

# Cultural Legitimacy, Tiered Quality Structures, and Digital Traceability: Operationalizing the PPEPP Cycle for SDG 4 in Pesantren-Affiliated Higher Education

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## ABSTRACT

**Objective:** To investigate how pesantren-affiliated private Islamic higher education institutions operationalize internal quality assurance through the PPEPP cycle while sustaining culturally embedded religious identities and contributing to Sustainable Development Goal 4 (SDG 4). **Method:** A descriptive qualitative multisite case study was conducted at Universitas Ibrahimy Situbondo, Universitas Nurul Jadid Probolinggo, and Universitas Darussalam Gontor Ponorogo. Data were generated through in-depth interviews with 21 purposively selected institutional actors, moderate participant observation of audit and management-review processes, and analysis of quality-assurance regulations, audit manuals, and corrective-action records. Cross-case analysis combined data condensation, comparative displays, and pattern matching. **Results:** The analysis identified five interlocking mechanisms: culturally legitimate translation of quality standards through *itqan*, *amanah*, and *khidmah*; tiered quality structures connecting university, faculty, and study-program levels; contextualized execution of the PPEPP cycle; introspective internal audits linked to closed-loop management reviews and resource allocation; and digital platforms that strengthen evidence traceability. Three governance configurations emerged: adaptive-traditional (UNIB), standardization-integrative (UNUJA), and total-integrative (UNIDA). **Novelty:** The study advances a Techno-Spiritual Quality Assurance Model that explains how faith-based universities can reduce ceremonial compliance by coupling regulatory standards with cultural legitimacy, distributed quality governance, and digitally verifiable evidence trails.

## INTRODUCTION

Sustainable Development Goal 4 (SDG 4) places equitable access to high-quality tertiary education at the center of the global education agenda (United Nations, 2015; Wells, 2018). This mandate has become increasingly consequential as worldwide higher-education participation has expanded from approximately 99.5 million students in 2000 to more than 200 million in recent years, intensifying pressure on institutions to safeguard academic standards, institutional integrity, and social relevance (Altbach & Forest, 2006; Wells, 2018). In emerging economies, private institutions absorb a substantial share of this expansion, including demand from socioeconomically marginalized and geographically peripheral populations (Bloom & Rosovsky, 2006; Kinser & Levy, 2006). Expansion without robust internal quality mechanisms, however, can generate institutional strain and weaken the relationship between increased access and educational quality (Eaton, 2023; El-Khawas, 2006).

This challenge is particularly salient in Indonesian Islamic higher education, where private institutions constitute the dominant organizational form. National Education Management Information System (EMIS) data record 1,001 Islamic higher-education institutions, of which only 59 (6%) are public and 942 (94%) are private (Perguruan Tinggi Keagamaan Islam Swasta, PTKIS). In East Java, 175 of 204 PTKIS (85.78%) are physically, socially, or administratively embedded in pondok pesantren. Consequently, progress

toward SDG 4 in this sector depends not only on expanding participation but also on the capacity of pesantren-affiliated institutions to institutionalize credible, sustainable, and context-responsive quality assurance.

The resulting governance problem is not simply technical. Research on higher-education quality assurance has repeatedly documented an implementation gap in which formal standards are adopted to secure external legitimacy but become weakly coupled to everyday academic practice (Basuki, 2013; Kis, 2005; Newton, 2001). Accreditation requirements may therefore encourage documentation-intensive compliance while leaving curriculum quality, pedagogy, and research integrity insufficiently transformed (Bahri et al., 2020; Harvey & Newton, 2004; Suban, 2020). This risk is especially important for institutions navigating simultaneous pressures for regulatory conformity, organizational modernization, and preservation of a distinctive educational identity.

In faith-based higher education, those pressures are further complicated by the relationship between formal managerial systems and historically embedded institutional authority (Damme, 2002; Fadjar, 2004; Husni, 2016). Pesantren governance has traditionally been shaped by charismatic kyai leadership, tacit norms, and inherited educational practices (Dhofier, 2011; Lukens-Bull, 2011). When the national PPEPP cycle - Penetapan (standard setting), Pelaksanaan (implementation), Evaluasi (evaluation), Pengendalian (control), and Peningkatan (improvement) - is introduced without cultural translation, it may be experienced as an externally imposed bureaucratic requirement rather than an internally owned process of institutional improvement (Azra, 2001; Kemendikristek, 2026; Zarkasyi, 2020).

The concept of quality culture offers a productive lens for addressing this tension because it links formal quality infrastructures to the shared meanings that sustain organizational behavior (Ehlers, 2009; Harvey & Stensaker, 2008; Pelik, 2023). A mature quality culture combines structural-managerial arrangements-standards, procedures, audits, and performance indicators-with cultural-psychological conditions such as trust, shared responsibility, intrinsic motivation, and collective learning (Bendermacher et al., 2017; Sallis, 2014). In pesantren-affiliated institutions, values such as *itqan* (professional excellence), *amanah* (trustworthy stewardship), and *khidmah* (service) may therefore function as more than ethical symbols; when embedded in quality routines, they can provide cultural legitimacy for managerial practices that might otherwise be perceived as externally imposed (Chadijah et al., 2026; Pertiwi et al., 2026).

Despite the growing literature on quality culture, empirical evidence remains limited on how faith-based universities translate the PPEPP cycle into routine governance across multiple institutional levels and how that translation interacts with local religious authority, tiered quality structures, and digital evidence systems. This study addresses that gap through a multisite qualitative analysis of three pesantren-based universities in East Java: Universitas Ibrahimy (UNIB) Situbondo, Universitas Nurul Jadid (UNUJA) Probolinggo, and Universitas Darussalam (UNIDA) Gontor Ponorogo (Fauzi, 2026). The three cases were selected because they represent contrasting institutional genealogies and quality-governance configurations while sharing a common pesantren affiliation.

Accordingly, this study aims to explain how pesantren-based universities operationalize the PPEPP quality-assurance cycle, identify the institutional enablers and structural constraints that shape implementation, and develop a cross-site conceptual model of the relationship among cultural legitimacy, tiered quality governance, digital traceability, and SDG 4. It addresses three questions: (1) How is the PPEPP cycle operationalized and embedded across academic structures? (2) Which institutional conditions enable or constrain internal quality assurance in pesantren-affiliated settings?

and (3) What cross-site conceptual model explains the convergence of indigenous pesantren values and contemporary quality architectures in support of quality higher education?

## RESEARCH METHOD

### *Research design*

This study employed a descriptive qualitative design using a multisite case-study strategy (Creswell, 2012; Yin, 2018). The design was appropriate because the phenomenon of interest - the institutionalization of internal quality assurance - is inseparable from the organizational, cultural, and governance contexts in which it operates. Multisite comparison enables analytical replication across cases, systematic pattern matching, and identification of mechanisms that recur despite institutional variation (Lodico et al., 2006; Miles et al., 2018; Riyanto, 2010). The primary unit of analysis was the institutional internal quality assurance system (SPMI), with particular attention to how formal PPEPP procedures are translated into routine organizational practice and quality culture.

### *Research sites and context*

Fieldwork was undertaken at three private Islamic universities in East Java, Indonesia. The sites were analytically selected to capture variation in institutional history, governance, and pesantren educational orientation within a shared faith-based higher-education context:

1. Universitas Ibrahimy (UNIB), Sukorejo, Situbondo, is located within Pondok Pesantren Salafiyah Syafi'iyah Sukorejo. The higher-education institution was established in 1968 and consolidated as a university in 2018. UNIB manages 28 degree programs across six faculties and a postgraduate school, combining Salaf scholarly traditions, including fiqh, with contemporary professional fields.
2. Universitas Nurul Jadid (UNUJA), Paiton, Probolinggo, was established in 2017 through the strategic merger of three specialized colleges in Islamic studies, engineering, and health sciences under Yayasan Pondok Pesantren Nurul Jadid. UNUJA manages 25 active degree programs and emphasizes integrated digital governance, a unified standard operating procedure (POS Tunggal), and international management standards, including ISO 21001:2018 and ISO 9001:2015.
3. Universitas Darussalam (UNIDA), Siman, Gontor, Ponorogo, is grounded in the educational philosophy of Pondok Modern Darussalam Gontor, founded in 1926, and attained university status in 2014. UNIDA operates as a fully residential university-in-a-pesantren, manages 28 degree programs across eight faculties under the Board of Waqf, uses Arabic and English as major languages of academic communication, and integrates the Islamization of contemporary knowledge into its institutional mission.

**Table 1.** Institutional case profiles and analytical characteristics

| Campus               | Governance Archetype & Foundational Identity                 | Academic Scope & Demographics                                                                      | Quality Assurance Framework Emphasized                                             |
|----------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| UNIB<br>Situbondo    | Adaptive-Traditional;<br>Salaf tradition; SANTRI philosophy. | 28 Programs (D3, S1, S2, S3, Professional); 5,330 students; 233 full-time faculty (Ratio 1:22.88). | PPEPP cycle, Iqra 9 digital dashboard, Siklus Ishlah, classical text benchmarking. |
| UNUJA<br>Probolinggo | Standardization-<br>Integrative; Unified                     | 25 Programs (D3, S1, S2, S3, Professional); 5,939                                                  | Single standard operating procedure (POS Tunggal), ISO                             |

| Campus       | Governance Archetype & Foundational Identity            | Academic Scope & Demographics                                                                      | Quality Assurance Framework Emphasized                                                   |
|--------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|              | college merger; Trilogi Santri.                         | students; 174 full-time faculty (Ratio 1:34.13).                                                   | 21001:2018 & ISO 9001:2015, spmi.unuja.ac.id.                                            |
| UNIDA Gontor | Total-Integrative; 100% residential campus; Panca Jiwa. | 28 Programs (D4, S1, S2, S3, Professional); 5,846 students; 254 full-time faculty (Ratio 1:23.02). | 19 Fountain of Wisdom standards, centralized boarding monitoring, SIMUDA/SIMUTU systems. |

### *Data collection and key informants*

The empirical database was constructed through three complementary qualitative techniques, enabling triangulation across participants, observed practices, and institutional records:

- **In-depth interviews:** Semi-structured interviews were conducted with 21 purposively selected participants across the three sites. Informants included rectors and vice-rectors, leaders of quality-assurance bodies (LPM/LPPM/BPM), deans, heads of study programs, faculty- and program-level quality coordinators (GKM/GJM), and certified Internal Quality Audit (AMI) auditors. The interviews focused on the interpretation, implementation, monitoring, and improvement of institutional quality standards.
- **Participant observation:** Moderate participant observation was undertaken during university-level quality-review sessions, Management Review Meetings (RTM), internal-auditor briefings, and routine faculty quality-verification activities. Observations focused on how formal quality procedures were enacted, negotiated, and linked to decision making.
- **Document analysis:** Institutional statutes, five-year strategic plans (Renstra), annual operational plans (Renop), SPMI manuals, internal audit reports, corrective-action registers, and external accreditation portfolios were examined to corroborate interview and observational evidence and to reconstruct the formal quality-assurance architecture at each site.

### *Data analysis and research trustworthiness*

Data analysis followed the interactive model of Miles, Huberman, and Saldaña (2018), involving iterative data condensation, data display, and conclusion drawing/verification. Analysis proceeded in two stages. First, within-case analysis was conducted for each university to preserve institutional specificity and identify site-level patterns. Second, a cross-case comparison used pattern matching and comparative matrices to examine recurring mechanisms, divergent configurations, and higher-order analytical propositions across the three cases.

Trustworthiness was addressed through the criteria of credibility, dependability, confirmability, and transferability. The study used prolonged field engagement (September 2022 to mid-2026), persistent observation of quality-assurance activities, source and method triangulation, participant checking of interview transcripts, peer debriefing with educational-management scholars, and maintenance of an auditable chain of evidence. These procedures were intended to strengthen interpretive consistency while preserving the contextual particularity of each case.

## RESULTS AND DISCUSSION

### Results

Cross-site analysis identified five interlocking mechanisms through which UNIB, UNUJA, and UNIDA connect statutory quality requirements with the socioreligious realities of pesantren-based higher education. These mechanisms are summarized in Table 2 and elaborated below.

**Table 2.** Cross-site synthesis of quality assurance practices and SDG 4 outcomes

| Core Quality Practice                    | UNIB<br>Situbondo<br>(Adaptive-<br>Traditional)                                  | UNUJA<br>Probolinggo<br>(Standardization-<br>Integrative)                                | UNIDA Gontor<br>(Total-<br>Integrative)                                                                | Contribution to<br>Sustainable<br>Quality Higher<br>Education (SDG 4)                         |
|------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1. Theological Anchoring                 | Integrates SANTRI values with preservation of inherited scholarly traditions.    | Uses the Trilogi Santri and Panca Kesadaran Santri to strengthen institutional cohesion. | Embeds the Panca Jiwa and Islamization of contemporary knowledge across academic and residential life. | Strengthens cultural legitimacy, academic integrity, and moral accountability.                |
| 2. Tiered Governance Structure           | University LPM - faculty UPM-F - study-program GKM.                              | University LPPM - faculty GKM - study-program GJM.                                       | University BPM (SPMI, SPME, risk) - faculty UPM - study-program GPM.                                   | Distributes quality responsibility and connects institutional standards to academic practice. |
| 3. PPEPP Cycle Execution                 | Integrates national standards with classical-text (kitab kuning) proficiency.    | Combines national standards with ISO 21001:2018, ISO 9001:2015, and POS Tunggal.         | Implements 19 Fountain of Wisdom standards across academic and residential domains.                    | Supports curricular consistency while preserving institutional differentiation.               |
| 4. Introspective Audit & Closed-Loop RTM | Frames AMI as muhasabah; RTM follow-up is linked to subsequent RKAL allocations. | Uses unified audit procedures and time-bound corrective-action sheets.                   | Conducts cross-faculty audits; unresolved nonconformities are escalated to the Board of Waqf.          | Connects diagnostic evidence to corrective action, accountability, and resource decisions.    |
| 5. Digital Assurance Traceability        | Uses Iqra 9, including automated early-warning functions.                        | Uses spmi.unuja.ac.id and centralized institutional data portals.                        | Uses SIMUDA/SIMU TU to integrate academic and residential quality evidence.                            | Improves evidence retrieval, traceability, transparency, and verification.                    |

### *Theological anchoring: Converting compliance into moral stewardship*

Across the three sites, the PPEPP cycle gained organizational traction when formal quality requirements were translated into institutionally recognizable religious and ethical idioms. Rather than treating regulatory standards as culturally neutral administrative instruments, institutional leaders linked them to locally authoritative

concepts of scholarly responsibility, moral stewardship, and continuous self-improvement.

At Universitas Ibrahimy (UNIB), this translation is organized around the SANTRI philosophy: Shiddiq (truthfulness), 'Adalah wa Amanah (justice and trustworthiness), Nahdliyah (moderate traditionalism), Tawasuth wa Ta'awun (balance and mutual cooperation), Ri'ayah (care), and Istiqomah (consistency). The rector described internal quality assurance as an extension of the institution's inherited scholarly and religious obligations:

"For us at Ibrahimy, quality is not merely the attainment of national or international standards. More fundamentally, it embodies the scholarly and religious trust inherited from the founders and senior religious scholars through the SANTRI values ... in accordance with the principle of preserving sound traditions while adopting better innovations." (Rector, UNIB; translated from Indonesian)

At Universitas Nurul Jadid (UNUJA), quality requirements are interpreted through the Trilogi Santri and Panca Kesadaran Santri, particularly organizational consciousness (al-wa'yu at-tandzimiyyu). These principles provided a shared normative vocabulary for integrating the three historically separate colleges and for positioning standardized operating procedures as a collective institutional commitment rather than a purely administrative imposition.

At Universitas Darussalam (UNIDA) Gontor, internal quality assurance is embedded in the Panca Jiwa - Sincerity, Simplicity, Self-Reliance, Islamic Brotherhood, and Freedom. These values are operationalized through 19 institutional standards known as The Fountain of Wisdom, which connect academic expectations with the discipline of residential campus life. Across the three cases, cultural translation therefore functioned as a legitimating mechanism: quality assurance was reframed from external surveillance into an internally meaningful responsibility consistent with institutional identity.

### ***Tiered governance infrastructure: Operationalizing quality across levels***

To prevent quality assurance from becoming administratively concentrated in a central office, all three universities developed nested governance structures that distribute responsibility across university, faculty, and study-program levels:

- Central quality agency: The Lembaga Penjaminan Mutu (LPM at UNIB, LPPM at UNUJA, and BPM at UNIDA) develops university-wide standards and manuals, coordinates internal-auditor development, and organizes institution-level quality reviews.
- Faculty quality units (UPM-F/UPM): Faculty-level teams translate institutional standards into operational plans (Renop), coordinate implementation, and monitor compliance across departments and academic services.
- Study-program quality cells (GKM/GJM/GPM): Located closest to teaching and learning, these units monitor course plans (RPS), lecturer attendance, assessment procedures, and other program-level quality evidence.

This tiered architecture shortens the distance between policy formulation and academic practice. It also creates multiple points of verification, enabling deviations to be identified earlier and making responsibility for quality visible beyond the central quality-assurance office.

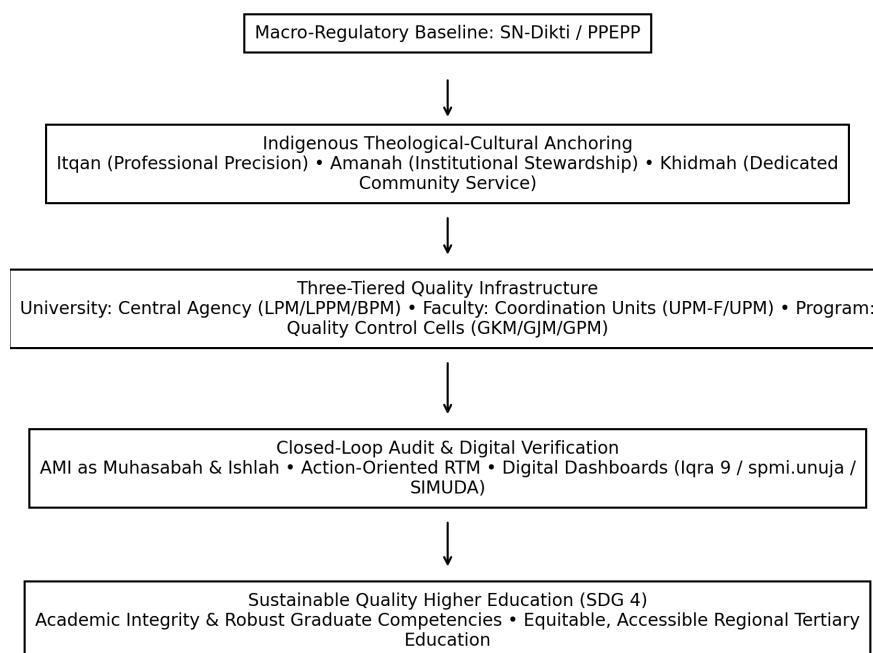
### *Introspective audits and closed-loop management reviews*

A recurrent weakness in higher-education quality assurance is the failure to close the audit loop: findings are documented but do not consistently generate corrective action or resource consequences (Billing, 2004; Kis, 2005). The three universities addressed this problem by connecting Internal Quality Audit (AMI) findings to Management Review Meetings (RTM), corrective-action mechanisms, and, to varying degrees, institutional budgeting and leadership accountability.

The audit process is framed through the concepts of *muhasabah* (critical self-examination) and *ishlah* (corrective improvement). This framing positions auditors as developmental partners rather than punitive inspectors and helps reduce defensive responses among academic staff. An internal auditor at UNIB described the role as follows:

"Under the SPMI standards, AMI auditors function as strategic partners who identify gaps between standards and practice through objective verification, thereby providing reliable evidence for control and continuous quality improvement." (AMI Auditor, UNIB; translated from Indonesian)

Audit findings are subsequently escalated to the RTM, the institution's highest formal quality-review forum. At UNIB, more than 85% of audit findings are reported as resolved within the following semester, supported by a mechanism through which annual unit-level budget allocations (RKAL) are linked to remediation of identified nonconformities. UNUJA formalizes follow-up through signed corrective-action sheets with defined time frames, whereas UNIDA reports unresolved deficiencies to the Board of Waqf, where they may inform leadership evaluation. Across the cases, the critical feature is not the audit itself but the conversion of diagnostic evidence into decisions, corrective action, and resource allocation.



**Figure 1.** The techno-spiritual quality assurance model in pesantren universities

### ***Enabling factors and structural bottlenecks***

Cross-case comparison also identified a set of enabling conditions and recurrent bottlenecks that shape the effectiveness of the quality-assurance cycle.

Enabling conditions:

- Leadership alignment: Consistent support from pesantren/foundation leaders (kyai) and professional university executives provides the authority and organizational continuity required to enforce quality policies across institutional levels.
- Normative commitment (khidmah): Academic and administrative staff frequently interpret teaching, quality-assurance, and institutional service as interconnected forms of professional and spiritual responsibility, strengthening commitment beyond formal compliance.
- Certified internal-auditor capacity: Developing an internal pool of trained auditors increases methodological consistency, peer credibility, and continuity in audit implementation.
- Digital quality platforms: Institution-specific platforms - Iqra 9 at UNIB, spmi.unuja.ac.id at UNUJA, and SIMUDA/SIMUTU at UNIDA - improve evidence retrieval, facilitate verification, and reduce transaction costs associated with paper-based quality administration.

Structural constraints:

- Compliance fatigue: Increasing reporting frequency and changing accreditation instruments can shift organizational attention from substantive academic improvement toward document production and deadline management.
- Uneven digital capability: Differences in digital literacy across staff cohorts can slow the completion, validation, and use of online quality documentation.
- Role overload: In pesantren settings, lecturers may simultaneously perform academic, residential-mentoring, and community-religious roles, creating workload pressures during intensive audit and accreditation periods.

### ***Discussion***

#### ***Overcoming decoupling through value-driven governance***

The findings refine the neo-institutional account of quality assurance as a potential source of ceremonial conformity and policy-practice decoupling (Cai & Mountford, 2022; Harvey & Newton, 2004; Oliver, 1991). In resource-constrained higher-education settings, formal quality systems may be adopted primarily to demonstrate external legitimacy while leaving core academic routines relatively unchanged (Basuki, 2013; Suban, 2020). The three cases examined here show, however, that the relationship between formal compliance and substantive change is conditional rather than predetermined.

At UNIB, UNUJA, and UNIDA, regulatory requirements become more actionable when they acquire cultural legitimacy inside the institution. The mechanism is normative translation: formal standards are connected to shared concepts such as itqan, amanah, khidmah, muhasabah, and ishlah, thereby linking external accountability to internally valued notions of scholarly and moral responsibility. This finding extends quality-culture scholarship by showing how cultural ownership can be produced through the reinterpretation of managerial routines, rather than through the simple replacement of traditional authority by technocratic governance (Bendermacher et al., 2017; Ehlers, 2009; Sallis, 2014). Cultural legitimacy, in this sense, does not weaken standardization; it provides the social basis through which standardization becomes institutionally meaningful.

### ***Typological diversity in pesantren higher education***

The cross-case comparison further demonstrates that pesantren-affiliated universities should not be treated as a homogeneous organizational category. Each institution configures quality governance in ways that reflect its historical trajectory, authority structure, and educational philosophy:

The Adaptive-Traditional Model (UNIB Situbondo) relies on gradual, consensus-oriented institutional change. Anchored in the Salaf tradition, UNIB aligns the PPEPP cycle with the preservation of classical-text scholarship (*kitab kuning*) and jurisprudential expertise through the principle of *al-muhafadhatu 'ala al-qadim al-shalih wa al-akhdzu bi al-jadid al-ashlah* - preserving sound traditions while adopting better innovations.

The Standardization-Integrative Model (UNUJA Probolinggo) is more explicitly systems-oriented. Emerging from a merger of three colleges, UNUJA uses unified quality procedures to create organizational coherence across previously differentiated academic units, combining national requirements with ISO 21001:2018, ISO 9001:2015, and the POS Tunggal framework.

The Total-Integrative Model (UNIDA Gontor) embeds quality assurance within a fully residential university-in-a-pesantren system. Under the Board of Waqf, academic curricula, bilingual learning environments, residential discipline, and student development are governed through 19 Fountain of Wisdom standards, producing a quality architecture that extends beyond conventional classroom and administrative boundaries.

These configurations support a context-sensitive view of educational management (Brauckmann et al., 2023; Hallinger, 2018; Tan, 2024). Quality-assurance architectures are therefore unlikely to be effective when transferred mechanically across institutions. Their effectiveness depends on institutional fit: the alignment among formal standards, governance authority, organizational history, and the cultural meanings through which academic communities interpret quality.

### ***Advancing quality and equity: Contributions to SDG 4***

The institutionalization of internal quality assurance in pesantren universities is also relevant to SDG 4, particularly Target 4.3 on equitable access to affordable and high-quality tertiary education (United Nations, 2015). Pesantren-affiliated universities occupy an important access function in Indonesia because they extend community-rooted higher education to populations that may be geographically or socioeconomically distant from major public research universities. From an SDG perspective, however, widened access is sustainable only when expansion is accompanied by credible mechanisms for academic standards, student learning, and institutional accountability.

The cases suggest that this quality-access relationship is strengthened by combining normative commitment with operational traceability. Certified auditor pools, closed-loop RTM processes linked to follow-up decisions, and digital dashboards make quality evidence more visible and auditable, while religious-ethical commitments provide an internal rationale for academic integrity and professional responsibility. The two mechanisms are complementary rather than substitutive: cultural values support commitment, whereas formal and digital systems stabilize expectations, document performance, and enable corrective action. This combination helps explain how community-based faith institutions can pursue both institutional distinctiveness and externally accountable quality (Chadijah et al., 2026; Parscale, 2023; Pistor & Stammen, 2015).

## CONCLUSION

**Fundamental Finding:** Across the three cases, sustainable internal quality assurance was associated with the interaction of four institutional conditions: culturally legitimate translation of PPEPP standards, tiered distribution of quality responsibilities, closed-loop audit and management-review mechanisms, and digitally traceable evidence. Together, these conditions constitute the proposed Techno-Spiritual Quality Assurance Model. The model does not imply a single organizational form; rather, it accommodates adaptive-traditional (UNIB), standardization-integrative (UNUJA), and total-integrative (UNIDA) configurations while identifying the mechanisms shared across them. **Implication:** For institutional leaders, quality-assurance systems are more likely to become embedded when regulatory requirements are translated into the ethical and cultural language through which academic communities understand responsibility and improvement. For policy makers and accreditation bodies, the findings support context-sensitive regulation that evaluates the credibility of internal quality cycles and evidence-based follow-up rather than privileging documentation volume alone. The study also indicates that digital traceability is most effective when coupled with clear accountability structures and organizational ownership of quality. **Limitation:** The study was confined to three established and comparatively well-resourced pesantren universities in East Java. Transferability to smaller single-faculty Islamic colleges, institutions with more limited financial and human resources, or faith-based universities outside Java should therefore be approached cautiously. In addition, the qualitative cross-case design examined governance and managerial processes rather than estimating the longitudinal effect of quality-assurance maturity on student learning outcomes, graduate employability, or other quantitative performance indicators. **Future Research:** Subsequent studies should test the proposed model through mixed-method and longitudinal designs that link quality-culture maturity, digital traceability, and closed-loop governance to measurable student and institutional outcomes. Comparative research across other faith-based higher-education traditions in Southeast Asia would also clarify which mechanisms are specific to pesantren institutions and which are transferable across culturally embedded university systems.

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## AUTHOR CONTRIBUTIONS

Ahmad Fauzi contributed to conceptualization, methodology, formal analysis, investigation, data curation, and preparation of the original draft. Yatim Riyanto contributed to conceptualization, supervision, validation, and critical review of the manuscript. Nunuk Hariyati contributed to methodology refinement, supervision, validation, and writing - review and editing. All authors reviewed and approved the final version of the manuscript.

## CONFLICT OF INTEREST STATEMENT

The authors confirm that they have no financial, professional, or personal conflicts of interest that could have influenced the design, interpretation, or reporting of this study.

## ETHICAL COMPLIANCE STATEMENT

This study was conducted in accordance with established principles of research and publication ethics. Participation was voluntary, informed consent was obtained, confidentiality of personal identities was protected, and access to institutional documents was authorized by the participating institutions. Fieldwork followed the ethical requirements of the Graduate School of Universitas Negeri Surabaya and the host institutions.

## STATEMENT ON THE USE OF AI OR DIGITAL TOOLS IN WRITING

The authors used ChatGPT (OpenAI) solely for English-language editing, stylistic refinement, structural alignment with the JOCSIS template, and assistance with citation-format consistency. AI tools were not used to generate empirical data, fabricate or alter findings, select participants, or conduct the substantive qualitative interpretation on which the results are based. All AI-assisted text was critically reviewed and revised by the authors, who retain full responsibility for the accuracy, originality, and integrity of the manuscript.

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