

Edisi : Vol. 10, No. 1, April/2026, hlm. 172-190

Higher Education Transformation through Information Technology and Religious Wisdom

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Abstract

This research aims to analyze the actual conditions and formulate a model of university transformation through the integration of religious wisdom and information technology in the implementation of the tridharma of higher education at Ibn Khaldun University, Bogor. The research uses a mixed methods approach with Soft Systems Methodology (SSM). The research respondents totaled 434 people, consisting of 60 lecturers and 374 students, selected using purposive sampling. Data was collected through questionnaires, observations, documentation, Focus Group Discussions (FGDs), and document review. Data validation was carried out through triangulation of sources and methods, while data analysis used seven stages of SSM and descriptive statistics. The results of the study show that integrating religious values and information technology into teaching has gone well, especially for lecturers, while the research and community service aspects of students still need strengthening, particularly in the use of digital technology and in the internalization of religious values. Based on these findings, a development model was formulated comprising religion-based RPS preparation, interactive digital content development, information technology-based research training, digital-based community service, and periodic evaluation through an integrative system. This model is expected to realize the tridharma of higher education: adaptive, integrated, and grounded in religious values.

Keywords: Religious Wisdom; Information Technology in Education; Higher Education Development; Soft Systems Methodology.

INTRODUCTION

Higher education not only plays a role in improving the quality of Human Resources (HR) but also in building civilization and community welfare (Noordin, 2003). In the global context, higher education plays a central role as the main foundation of sustainable development. Its contribution is not limited to improving individual literacy and capacity,

but also includes poverty alleviation, health improvement, gender equality, economic growth, industrial innovation, and environmental conservation. This positions education as a key catalyst for achieving the Sustainable Development Goals (SDGs) by bridging knowledge transformation with real social change.

Social change supported by education has been evident since the golden age of Islamic civilization. Bayt al-Hikmah in Baghdad during the reign of Al-Ma'mun (813–833 AD) became an important scientific center, while in Cordoba, the development of science flourished under Abdurrahman II (822–852 AD), marked by the establishment of universities and the expansion of mosques. While Islamic civilization was experiencing rapid progress, Europe was still in the dark Middle Ages (Karim in Kodrat, 2021). From this history, it is clear that Islam emphasizes adaptation and intellectual openness. Islamic education is not stagnant; on the contrary, Islamic education allows for the integration of religious values with the dynamics of social change and technological advancement. This approach encourages critical thinking on contemporary issues while making productive use of modern technology in the learning process and community development (Rahman & Nurjanah, 2025).

Learning and community development are integral to higher education's goals, as reflected in the Tridharma of Higher Education, which distinguishes it from previous levels of education. Along with the advancement of information technology, higher education institutions have a strategic opportunity to undertake digital transformation to improve the quality of Tridharma implementation—education, research, and community service—in a more effective, inclusive, and sustainable way. Most higher education institutions have utilized information technology, especially since the COVID-19 pandemic (Widyasari, Nugroho, & Permanasari, 2019). However, this utilization has not been fully integrated with the development of student character values. Therefore, synergy between technology and strengthening religious wisdom is needed so that digital transformation does not ignore the nation's cultural and spiritual identity (Sa'diyah, 2019).

Religious wisdom is an important component in shaping students' moral and ethical character. Higher education must not only produce academically competent graduates, but also those who uphold integrity and spirituality (Maulana & Sa'diyah, Bahruddin, 2024). This phenomenon has become a concern not only in faith-based universities but also in various public educational institutions. This aligns with Karim's (2024) view that religious education plays a central role in realizing a global ethics grounded in values of tolerance, justice,

equality, openness, and harmony. These values can be meaningfully internalized in individual lives and in institutional practices within the educational environment.

Various previous studies have highlighted the importance of information technology in supporting academic activities and campus services (Noordin, 2003; Hulkin & Santosa, 2023), as well as the role of religiosity in character education and strengthening the identity of Islamic universities (Sa'diyah, 2019; Maulana & Sa'diyah, Bahruddin, 2024; Hakim & Haryadi, 2025). However, most of these studies still address the two aspects separately and have not integrated them into a systematic framework for university transformation. In fact, integrating science and religious values is a strategic agenda for the development of Islamic higher education in the digital era (Sulaeman, 2025). In addition, previous research has tended to focus on the implementation aspect without offering a conceptual model that explains the dynamics of actors, relationships, and system tensions in the process of institutional transformation.

This research is based on concerns about the challenges faced by universities grounded in religious values in integrating information technology with their religious foundations, which becomes institutional identity. In practice, the integration is still underway and has not been built into an integrated system, indicating a gap between the vision and the reality of implementation. Therefore, an approach is needed that can holistically map the problem's complexity while formulating feasible, context-specific changes. This research aims to analyze current conditions and develop a model for transforming higher education through the integration of information technology and religious wisdom.

RESEARCH METHOD

This study uses *a mixed methods approach* to analyze the integration of religious wisdom and information technology in the implementation of the Tridharma of higher education. This approach was chosen because it can combine quantitative and qualitative methods to provide a more comprehensive and in-depth understanding of research problems (Almeida, 2018). The research will be carried out at UIKA Bogor in 2025, with analysis units including institutional policies, the implementation of the Tridharma, and the academic community's perception of the integration of religious values and information technology. The research respondents totaled 434 people, consisting of 60 lecturers and 374 students, who were selected using *purposive sampling* based on involvement in academic activities. This

technique is used because it allows researchers to select relevant respondents and provide information in depth and in context to the research's needs (Tajik, 2025).

The research instrument is a 60-item questionnaire that covers two main dimensions: religious wisdom and information technology. Both dimensions are measured in the aspects of education, research, and community service. The assessment uses a Likert scale of 1–5. Questionnaire data were analyzed using IBM SPSS Statistics, with descriptive statistics including means, frequencies, and percentages. The mean value is obtained by dividing the number of respondent scores by the number of respondents for each indicator.

Data collection is also carried out through direct observation in the campus environment, documentation of the Semester Learning Design, curriculum, research reports, and community service programs, as well as Focus Group Discussions (FGD) with lecturers and students to explore perspectives and experiences related to the integration of religiosity and information technology. The research data were analyzed using Soft Systems Methodology (SSM) (Checkland, 2015) through seven stages: problem identification, problem situation mapping, root definition using CATWOE, preparation of conceptual models, comparison with real conditions, determination of feasible changes, and preparation of action recommendations. Data validity is maintained through source triangulation and triangulation techniques.

RESULTS AND DISCUSSION

RESULTS

Step 1: Problem Situation (Survey Results)

Problem identification is carried out through the collection of information from various sources, including direct observation, the researcher's experience, and survey data from lecturers and students. This process aims to understand the actual conditions contextually related to the integration of information technology and religious wisdom in the implementation of the Tridharma of higher education.

The identification results show that information technology and religious wisdom have not been systematically integrated. Both tend to run in parallel, with information technology advancing in technical aspects, such as the use of Learning Management Systems (LMS) and Academic Information Systems (SIKAD), while religious wisdom serves as a normative value in academic activities and character building. LMS is still primarily used for distributing materials and tasks and does not yet fully support interactive learning, while

SIAKAD focuses on administrative functions and has not been integrated with other Tridharma support systems.

On the other hand, the application of religious wisdom is more commonly found in ceremonial curricular activities, but it has not been optimally internalized in technology-based systems that support learning, research, and community service. This condition indicates a gap between the use of technology and the internalization of religious values in supporting the Tridharma in an integrated manner.

"The integration of information technology with ethical values and religiosity is an important strategy in the development of educational institutions that are adaptive and at the same time have character." (Information Systems Lecturer/Informant, 2025)

In addition, external stakeholders emphasized the importance of developing digital systems to enable institutions to adapt to changing times.

"The development of technology-based systems is an important step so that the campus remains relevant to the times." (External Stakeholders, 2025)

The statement shows that digital transformation in higher education is not only oriented toward system effectiveness but also needs to strengthen moral and spiritual values across every aspect of managing the Tridharma of higher education.

The situation is complex and unstructured, characterized by the involvement of various actors, differences in perceptions between lecturers and students, and the absence of a holistic system that integrates both. Therefore, the Soft Systems Methodology (SSM) approach is used to map problem situations, identify gaps, and serve as the basis for formulating a university transformation model integrating information technology and religious wisdom.

To clarify the actual conditions for applying religious wisdom and information technology in the implementation of the Tridharma of higher education, surveys were conducted among lecturers and students. The survey included six main variables representing aspects of learning, research, and community service, grounded in religious wisdom and information technology, with each variable comprising 10 items. The results of data processing are presented as mean Likert scale scores (1–5) for each variable. A summary of the results of the lecturer and student survey is presented in Tables 1 and 2.

A. Lecturer Data

Table 1. Survey Result of Lecturers

Aspect	Variable	Mean (n=60)	Interpretation
Religious Wisdom	Teaching (X1)	3,77	Height
	Research (X2)	3,55	Height
	Community Service (X3)	3,61	Height
Information Technology	Teaching (X4)	3,73	Height
	Research (X5)	3, 55	Height
	Community Service (X6)	3,87	Height

B. Student Data

Table 2. Survey Result of Students

Aspect	Variable	Mean (n=374)	Interpretation
Religious Wisdom	Teaching (X7)	3,45	Height
	Research (X8)	3,30	Medium
	Community Service (X9)	3,34	Medium
Information Technology	Teaching (X10)	3,42	Height
	Research (X11)	3,33	Medium
	Community Service (X12)	3,29	Medium

Based on the survey results, it can be seen that lecturers achieve relatively higher levels across all aspects than students. The learning aspect, grounded in both religious wisdom and information technology, was rated highly by both groups of respondents. However, in terms of research and community service, especially for students, it is still in the medium category. This shows a gap in the implementation of the Tridharma, where the use of information technology and the internalization of religious wisdom are not optimal in research and student service activities.

Step 2: Rich Picture

The problem situation is then mapped using a rich picture within the framework of Soft Systems Methodology (SSM), based on observations, the researcher's experience, and surveys. The rich picture is used to describe the relationships among actors, system conditions, and the various problems encountered in integrating information technology and religious wisdom in the implementation of the Tridharma of higher education.

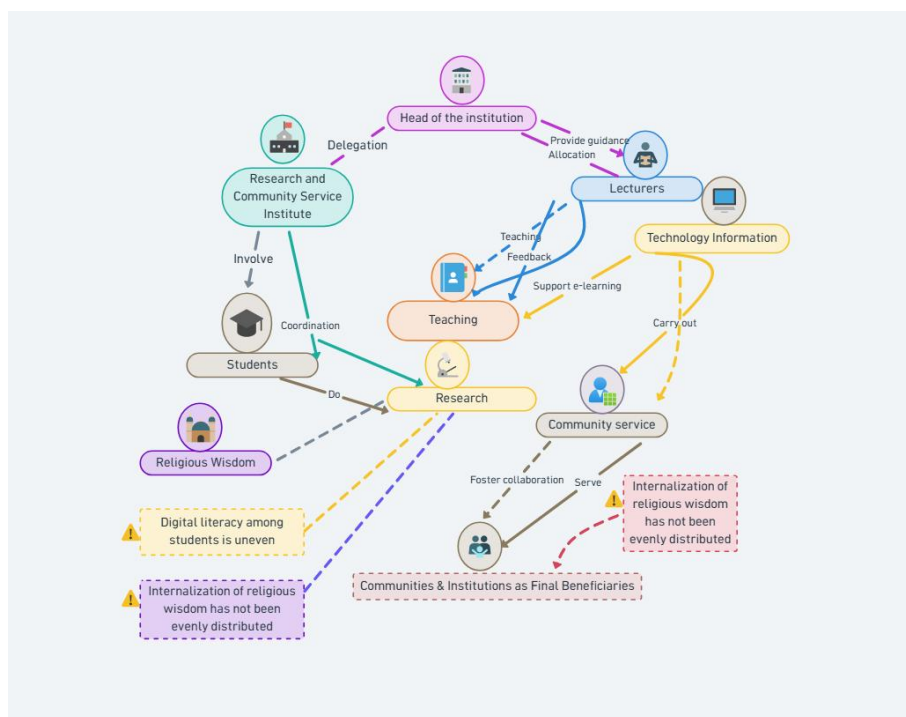


Figure 1. Rich Picture Situation of Higher Education Transformation Problems based on Integration of Information Technology and Religious Wisdom

Figure 1 shows that information technology and religious wisdom have not been optimally integrated in supporting the implementation of the Tridharma of higher education. This condition is evident in the continued gap in student digital literacy, the lack of a digital research culture, and the Tridharma support system, which remains partially operational.

The rich picture also shows the involvement of various actors, including lecturers, students, university leaders, and supporting institutions, who have interrelated roles and relationships in the implementation of learning, research, and community service. This situation shows the need for an integration model that connects information technology and religious wisdom in a more holistic way.

Step 3: Root Definition (using CATWOE)

At this stage, a root definition was formulated to describe the system for integrating information technology and religious wisdom in the implementation of the Tridharma of higher education. Root definitions are compiled using CATWOE analysis to identify the actors, transformation processes, beneficiaries, system owners, worldviews, and environmental factors that affect the system.

The system is owned by university leaders and run by lecturers, students, LPPM, academic bureaus, and IT teams to transform the implementation of the Tridharma that runs separately into an integrated Tridharma system based on information technology and religious wisdom through digital learning, technology-based research, digital community service, and integrated academic evaluation to improve academic quality, digital literacy, and internalization of religious values.

Table 3. CATWOE Analysis for Root Definition

CATWOE	System Description	Identified Root Problems
C – Customers (Beneficiaries)	Lecturers, students, community, and campus institutions.	Students have not optimally experienced the benefits of IT in research and community service.
A – Actors (System Participants)	Lecturers, students, LPPM, academic bureau, campus IT team.	Student involvement is still low in digital-based research and community service activities.

T – Transformation process	From a conventional system to a Tridharma system based on technology and religious wisdom.	The transformation is not uniform, with teaching at a high level while research and community service remain moderate.
W –Weltanschauung (Way of thinking)	Technology and religiosity must be balanced as the identity of a modern campus.	Awareness of using IT in research and community service has not yet become an ingrained culture.
O – Owner (Decision Maker)	Rector, Dean, Head of LPPM, Faculty	Research and community service policies have not specifically promoted digital research and e-community service.
E – Environmental Constraints	IT facilities, digital literacy, time availability, incentives, and academic culture.	Students’ digital literacy varies, which causes gaps in implementation.

Based on the CATWOE analysis, the main transformation expected is a shift from the conventional Tridharma system to an integrated system grounded in information technology and religious wisdom. The transformation involves lecturers, students, LPPM, academic bureaus, and IT teams as the main actors in the system.

The results of this analysis then served as the basis for preparing the conceptual model at the next stage. The main activities developed include digital learning grounded in religious values, technology-based research, digital community service, and the evaluation of the Tridharma through an integrated academic system.

Step 4: Conceptual Model of Higher Education Transformation through Information Technology and Religious Wisdom

The conceptual model at this stage is prepared based on the results of problem situation identification, empirical findings from lecturer and student surveys, and CATWOE analysis from the previous stage. This model describes the ideal system for integrating information technology and religious wisdom in the implementation of the Tridharma of higher education through intersectoral relationships, core activities, and mutually integrated support systems.

Figure 2. It shows that the integration of information technology and religious wisdom is applied through five main activities: technology-based learning and religious values; technology-based research and religious ethics; digital community service; integrated monitoring and evaluation; and continuous development and improvement. This model also

involves lecturers, students, LPPM, academic bureaus, IT teams, and university leaders as the main actors in supporting the implementation of the Tridharma in an integrated and sustainable manner.

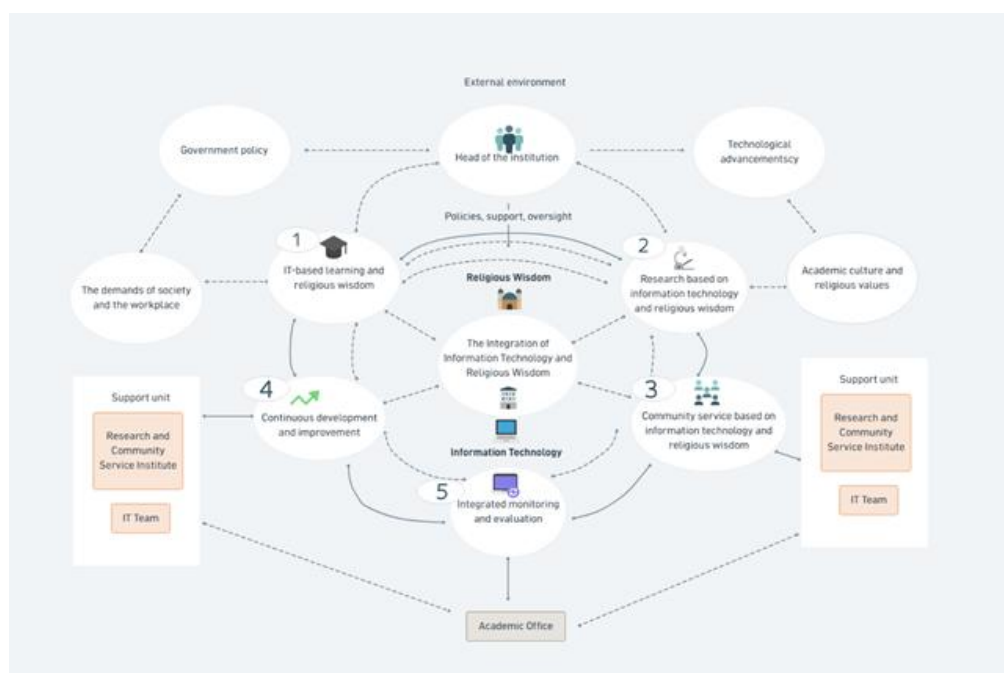


Figure 2. Conceptual Model of Integration of Information Technology and Religious Wisdom in the Tridharma of Higher Education

Step 5: Comparison of the Model with Reality

The fifth stage of Soft Systems Methodology (SSM) involves comparing the actual conditions derived from the survey results with the ideal conditions formulated in the conceptual model from the previous stage. This comparison uses indicators that refer to the three main aspects of the Tridharma, namely learning, research, and community service, each reviewed from the perspective of religious wisdom and information technology.

Empirically, the actual condition is measured as the average (mean) of the results from the lecturer and student surveys. The results showed that, in the learning aspect, both based on religious wisdom and on information technology, the mean value was in the high category (lecturers: 3.73–3.87; students: 3.42–3.45), indicating that the integration of the two aspects has gone relatively well in the learning process. On the other hand, in the research

and community service aspects, the mean score of students is still in the medium range (around 3.29–3.34), indicating that the use of information technology and the internalization of religious values are not optimal.

Comparisons between actual and ideal conditions show gaps in several key aspects. The expected ideal conditions include the integration of religious values into RPS, the use of technology for interactive learning, digital-based research, and religious ethics, and technology-based community service. However, in practice, the integration remains more dominant in the learning aspect, while in research and service—especially for students—it remains partial.

Based on this analysis, the main priority is the gap in information technology-based research and community service among students. This is based on the mean value which is relatively lower than other aspects, as well as the strategic role of these two aspects in supporting the sustainability of the Tridharma of higher education. Therefore, strengthening digital literacy, fostering a research culture, and developing technology-based service programs are the main focuses for improving the system.

A summary of the comparison between actual and ideal conditions is presented in Table 5.

Table 4. Comparison of the Model with Reality

Appearance	Variable	Mean Lecture (n=60)	Mean Student (n=374)	Conceptual Model (Ideal Condition)
Religious Wisdom	Learning	3.77 (High)	3.45 (High)	Integrated in RPS & character evaluation
Religious Wisdom	Research	3.55 (High)	3.30 (Medium)	Religious values-based research
Religious Wisdom	Service	3.61 (High)	3.34 (Medium)	Religious values-based service programs
Information Technology	Learning	3.73 (High)	3.42 (High)	Interactive e-learning
Information Technology	Research	3.55 (High)	3.33 (Medium)	Software-based research & databases

Information Technology	Service	3.87 (High)	3.29 (Medium)	Digital-based service
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The results of the comparison show that the actual conditions are not fully aligned with the conceptual model, especially in research and community service to students, which still lag behind the learning aspect.

Step 6: Feasible Change Recommendations

In the sixth stage, feasible changes are formulated based on the gap between actual and ideal conditions in implementing the Tridharma at UIKA Bogor. The priority of change is prepared by considering the urgency of the problem, the availability of resources, the ease of implementation, and its impact on the integration of religious wisdom and information technology.

Short-term priorities (0–1 year) focus on strengthening the learning process by preparing religion-based RPS and developing interactive digital learning content. This program can be coordinated by faculty leaders, study programs, and quality assurance units, with success indicators including increasing the number of courses that use integrative RPS and the active use of LMS.

The medium-term priority (1-2 years) is to increase the capacity of lecturers and students through technology-based research training, the use of data analysis software, AI literacy, and the strengthening of the research culture. The main person in charge is the research and community service institute (LPPM) with the faculty. Success indicators include increases in publications, grant proposals, and student involvement in research.

Medium-term priorities also include the development of digital-based community service programs, such as assistance with village websites, community digital literacy, and online educational media. Success is measured by the number of programs implemented and the level of community participation.

The long-term priority (2–3 years) is the development of an integrative SIAKAD as a Tridharma documentation center capable of recording, monitoring, and evaluating teaching, research, and service activities on an ongoing basis. This program is the responsibility of the university leadership, together with the information technology unit. Success indicators are shown through the availability of a Tridharma monitoring dashboard and periodic evaluation reports.

Thus, the recommendation for change is not only normative, but is arranged gradually, realistically, and according to the needs of the institution.

Step 7: Proposed Improvement Actions

Based on the analysis in the previous step (Step 6), the gap between actual and ideal conditions indicates the need for concrete, structured remedial actions. These actions are designed to be implemented gradually and realistically, in a way that supports the integration of religious wisdom and information technology into the Tridharma of higher education.

The proposed improvement measures focus on 3 main aspects of the Tridharma — teaching, research, and community service—viewed from the perspectives of religious wisdom and information technology, respectively, along with an integrative evaluation and monitoring system.

The following table summarizes the proposed improvement actions systematically:

Table 5. Recommended Corrective Actions

Aspect	Recommended Corrective Actions
Teaching Based on Religious Wisdom	<ol style="list-style-type: none"> 1. Developing lesson plans (RPS) based on religious values and student character. 2. Integrating learning modules that combine academic content with ethics/religiosity. 3. Conducting lecturer training on teaching methods based on religious values and character development.
Research Based on Religious Wisdom	<ol style="list-style-type: none"> 1. Workshop on research ethics and research methodology based on religious values. 2. Strengthening an ethical scientific publication culture. 3. Creating a religious research repository as a reference source for students and lecturers.
Community Service Based on Religious Wisdom	<ol style="list-style-type: none"> 1. Establishing religious-based social service programs every semester. 2. Collaborating with the community on digital-based education and dakwah projects. 3. Evaluating the social and religious impact of community service programs.

Teaching Based on Information Technology	<ol style="list-style-type: none"> 1. Developing interactive e-learning integrated with the LMS. 2. Creating multimedia digital content to support creative learning. 3. Providing digital literacy training for students and lecturers.
Research Based on Information Technology	<ol style="list-style-type: none"> 1. Training on the use of analysis software (SPSS, Mendeley, Zotero, AI tools). 2. Enhancing students' capabilities in digital publication and online journal databases. 3. Monitoring and mentoring of digital-based research by the IT team and LPPM.
Community Service Based on Information Technology	<ol style="list-style-type: none"> 1. Developing digital community service projects such as village websites, educational media, and community applications. 2. Providing training for students on digital community service. 3. Integrating digital community service into SIAKAD for documentation and evaluation.
Integrative System and Evaluation	<ol style="list-style-type: none"> 1. Providing SIAKAD as the central documentation system for the Tridharma. 2. Conducting periodic evaluations of the implementation of IT and religiosity. 3. Continuous improvement based on evaluation results and user feedback.

The proposed improvement measures aim to realize a more balanced and integrated Tridharma, so that teaching, research, and community service do not only emphasize academic or technological aspects, but are also imbued with moral and religious values. Through the implementation of these measures, it is hoped that the academic community, including lecturers and students, can make optimal use of technology, internalize religious values, and produce research and community service programs that have a positive impact on society. Periodic evaluation and monitoring are key to ensuring that these changes are sustainable and adaptable to evolving academic and technological needs.

DISCUSSION

The integration of information technology in the implementation of the tridharma of higher education has become a strategic need in the digital era. The use of digital-based academic and learning information systems is expected to increase the effectiveness of education, research, and community services. However, the use of technology does not automatically improve learning quality; it requires supporting conditions to operate optimally (Daniela et al., 2018). In addition, the integration process in educational practice often faces implementation challenges, so it requires adequate coordination and institutional support to be effective (Mar, 2024).

On the other hand, the study's results show that the implementation of religious wisdom in higher education remains predominantly in the form of academic culture, curricular activities, and ceremonial activities, and has not been fully integrated into a technology-based system. In fact, religiosity and spirituality are known to affect individual attitudes, perspectives, and behaviors in the educational environment (Nelson et al., 2017). Therefore, strengthening religious values is not only important for faith-based universities, but is also part of the formation of academic ethics based on tolerance, justice, openness, and harmony in the implementation of the tridharma of higher education (Karim, 2024).

The study's findings show a gap between the development of information technology and the internalization of religious values in the implementation of the tridharma of higher education. Digital systems have evolved to support academic effectiveness, but they have not fully represented moral and spiritual values in institutional practice. This aligns with the view that education should integrate interdisciplinary approaches, systems thinking, and the use of technology in the learning process (Eichentopf & Kasperidus, 2025). From the perspective of Soft Systems Methodology, this condition indicates the need to integrate human, technological, and organizational cultural aspects to ensure technology implementation runs effectively (Sony & Naik, 2020). In addition, leadership support and institutional coordination are also important factors in creating a collaborative and adaptive education system (Yawson, 2025).

In addition, the study's results indicate that integrating information technology and religious wisdom should be achieved by strengthening character education across all academic activities. Integrity, as part of character formation, plays an important role in aligning individual values and actions and in influencing the quality of the college educational process (Delaney & Doyle, 2023). This is in line with Krischenbaum's theory,

which emphasizes the importance of integrating cognitive and affective aspects, such as attitudes, emotions, and positive appreciation, in shaping individual ethical behavior (Limiansi et al., 2025). Therefore, character education not only serves to form academically competent students but also to foster integrity, responsibility, and social empathy in facing the challenges of the digital era (Alimron et al., 2023; Japar et al., 2024).

Based on the study's results, integrating information technology and religious wisdom in higher education requires not only system readiness but also leadership grounded in principles of morality, ethics, and honest communication (Reyes & Redona, 2021). In addition, the effectiveness of technology in education is influenced by perceptions of usability, user attitudes, and the conditions of its implementation in the academic environment (Teo, 2011). Thus, the developed model not only offers technical solutions but also a holistic approach to supporting the digital transformation of higher education, integrated with religious values and institutional culture (Wahidin, 2017).

CONCLUSION

Based on the results of the analysis using Soft Systems Methodology (SSM), this study shows that in the context of Ibn Khaldun University (UIKA) Bogor, the integration of religious wisdom and information technology in the implementation of the Tridharma of higher education has gone well in the aspect of learning, but it has not been optimal in the aspect of research and community service, especially for students. This gap indicates that the transformation of higher education through the integration of religious values and information technology remains partial and has not been fully integrated into a system.

These findings affirm the importance of strengthening institutional systems that can synergize digital transformation with religious wisdom in a sustainable manner. These efforts include strengthening a religious-based curriculum, developing interactive digital learning, building technology-based research capacity, and integrating digital-based community service into an institutional evaluation system.

Conceptually and practically, this research contributes to the formulation of a model of university transformation that integrates religious wisdom and contextual information technology. However, this study is limited to a single institution, so the findings cannot be generalized. Therefore, further research is recommended to test this model across multiple universities using a comparative approach and to evaluate its effectiveness in different contexts.

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