

Governance as the Enabling Condition: An Integrated Model of Digital Transformation Management in Islamic Higher Education

Sundari^{1*}, Maskuri²

¹*Sekolah Tinggi Ilmu Kitab Kuning An-Nur 2 Bululawang, Indonesia*

²*Universitas Islam Malang, Indonesia*

*Email Corresponding author: bunda591@gmail.com

Abstract

Digital transformation has become a strategic priority for higher education, yet few empirical studies examine how *Islamic higher education* institutions manage this change as a whole rather than as isolated technology adoption. This study analyzes the management of digital transformation at STIKK An-Nur 2 Bululawang, an *Islamic higher education* institution in Indonesia. The research applied a qualitative single-case design. Data collection combined semi-structured interviews, non-participant observation, and document analysis, involving institutional leaders, IT staff, lecturers, administrative staff, and students. Thematic analysis guided the interpretation, and credibility was maintained through source triangulation, method triangulation, member checking, and an audit trail. The findings identify four interrelated domains that drive digital transformation at the institution, namely *digital administration*, academic information systems, e-learning, and *digital governance*. *Digital administration* improved service efficiency and transparency, academic information systems supported data-driven decision making, e-learning fostered flexible and student-centered learning, and *digital governance* reinforced leadership, coordination, and institutional accountability. The study proposes an integrated Digital Transformation Management Model in which *digital governance* functions as the enabling condition that binds the other three domains into a coherent institutional strategy. The results extend current knowledge by treating digital transformation as an integrated managerial competence rather than a portfolio of separate projects. Practically, the model guides *Islamic higher education* leaders to align technological infrastructure, organizational culture, strategic leadership, and governance when pursuing sustainable transformation under comparable resource conditions.

Article History

Received : 09 July 2025

Revised : 22 October 2025

Accepted : 21 November 2025

Keywords: *Digital Transformation Management, Islamic Higher Education, Digital Governance, Academic Information Systems*

DOI: <https://doi.org/10.33650/jumpa.v6i2.16722>

How to Cite:

Sundari, & Maskuri. (2025). Governance as the Enabling Condition: An Integrated Model of Digital Transformation Management in Islamic Higher Education. *JUMPA: Jurnal Manajemen Pendidikan*, 6(2), 325–337.

INTRODUCTION

Digital transformation has become a strategic imperative that is reshaping how universities manage academic services, administrative processes, governance, and learning environments across the globe (Alieksieieva et al., 2025; Pridmore & Godin,



2021; Žatuchin, 2025). Far from being the simple adoption of new tools, it entails comprehensive organizational change that aligns technological innovation with institutional strategy, culture, leadership, and governance to sustain long-term effectiveness (Gillani et al., 2024; Hein-Pensel, 2026; Veseli et al., 2025). The urgency of this agenda is now backed by national policy commitments; in Indonesia, the government has positioned digital transformation of higher education as a strategic priority, and the wider region has seen a marked rise in scholarly and policy attention to institutional digitalization since 2023 as academic interest in *digital governance* in higher education has grown alongside the challenges and opportunities of implementing digital technologies in institutional decision-making (Mateko et al., 2025; Nguyen & Hong, 2026; Safi'i et al., 2025). These converging pressures indicate that universities can no longer treat digitalization as an optional enhancement but must manage it as a core institutional process that determines competitiveness and service quality in an increasingly digital society.

Prior research on digital transformation in higher education clusters around several recurring themes that together frame the present study. A first strand treats transformation as an organizational rather than a purely technological matter, arguing that digital initiatives succeed only when institutions redesign business processes, build organizational readiness, and cultivate cultural change rather than merely installing new systems (Limanovskaja & Davidavičienė, 2025; Sieber et al., 2023; Sobczak, 2022). A second strand foregrounds governance, leadership, and maturity, demonstrating through qualitative case studies that strategic leadership and *digital governance* are decisive conditions for coherent transformation (Akbari et al., 2025; Firmansyah et al., 2024; Herbst, 2025). A third strand, situated in *Islamic higher* education, stresses that institutions must modernize management and governance while preserving religious identity, yet the evidence base here remains thin and largely bibliometric or conceptual (Nugroho & Astutik, 2024). Read together, these themes establish that transformation is managerial and governance-driven, but they also expose an uneven distribution of empirical attention across institutional types.

Despite this growing body of work, a specific knowledge gap persists. Most existing studies examine digital learning, technology acceptance, or the effectiveness of online instruction in isolation, and comparatively few investigate how *digital administration*, academic information systems, e-learning, and *digital governance* are strategically managed together as an integrated whole. This gap is particularly acute in *Islamic higher* education, where empirical research tends to be bibliometric, conceptual, or focused narrowly on learning technology rather than whole-organization management. The novelty of the present study lies precisely in addressing this omission; it examines all four dimensions simultaneously within a single *Islamic higher* education institution and treats their coordination, rather than their separate adoption, as the object of analysis. In doing so, it responds directly to calls for holistic, context-sensitive accounts of institutional digital transformation that the current literature has yet to satisfy in this setting.

Building on this gap, the present study investigates the management of digital transformation at STIKK An-Nur 2 Bululawang, an *Islamic higher* education institution that has progressively integrated *digital administration*, academic information systems, e-learning, and *digital governance* into its institutional management. The study specifically seeks to explain how these four interrelated dimensions are planned, implemented, coordinated, and evaluated to support institutional effectiveness. By analyzing these dimensions as a coordinated managerial system rather than as discrete

technological projects, the research extends the existing literature both empirically and conceptually, offering evidence from a faith-based institutional context that remains underrepresented in digital transformation scholarship. The findings are intended to contribute theoretically to the discourse on digital transformation management and, practically, to provide guidance for other *Islamic higher* education institutions pursuing sustainable transformation under comparable resource and governance conditions.

Accordingly, this study centers on a single guiding argument, namely that digital transformation in *Islamic higher* education is best understood as an integrated managerial competence in which *digital governance* functions as the enabling condition that binds administration, information systems, and learning into a coherent institutional strategy. Rather than measuring the adoption of individual technologies, the research explores in depth how leadership commitment and governance coordinate these dimensions within their real institutional setting, and how that coordination shapes institutional performance. This exploratory focus is deliberately suited to a qualitative case study, which can capture the interplay of managerial practice, culture, and governance that quantitative measures of adoption tend to obscure. The following section sets out the qualitative single-case design, data collection techniques, and analytical procedures through which these dynamics were examined.

RESEARCH METHOD

This study employed a qualitative single-case design to examine the strategic management of digital transformation at STIKK An-Nur 2 Bululawang. A qualitative case study is well suited to investigating a contemporary organizational phenomenon within its real-life setting, particularly when the boundary between the phenomenon and its context is not clearly defined (Al Qur'an, 2025; Mtisi, 2022; Turnbull et al., 2021). Digital transformation in higher education is increasingly understood as a multifaceted organizational process that spans managerial practice, organizational culture, institutional governance, and technical innovation, so a design that captures these interrelated elements in context is more appropriate than one that measures technology adoption alone. The institution was selected purposively because it has progressively integrated *digital administration*, academic information systems, e-learning platforms, and *digital governance* into its institutional management, which makes it an information-rich setting for understanding how digital transformation is planned, organized, implemented, coordinated, and evaluated within an *Islamic higher* education environment.

Data were gathered over the study period through three complementary techniques, namely semi-structured interviews, non-participant observation, and document analysis (Fetters & Tajima, 2022; Khan & MacEachen, 2022; Whitney & Evered, 2022). Participants were chosen through purposive sampling to ensure that those directly involved in the institution's digital transformation were represented across organizational levels, and they included the chairperson, vice chairpersons, heads of academic and administrative units, IT staff, lecturers, administrative staff, and students who regularly used the institution's digital services (see Table 1). The semi-structured interviews explored participants' experiences in planning, implementing, and evaluating digital transformation initiatives; observation focused on *digital administrative* services, academic information systems, e-learning implementation, and *digital governance* practices; and documentary evidence included strategic plans, institutional policies, standard operating procedures, quality assurance documents, academic reports, and the institution's digital platforms. Drawing on these varied

evidence sources enabled methodological triangulation and strengthened the credibility of the findings by allowing convergence across different data types (Korzh, 2024; Ogunkan & Akinpelu, 2025; Whitney & Evered, 2022).

Table 1. Research Participants

Code	Participant	Position	Role in Digital Transformation
P1	Chairperson	Institutional Leader	Strategic policy and digital transformation planning
P2	Vice Chairperson I	Academic Affairs	Academic system management
P3	Vice Chairperson II	Administration and Finance	Administrative digitalization
P4	Head of Quality Assurance Unit	Quality Assurance	Digital quality assurance implementation
P5	Head of Academic Administration	Academic Administration	Student information system
P6	IT Manager	Information Technology Unit	Digital infrastructure and system integration
P7	Lecturer A	Faculty Member	E-learning implementation
P8	Lecturer B	Faculty Member	Digital teaching practices
P9	Administrative Staff	Administration	Digital administrative services
P10	Student A	Student	User experience of academic systems
P11	Student B	Student	LMS utilization
P12	Student C	Student	Digital academic services

Data were analyzed using thematic analysis, following its six iterative phases of familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report (Boko, 2024; Robinson et al., 2025; Udayanga, 2025). Coding combined deductive and inductive reasoning. The study's analytical framework, comprising *digital administration*, academic information systems, e-learning, and *digital governance*, guided the deductive coding, while inductive coding allowed additional organizational themes and managerial practices to emerge from participant narratives. Several validation strategies safeguarded trustworthiness (Ogunkan & Akinpelu, 2025). Source triangulation compared information from leaders, lecturers, administrators, IT staff, and students; method triangulation combined interview, observational, and documentary data; member checking returned interview summaries and initial interpretations to selected participants for confirmation; and an audit trail documented each stage of data collection, coding, categorization, and interpretation. Thick description of the institutional setting was also provided to support the transferability of the findings to comparable *Islamic higher* education institutions undergoing digital transformation.

RESULT AND DISCUSSION

Results

The management of digital transformation at STIKK An-Nur 2 *Bululawang* *materialized* across four interrelated domains. Each domain is presented below as a distinct finding, drawing on interview testimony, field observation, and institutional documentation gathered during the study.

Digital Administration as Integrated Services for Administrative Efficiency

Administrative digitalization at STIKK An-Nur 2 *Bululawang* extended well beyond replacing paper forms with electronic ones. The finding indicates a reordering

of how administrative work is coordinated, monitored, and held accountable across institutional units. Core processes that were previously handled through in-person, sequential handling, including student registration, academic correspondence, course enrollment, tuition payment verification, and document archiving, are now routed through a shared digital platform. The significance of this shift lies less in the technology itself than in what it changed about institutional control: administrative activity became visible and traceable in a way that manual processing did not permit. The Chairperson framed the change in precisely these terms:

"The implementation of digital administration has shortened service time and enabled better monitoring of academic processes across institutional units."
(INT-P1)

Two features of this statement deserve emphasis. The first is the reduction in service time, which reflects the operational gain most readily associated with digitalization. The second, and analytically more consequential, is the capacity for monitoring across units. Field observation corroborated both dimensions. Most administrative services were found to be accessible through an online academic portal, which reduced the volume of face-to-face transactions and, in doing so, lowered the transcription errors that accompany manual re-entry of data (OBS-1). The portal did not merely relocate a service online; it consolidated records that had previously been dispersed across separate offices into a single retrievable source. Institutional documentation reinforced that this was a deliberate managerial choice rather than an incidental byproduct of technology adoption: *digital administrative* procedures were written into the institution's strategic development plan, positioning *administrative digitalization* as an object of institutional strategy rather than a discretionary convenience (DOC-2). Taken together, the interview, observation, and documentary evidence converge on a single reading. *Digital administration* at this institution functioned as an instrument of institutional coordination and transparency, not simply as a faster clerical tool, and its embedding in the strategic plan signals an intent to sustain rather than pilot the change.

The Academic Information System Supporting Data-Driven Decision Making

If *digital administration* reorganized routine service delivery, the Academic Information System (AIS) reshaped how institutional decisions were informed. The institution established an integrated system linking student admissions, course registration, scheduling, grading, and academic reporting into a single connected environment. The analytical importance of this integration is that it collapsed the delay between the generation of academic data and its availability to those who act on it, a delay that in fragmented systems often renders information stale by the time it reaches institutional leaders. The Vice Chairperson for Administration and Finance described this compression of the reporting cycle directly:

"Academic information is now accessible in real time, enabling quicker academic decisions and more effective institutional monitoring." (INT-P3)

The phrase "in real time" carries the substance of the finding. It marks a transition from periodic, retrospective reporting toward continuous availability of academic data, which in turn repositions the information system from a passive record-keeping repository to an active input in managerial decision-making. Observation

supported this interpretation at the level of daily practice: lecturers entered grades electronically, and students retrieved their academic records through the institutional portal without mediating administrative staff (OBS-2). This matters because it distributes access to academic information across roles rather than concentrating it in a records office, which is a precondition for the responsiveness the informant described. Documentary evidence extended the system's role beyond internal management. The Academic Information System (AIS) was found to underpin institutional accreditation and quality assurance activities, supplying the structured, retrievable data that external accountability processes require (DOC-3). The convergence of these three evidence sources indicates that the AIS operated as a strategic management instrument. It served decision-making, institutional monitoring, and external accountability simultaneously, rather than functioning solely as an administrative database.

E-Learning as a Sustainable Digital Learning Ecosystem

The third domain concerns the institution's learning environment. The finding here is that e-learning at STIKK An-Nur 2 *Bululawang* *matured* from an emergency substitute for classroom teaching into a structural component of instructional delivery. The distinction is not trivial: a Learning Management System (LMS) used as a temporary stopgap is abandoned once normal conditions return, whereas one woven into routine pedagogy persists because instructors and students have reorganized their teaching and learning around it. The evidence points to the latter pattern. Lecturers used digital platforms routinely for course delivery, assignment submission, online assessment, and student communication, and a faculty member articulated the depth of this integration:

"The LMS has become an integral component of teaching because it allows learning to continue beyond classroom meetings." (INT-P7)

The word "integral" is the analytical hinge. It signals that the platform was no longer perceived as an adjunct to teaching but as constitutive of it, extending the instructional relationship past the temporal and spatial limits of the scheduled class meeting. This lecturer-side account was matched by evidence from the student side. A student reported that digital learning afforded greater flexibility and encouraged more independent study habits, indicating that the pedagogical shift was experienced as an enabling change by learners rather than imposed on them from above (INT-P10). Observation grounded these accounts in concrete instructional artifacts: digital learning resources, recorded lectures, discussion forums, and online assessments were regularly incorporated into the teaching process (OBS-3). The presence of asynchronous elements such as recorded lectures and discussion forums is significant, because it is precisely these features that sustain learning "beyond classroom meetings" in the sense the informant described. Read together, the lecturer testimony, the student account, and the observed instructional practice indicate a learning ecosystem oriented toward flexibility and learner autonomy rather than a mere relocation of lectures onto a screen.

Digital Governance and Leadership in Institutional Transformation

The final domain binds the preceding three together. The finding is that digital transformation at STIKK An-Nur 2 *Bululawang* was not a set of parallel technical projects but a leadership-driven institutional agenda, coordinated through governance structures rather than left to individual units. *Digital policies* were integrated into

strategic planning, annual budgeting, quality assurance, and institutional performance evaluation, which situates digital transformation within the institution's core governance cycle rather than at its technical periphery. Institutional leaders actively fostered collaboration between academic units and the Information Technology division, and the Vice Chairperson for Academic Affairs located the decisive factor not in technology but in organizational will:

"Digital transformation requires organizational commitment rather than technological investment alone." (INT-P2)

This statement is analytically pivotal because it names the mechanism the other three themes depend on. *Administrative digitalization*, the AIS, and the LMS could each be procured as technology, but their embedding into routine institutional practice required a governance framework that assigned responsibility, allocated budget, and evaluated performance. Documentary evidence confirmed that such a framework existed: *digital governance* was embedded within strategic planning and operationalized through standard operating procedures governing digital services, giving the institution's digital commitments a procedural rather than merely rhetorical form (DOC-5). Observation showed the framework functioning in practice through routine evaluation meetings that reviewed digital system performance and discussed service improvement (OBS-4). These recurring meetings are important evidence of institutionalization, since they convert digital transformation from a one-time initiative into a continuous object of managerial attention. The interview, documentary, and observational evidence together indicate that governance and leadership commitment operated as the enabling condition that allowed the other three domains to cohere into a single institutional transformation rather than remaining isolated technical upgrades.

The four domains examined above did not function as separate initiatives. Each addressed a distinct facet of institutional life, yet all rested on the same enabling condition, namely the leadership commitment articulated through *digital governance*. To make the relationships among these domains explicit, the study consolidated the evidence into two complementary displays: a matrix that maps each domain to its evidence base and managerial function (Table 2), and a conceptual model that shows how the domains interact to produce institutional performance (Figure 1). The evidentiary basis of each finding is summarized in Table 2.

Table 2. Evidence base and managerial function of the four digital transformation domains

Domain	Interview evidence	Observation	Documentation	Managerial function
<i>Digital Administration</i>	INT-P1	OBS-1	DOC-2	Coordination, service efficiency, and cross-unit transparency
Academic Information System	INT-P3	OBS-2	DOC-3	Real-time, data-driven decision-making and external accountability
E-Learning	INT-P7; INT-P10	OBS-3	(none reported)	Flexible, learner-centered instruction beyond the classroom
<i>Digital Governance</i>	INT-P2	OBS-4	DOC-5	Leadership, policy integration, and institutionalized evaluation

Table 2 makes two patterns visible that the narrative alone leaves implicit. The first concerns the consistency of triangulation across domains. Three of the four domains rest on the convergence of interview, observation, and documentary evidence, which is the evidentiary standard the study set for itself in the Method section. The e-learning domain departs from this pattern: it carries two interview voices, one from a lecturer and one from a student, but the study did not record a governing document for it. This is not a weakness in the finding so much as a signal about where e-learning currently sits in the institution's governance structure, since a practice that has become pedagogically integral has not yet been formalized in policy to the same degree as administration, the information system, and governance itself. The second pattern concerns function. Reading down the final column, the four managerial functions are not interchangeable. Administration handles coordination, the information system handles decision-making, e-learning handles instruction, and governance handles the leadership and policy work that holds the other three in place. No single domain substitutes for another, which is precisely why the institution treated digital transformation as a coordinated agenda rather than a set of parallel technology purchases.

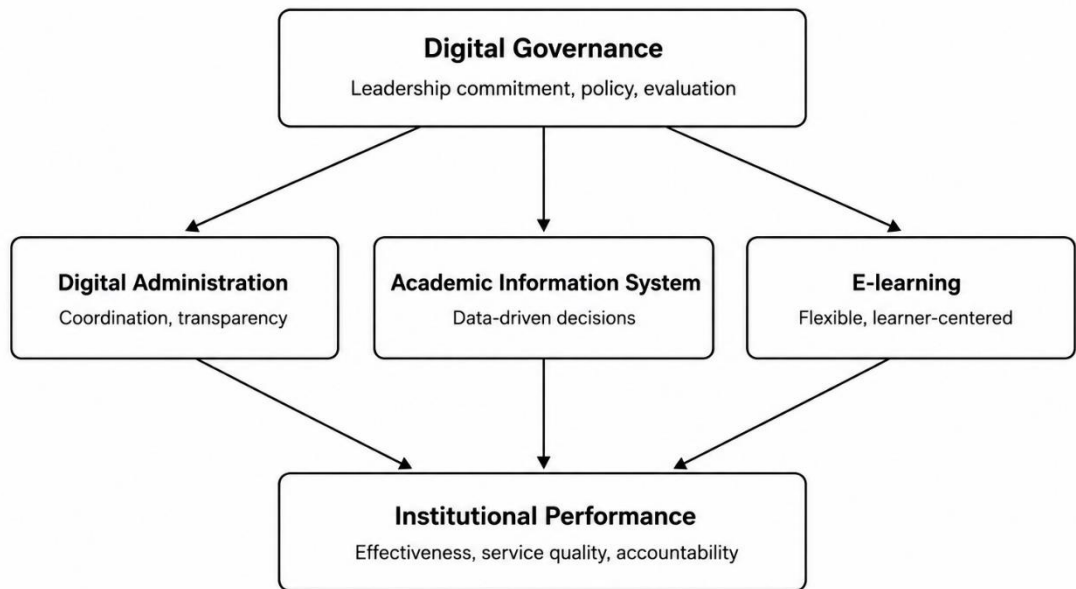


Figure 1. Model of digital transformation management at STIKK An-Nur 2 Bululawang

Figure 1 renders the central argument of the study in a single structure, and its value lies in what the spatial arrangement makes unmistakable. *Digital governance* sits at the top not because it is chronologically first, but because it is causally prior. The three operational domains beneath it, administration, the information system, and e-learning, do not generate institutional performance on their own; they do so only when leadership commitment supplies the policy, budget, and evaluation that hold them together, which is why every arrow from governance points downward into the operational layer rather than sideways. The finding this diagram encodes is therefore not that the institution adopted four technologies, but that it subordinated three of them to a fourth that is not a technology at all. Reading the middle tier from left to right also clarifies a division of labor that the interview data revealed piece by piece:

administration governs coordination, the information system governs decision-making, and e-learning governs instruction, three separate institutional problems solved by three separate systems. The convergence of all three arrows on a single performance node captures the study's core claim, namely that digital transformation at this institution behaved as an integrated managerial competence rather than a portfolio of isolated projects. The absence of any arrow bypassing governance is the deliberate analytical point, since it visualizes precisely why the study treats leadership as the enabling condition rather than one contributor among equals.

Discussion

The findings position *digital administration* as an organizational transformation rather than a mere operational upgrade. The consolidation of registration, correspondence, enrollment, payment verification, and archiving into a single traceable platform reshaped how institutional work is coordinated and monitored, not simply how quickly it is processed. This reading aligns with (Safi'i et al., 2025), who argue that digital transformation in higher education depends more on rebuilding organizational routines and institutional capabilities than on acquiring new technology. It is also consistent with reviews holding that *administrative digitalization* advances operational efficiency, transparency, and evidence-based institutional management (Gillani et al., 2024). The distinctive point in the present case is that these gains were deliberately written into the institution's strategic plan, which suggests that *administrative digitalization* functioned as an object of managerial strategy rather than an incidental convenience.

The Academic Information System operated as a strategic management instrument rather than a passive records database. By collapsing the delay between the generation of academic data and its availability to decision-makers, the system repositioned information from a retrospective report into an active input for institutional monitoring and accountability. This finding echoes prior work concluding that integrated academic information systems strengthen organizational responsiveness and governance by enabling real-time data management and strategic planning (Sobczak, 2022). What the STIKK An-Nur 2 Bululawang case adds is the observation that the same system simultaneously served internal decision-making and external accountability through accreditation and quality assurance, indicating that its managerial value extended beyond the institution's own walls into the regulatory environment it must answer to.

The e-learning findings indicate a maturation from emergency substitute to structural component of instruction. Because instructors and students reorganized their teaching and learning around the platform, and because asynchronous elements such as recorded lectures and discussion forums sustained learning beyond scheduled meetings, e-learning at this institution reflected pedagogical integration rather than technological relocation. This corroborates qualitative research showing that successful digital learning rests on institutional policy, technical infrastructure, pedagogical innovation, and digital competency rather than technology alone (Hein-Pensel, 2026). The case also surfaces a revealing asymmetry, however. E-learning was the one domain not yet anchored in a governing document, which suggests that a practice can become pedagogically central before it becomes formally governed, a gap that carries implications for how institutions sequence their transformation efforts.

Digital governance emerged as the decisive condition binding the other three

domains together. Its embedding within strategic planning, budgeting, quality assurance, and performance evaluation, reinforced by routine evaluation meetings and standard operating procedures, converted digital transformation from a set of isolated initiatives into a continuous object of managerial attention. This finding is consistent with recent studies identifying leadership, organizational culture, and governance as the principal determinants of successful digital transformation in higher education (Mateko et al., 2025). The present case sharpens this claim by demonstrating the mechanism directly: administration, the information system, and e-learning could each be procured as technology, but only a governance framework that assigned responsibility, allocated budget, and evaluated performance turned that procurement into embedded institutional practice.

Read as a whole, these four domains describe digital transformation as an integrated managerial competence rather than a portfolio of discrete technology projects. This is where the study departs most clearly from prior research that examined digital learning or technology adoption in isolation (Akbari et al., 2025). The synthesis that follows in Figure 2 makes this repositioning explicit, contrasting the conventional project-based view of digital transformation with the competence-based view the present findings support. The value of the figure lies in showing that the shift is not a matter of scale, as though more technology projects eventually add up to transformation, but a matter of kind: the organizing logic moves from procuring discrete systems to coordinating them through governance.

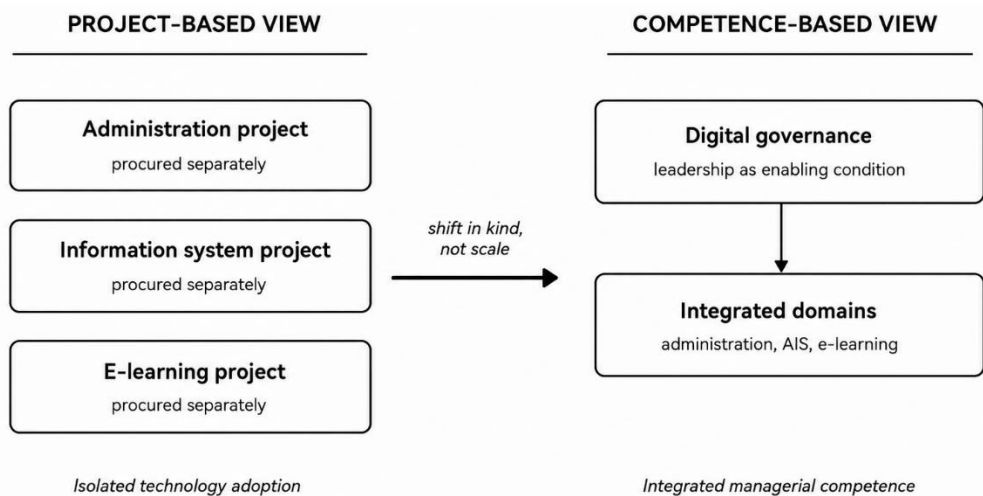


Figure 2. Digital transformation as an integrated managerial competence

The central contribution of this study is therefore conceptual as much as empirical. Where earlier research largely treated digital transformation in higher education as either a matter of learning technology or of technology adoption, the STIKK An-Nur 2 Bululawang case shows the four domains cohering into a single managerial competence held together by governance, and it does so within an *Islamic higher education* setting that the literature has rarely examined from a whole-organization standpoint. Two features give this contribution its specificity. First, governance is not one contributor among equals but the enabling condition without which the operational domains do not translate into institutional performance, a claim the case evidences through the mechanism rather than asserting by analogy. Second, the observed

asymmetry, in which e-learning became pedagogically integral before it was formally governed, offers a practical insight for institutions sequencing their own transformation: pedagogical adoption and governance maturity do not advance in lockstep, and the gap between them is where transformation efforts are most vulnerable to reverting into isolated projects. For *Islamic higher* education institutions specifically, the model implies that sustaining digital innovation depends less on the volume of technology acquired than on the strength of the governance that binds it into coherent institutional practice.

CONCLUSION

This study concludes that digital transformation at STIKK An-Nur 2 Bululawang operated as an integrated managerial process in which *digital administration*, academic information systems, e-learning, and *digital governance* reinforced one another under the coordination of institutional leadership. Several limitations nonetheless temper these findings. The research rested on a single institution, so its results cannot be generalized to the wider population of *Islamic higher* education institutions that differ in size, resources, and governance maturity. Each thematic finding also drew on a limited number of informant voices, and the study captured the institution at one point in time rather than tracing how its transformation unfolded across successive stages. Future research should therefore test the proposed model in multi-case or comparative designs that span different types of *Islamic universities*, and should consider mixed-method approaches that pair qualitative insight with quantitative measures of digital maturity. Longitudinal studies would further clarify how governance and the three operational domains coevolve, strengthening both the validity and the transferability of the model.

ACKNOWLEDGMENT

The authors sincerely thank STIKK An-Nur 2 Bululawang for granting access to its institutional setting and relevant research data throughout this study. We are also grateful to the institutional leaders, IT staff, lecturers, administrative staff, and students who generously shared their time and perspectives as participants. Their cooperation was essential to the completion of this research.

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