applying the principles of *amanah*, transparency, accountability, and information security. The study also seeks to identify factors that can support or hinder information management in the pesantren environment, particularly those related to leadership, human resource readiness, technology availability, and organizational characteristics. The results are expected to give a more comprehensive understanding of the importance of kiai leadership in supporting effective information governance without neglecting Islamic traditions and values. In addition, this study is expected to serve as a conceptual consideration for pesantren leaders and managers in developing Management Information Systems that fit institutional needs, support decision-making, and sustainably improve the quality of pesantren management.

METHODS

This study uses a qualitative approach with the *library research* method. The method was chosen because the study focuses on a conceptual examination of kiai leadership and pesantren information governance based on various relevant written sources. The library research was carried out by searching, reading, and examining scholarly sources, such as books, journal articles, and previous research results, to build an understanding of the problem under study. According to Fadli (2021), qualitative research can use library study by gathering and reconstructing information from various available sources. Thus, this method is suitable for examining the relationship among kiai leadership, management information systems, and information management in the pesantren environment.

The data sources of this study are secondary data obtained from scholarly journal articles, academic books, and other scholarly publications related to kiai leadership, information governance, Islamic education management information systems, and pesantren digital transformation. The literature was selected based on its relevance to the research focus, the clarity of publication identity, and its contribution to explaining the problem under study. The study prioritized sources published in the last five years so that the discussion takes recent developments in the field into account. Selecting sources that match the focus of the study is important so that the library analysis is based on relevant and accountable material (Fadli, 2021).

Data were collected through literature searching and documentation. The search used keywords such as kiai leadership, pesantren information governance, Islamic education management information systems, digital leadership, and pesantren digital transformation. The sources found were then selected by reviewing titles, abstracts, and the content of their discussions to ensure fit with the research objectives. Literature without a direct link to the study's focus was not used as the main basis of analysis. This procedure is in line with the characteristics of library research, namely collecting and examining various written sources relevant to the research problem (Assyakurrohim et al., 2023).

The collected data were analyzed using descriptive and interpretive *content analysis*. The analysis stages included identifying main concepts, grouping information by research theme, comparing views from various sources, and interpreting the relationship between kiai leadership and pesantren information governance. Qualitative analysis emphasizes understanding the

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meaning and interconnection of information, not merely statistical data processing (Fadli, 2021). Through these stages, the study seeks to explain how kiai leadership relates to information management, organizational communication, technology use, transparency, and accountability in running pesantren education.

To keep the analysis accurate, information from various literature was compared based on the fit of context and substance. Conclusions were drawn through a synthesis of the relevant findings and ideas from the sources reviewed, not based on a single source. Thus, the study is expected to produce a conceptual understanding of the relationship between kiai leadership and pesantren information governance and to explain the importance of information management that is focused, effective, and mindful of pesantren values and institutional characteristics.

DISCUSSION

Kiai Leadership in Pesantren Management

The kiai is a central figure in pesantren life who guides students, determines the direction of education, preserves Islamic values, and directs the running of the institution. In managing a pesantren, kiai leadership relates not only to religious authority but also to decision-making, the guidance of administrators, and the development of educational services. Technological developments make this role even more important because leaders need to ensure that changes in management systems remain consistent with the pesantren's goals and characteristics. (Bahri et al., 2024)

Developments in digital technology encourage the kiai to adapt to increasingly complex pesantren management needs. This adaptation does not mean that the kiai must do all the technical work, but the kiai needs to give direction and policy so that technology use can support educational activities. Bahri, Wahid, and Najiburrahman (2024) discuss the kiai's role in pesantren digital transformation to improve educational services, including the use of online registration. This shows that leadership support is one important element in encouraging technology use in the pesantren environment. (Bahri et al., 2024)

Kiai leadership in digital transformation also needs to preserve the values that form pesantren identity. Hafidurrahman (2025) examines kiai digital leadership based on pesantren values and its relation to good governance. The study emphasizes that digital transformation can be carried out while maintaining the kiai's role, while technical tasks can be assigned to administrators or staff with competence in the relevant fields. Thus, kiai leadership can serve as the director of change as well as the guardian of the values of *amanah*, deliberation, and devotion in pesantren management. (Hafidurrahman, 2025)

Information Governance in Pesantren Management Information Systems

Information governance in pesantren relates to the processes of collecting, recording, storing, processing, and delivering information to support institutional activities. Such information can take the form of data on students, learning administration, finance, educators, and institutional activities. Orderly information management helps administrators obtain the data they need and makes it easier to deliver information to interested parties. In the context of pesantren digital transformation, technology can serve as a means of supporting educational services and improving communication processes. (Bahri et al., 2024)

Information systems can be implemented in stages according to pesantren needs and capabilities. Managers can start by improving recording procedures, setting out the division of responsibilities, and organizing document storage before expanding the use of digital applications. Bahri et al. (2024) discuss the use of digital technology in pesantren services, including online registration, as a form of change in educational service processes. Based on that study, applying technology should be directed at solving real management needs, not merely following technological trends. (Bahri et al., 2024)

Besides the availability of technology, information governance needs to pay attention to the accuracy and regularity of data. Data that are not updated or are inconsistent can make it difficult for administrators to prepare reports and help leaders determine policy. Therefore,

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pesantren need to set procedures for checking, updating, and storing data periodically. This explanation of data quality is a conceptual analysis from a Management Information System perspective; the source Bahri et al. (2024) supports the context of technology use in pesantren services but does not by itself prove all aspects of data quality management. (The author's analysis based on the context of Bahri et al., 2024)

Information governance also needs to attend to security and the restriction of access rights. Students' personal information and internal pesantren documents need to be protected so that they are not used or disseminated by unauthorized parties. Managers can apply task-based access restrictions, strong passwords, and periodic document backups. These security and access-rights aspects are conceptual recommendations to complement the discussion of information governance; the three journals used are not sufficient to serve as specific evidence of the effectiveness of each security measure.

The Relationship Between Kiai Leadership and Pesantren Information Governance

Kiai leadership and information governance have a mutually complementary relationship. The kiai plays a role in setting policy direction and preserving institutional values, while information helps leaders understand the condition of the pesantren and determine appropriate steps. Well-managed information can support decision-making on educational activities, administration, and services to students. Bahri et al. (2024) discuss how the kiai's role supports digital transformation to improve pesantren educational services. This forms a basis for understanding the importance of leadership support in developing technology-assisted information management. (Bahri et al., 2024)

This relationship can be seen in everyday decision-making. For example, data on the number of applicants, dormitory capacity, the availability of teaching staff, and learning facilities can be used as considerations in admitting new students. Information on learning activities can also help administrators evaluate the implementation of educational programs. The use of technology to support service processes such as online registration is discussed by Bahri et al. (2024). The examples of using data to determine dormitory capacity and evaluate programs, meanwhile, are illustrations of applying Management Information Systems developed in the author's analysis. (Bahri et al., 2024; author's analysis)

Although information can help decision-making, pesantren decisions should not depend solely on data or applications. Information needs to be interpreted based on actual conditions, educational goals, and the values the pesantren upholds. The kiai together with administrators still needs to consider the condition of students and the impact of decisions on educational and social life. This idea is in line with Hafidurrahman's (2025) discussion of digital leadership that remains grounded in pesantren values. (Hafidurrahman, 2025)

Hafidurrahman (2025) links kiai digital leadership with good pesantren governance based on values such as *amanah*, deliberation, and devotion. In the context of information management, *amanah* can be applied through responsibility in safeguarding data, deliberation through discussing information before making joint decisions, and devotion through using technology to improve educational services. Translating these values into information management procedures is a conceptual development of the idea of digital leadership based on pesantren values. (Hafidurrahman, 2025; author's analysis)

Opportunities and Challenges of Digital Transformation in Pesantren Information Governance

Digital transformation gives pesantren opportunities to improve administrative efficiency, broaden access to information, and ease educational services. Technology can help with document storage, the delivery of announcements, student registration, and communication with parents. Bahri et al. (2024) discuss the kiai's role in supporting digital transformation to improve pesantren educational services. Meanwhile, Nugroho and Astutik (2024) examine digital transformation in

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pesantren education, particularly Qur'an memorization (*tahfiz*) education, and report the benefits of technology for the learning process. Both studies show that technology has the opportunity to support services and educational activities when used according to institutional needs. (Bahri et al., 2024; Nugroho & Astutik, 2024)

One challenge of digital transformation is the difference in infrastructure readiness and technology access among pesantren. Limited devices, internet networks, and supporting resources can hinder the implementation of digital systems. Nugroho and Astutik (2024) highlight limited access to technology and the importance of balancing technology use with traditional learning methods. Therefore, pesantren need to adjust technology implementation to the capabilities available and develop it gradually. (Nugroho & Astutik, 2024)

Another challenge is human resource readiness. Administrators and administrative staff need to understand how to use the system, manage documents, and maintain the accuracy of information. If technology implementation is not accompanied by a division of tasks and improved user capability, a system that should ease work can create new obstacles. Nugroho and Astutik (2024) discuss the need to attend to access limitations and the balance of technology use in pesantren education. Meanwhile, the need for administrative training and the division of responsibilities in information governance are recommendations developed through the author's analysis. (Nugroho & Astutik, 2024; author's analysis)

Information security is also a challenge in using digital systems. Electronic data management requires access rules and storage procedures so that important documents are not easily lost or misused. Pesantren can consider strong passwords, data backups, and task-based access restrictions. However, these security measures are practical recommendations within a conceptual analysis, not specific findings that can be claimed to come directly from the three main journals used.

A Conceptual Model of Kiai Leadership and Pesantren Information Governance

Based on the literature review, the relationship between kiai leadership and pesantren information governance can be understood through several elements: leadership direction, the information management process, technological and human resource support, and evaluation and accountability. The kiai gives policy direction and ensures that technology use matches the goals and values of the pesantren. Administrators and administrative staff carry out information management according to their duties, while technology functions to support the recording, storage, and delivery of information. This model is a conceptual synthesis developed from the discussion of pesantren digital transformation and kiai leadership. (Bahri et al., 2024; Hafidurrahman, 2025)

In this model, the division of roles is an important element. The kiai is responsible for giving direction and setting policy, while administrators or competent staff can handle technical work. This division allows information management to run in a more orderly way without removing the kiai's role in safeguarding institutional identity. The idea is in line with the discussion by Hafidurrahman (2025), who examines digital leadership based on pesantren values and the division of roles in supporting good governance. (Hafidurrahman, 2025)

This conceptual model also requires periodic evaluation to find out whether information management supports pesantren needs. Evaluation can cover data accuracy, ease of document retrieval, speed of service, information security, and clarity of accountability. Evaluation results can be used to improve procedures, increase managers' capability, or adjust the technology used. These evaluation aspects are the author's conceptual proposal for developing good governance principles in the pesantren context, not an evaluation model that has been empirically tested by the sources above. (Hafidurrahman, 2025)

Overall, kiai leadership and information governance are two elements that can support each other in pesantren management. Leadership provides direction and a value foundation, while information governance helps provide data to support service, coordination, and decision-making.

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Bahri et al. (2024) highlight the kiai's role in supporting the digital transformation of educational services, Hafidurrahman (2025) links digital leadership with pesantren values and good governance, and Nugroho and Astutik (2024) discuss opportunities and challenges of technology in pesantren education. A synthesis of these three sources shows that developing information systems needs to be adjusted to institutional readiness and remain grounded in the characteristics of pesantren education. (Bahri et al., 2024; Hafidurrahman, 2025; Nugroho & Astutik, 2024)

CONCLUSION

Based on the literature review, it can be concluded that kiai leadership plays an important role in supporting information governance in the pesantren environment. The kiai functions not only as a religious leader and educator but also plays a role in setting policy direction, guiding administrators, and ensuring that pesantren management runs in line with the goals of Islamic education. In facing developments in digital technology, kiai leadership is needed to direct technology use so that it can improve service quality and the effectiveness of institutional management without removing the values that form pesantren identity.

Information governance is an important part of the Management Information System because it helps pesantren manage data and information in an orderly way, from collection, recording, storage, and processing to the delivery of information. Good information management can support administration, educational services, communication, and decision-making. Therefore, pesantren need to attend to data accuracy, clear division of tasks, information security, and orderly management procedures so that the information used can be trusted and fits institutional needs.

The relationship between kiai leadership and information governance shows that the two complement each other in supporting pesantren management. Kiai leadership gives direction and a value foundation, while information systems help provide the data needed to support policy implementation. Using digital technology can increase ease of access to information, administrative efficiency, and the quality of educational services. However, technology use still needs to be accompanied by human resource readiness, supporting facilities, and clear management procedures so that its application can be effective and sustainable.

Digital transformation in pesantren also presents challenges, such as limited infrastructure, differences in managers' abilities, and information security risks. To address these challenges, information systems need to be implemented in stages according to pesantren needs and capabilities. In addition, training for administrators, the division of access rights, data backups, and periodic evaluation need attention to sustain information management. All these efforts must remain grounded in pesantren values, such as *amanah*, deliberation, and devotion, so that technological development does not displace the character of Islamic education that underlies pesantren.

Thus, effective pesantren information governance depends not only on technology use but also requires kiai leadership able to direct change, competent human resources, and an orderly and responsible information management system. Based on the conceptual analysis of the literature reviewed, the combination of kiai leadership, technology use, and the application of pesantren values has the potential to support pesantren management that is more effective, transparent, and accountable. Because this study is based on library research, the conclusion is a conceptual synthesis and still requires field research to find out how it is applied directly in various pesantren.

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