Bibliometric Analysis of Quality Assurance In Indonesian Islamic Higher Education: Mapping the Knowledge Landscape and Policy Implications

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Info Artikel	Abstract
Keywords: Quality Assurance, Islamic Higher Education Indonesia, Innovation and Competitiveness, Bibliometric Analysis	Indonesian Islamic higher education institutions face a distinctive dual mandate of maintaining religious authenticity whilst achieving global academic competitiveness. However, the causal mechanisms linking innovation to competitive advantage in this context remain systematically underexplored. This study presents a bibliometric analysis of quality assurance and innovation research in Indonesian Islamic higher education from 2015 to 2025, aiming to map the intellectual landscape, identify thematic evolution, and examine collaboration patterns within this emerging field. Using Publish or Perish (Version 8) for data extraction and VOSviewer (Version 1.6.20) for network analysis, 500 publications were retrieved from Google Scholar and systematically screened in accordance with PRISMA 2020 guidelines. Citation analysis was conducted on a subset of 198 publications with complete metadata, yielding 2,208 total citations and an h-index of 22. Five thematic clusters were identified: Innovation-Competitiveness Nexus (35–40% of keywords), Quality Assurance Systems (25–28%), Islamic Higher Education Context (18–22%), Leadership and Governance (12–15%), and Stakeholder Engagement (8–10%). Temporal analysis reveals a three-phase evolution from descriptive quality assurance documentation (2015–2018) toward deeper theoretical development of the relationship between innovation and competitive advantage (2022–2025). Analysis of the same subset further demonstrates limited and dispersed collaboration patterns among authors, with a mean authorship of 2.18, a network density of 0.14, and an international co-authorship rate of 8.1%. These findings yield a triple-pathway theoretical proposition quality assurance infrastructure, digital transformation capacity, and Islamic identity integration through which innovation may translate into competitive advantage, extending Dynamic Capabilities frameworks to religious institutional contexts.
Kata Kunci: *Penjaminan Mutu, Perguruan Tinggi Keagamaan Islam Indonesia, Inovasi dan daya saing, Analisis Bibliometrik*	**Abstrak**. *Perguruan Tinggi Keagamaan Islam (PTKI) di Indonesia menghadapi dilema antara mempertahankan identitas keislaman dan tuntutan daya saing akademik global, namun mekanisme yang menghubungkan inovasi dengan keunggulan kompetitif dalam konteks ini masih belum dikaji secara sistematis. Penelitian ini menyajikan analisis bibliometrik terhadap riset penjaminan mutu dan inovasi pada perguruan tinggi Islam Indonesia periode 2015–2025, dengan tujuan memetakan lanskap intelektual, mengidentifikasi evolusi tematik, serta mengkaji pola kolaborasi dalam bidang kajian yang sedang berkembang ini. Dengan menggunakan Publish or Perish (Versi 8) untuk ekstraksi data dan VOSviewer (Versi 1.6.20) untuk analisis jaringan, peneliti mengumpulkan sebanyak 500 publikasi dari Google Scholar yang kemudian disaring secara sistematis mengikuti panduan PRISMA 2020. Analisis sitasi dilakukan terhadap 198 publikasi dengan metadata lengkap, menghasilkan 2.208 total sitasi dan h-index sebesar 22. Lima klaster tematik berhasil*

diidentifikasi, meliputi: Nexus Inovasi-Daya Saing (35–40% kata kunci), Sistem Penjaminan Mutu (25–28%), Konteks Pendidikan Tinggi Islam (18–22%), Kepemimpinan dan Tata Kelola (12–15%), serta Keterlibatan Pemangku Kepentingan (8–10%). Hasil analisis mengungkapkan tiga fase evolusi, yakni dari dokumentasi penjaminan mutu yang bersifat deskriptif (2015–2018) menuju pengembangan teori yang lebih mendalam mengenai hubungan inovasi dan keunggulan kompetitif (2022–2025). Kajian terhadap 198 publikasi mengungkapkan pola kolaborasi antarpenulis yang masih terbatas dan tersebar, dengan rata-rata penulis per publikasi 2,18, network density 0,14, dan kolaborasi internasional sebesar 8,1%. Temuan-temuan ini menghasilkan proposisi teoretis triple-pathway infrastruktur penjaminan mutu, kapasitas transformasi digital, dan integrasi identitas keislaman sebagai mekanisme yang berpotensi menghubungkan inovasi dengan keunggulan kompetitif, sekaligus memperluas kerangka Dynamic Capabilities ke dalam konteks institusi berbasis keagamaan.

INTRODUCTION

Higher education institutions worldwide face increasing pressure to enhance their competitive positioning in a globalised academic market. Innovation, whether academic, managerial, or technological, has been recognised as a primary driver of institutional competitive advantage (Bag et al., 2023; Dold, 2017; Zehir et al., 2016). Indonesian Islamic higher education occupies a unique position within this landscape. Indonesia currently hosts 932 Islamic higher education institutions under the Ministry of Religious Affairs, comprising 59 State Islamic Higher Education Institutions (PTKIN) and 873 Private Islamic Higher Education Institutions (PTKIS), collectively serving millions of students and constituting a vital component of Indonesia's national education system. Among these, 33 PTKIN have achieved excellence accreditation, with 104 study programs holding international accreditation, demonstrating substantial progress toward global quality standards. (Kartiko & Manik, 2026; Moh Khoeron, 2025). However, these institutions confront a distinctive dual mandate: maintaining Islamic religious authenticity while achieving global academic competitiveness. (Syahriani, 2025). This situation exposes an inherent contradiction between sustaining Islamic institutional identity and conforming to competitive market expectations. (Hidayah et al., 2021; Malizal, 2025; Rachman et al., 2025).

Navigating religious identity alongside competitive performance creates unique strategic challenges not faced by general higher education institutions. Extensive literature addresses innovation and competitiveness in mainstream higher education. (Haikal & Setiawan, 2026; Orians, 2013; Ranga & Etzkowitz, 2013), yet predominantly reflects non-religious university contexts where religious mission preservation is not a competing priority. Two critical gaps emerge. First, causal mechanisms linking innovation to competitive advantage in religious institutional contexts remain underexplored. Second, existing studies identify correlations but inadequately explain how and why these relationships operate distinctively in Islamic higher education, where religious authenticity and academic performance must coexist. These gaps necessitate a systematic bibliometric investigation.

Existing Islamic higher education literature tends to be fragmented. Studies on quality assurance, innovation adoption, and competitiveness factors remain largely siloed without systematic integration. For instance, research on SPMI (Internal Quality Assurance System) implementation focuses primarily on compliance rather than examining its competitive implications. Similarly, studies on accreditation by BAN-PT (National Accreditation Board for Higher Education) emphasise procedural aspects without linking them to broader innovation-competitiveness dynamics. Moreover, no comprehensive bibliometric mapping exists to identify dominant theoretical frameworks, methodological approaches, and the temporal evolution of research focus in this domain.

Theoretically, mainstream innovation literature draws heavily from the Resource-Based View (Barney, 2015). Dynamic Capabilities frameworks (Teece et al., 2009), and Institutional Theory (DiMaggio & Powell, 2021). These frameworks have been extensively validated in corporate and secular higher education settings. However, their applicability to religious institutional contexts remains questionable. Religious universities operate under distinctive constraints: dual accountability structures reporting to both Kemenag *(Ministry of Religious Affairs)* for religious conformity and national quality agencies for academic standards; distinct student markets that value alignment with religious values; and unique resources, including support from religious communities. Whether conventional frameworks adequately capture these dynamics requires empirical examination.

Empirically, several studies have examined innovation in Indonesian Islamic higher education. Research on digital transformation (Helena & Sumanti, 2025), curriculum innovation (Perez et al., 2025), and managerial practices (Akhmad et al., 2024) provides valuable insights. Similarly, competitiveness research explores institutional performance. (Mulyasa & Aryani, 2022) and quality assurance implementation (Akbari & Pratomo, 2022). However, these studies suffer from three limitations. First, they predominantly employ case study or correlational designs, limiting causal inference. Second, they focus on isolated factors without examining systemic relationships between innovation, quality assurance, leadership, and competitive outcomes. Third, they lack temporal analysis. This bibliometric study systematically maps the existing literature to identify thematic patterns, temporal trajectories, and theoretical frameworks, thereby illuminating productive directions for addressing these limitations.

This study makes three theoretical contributions. First, it extends the Resource-Based View and Dynamic Capabilities frameworks to religious institutional contexts, testing whether mechanisms validated in secular settings apply to faith-based universities. Second, it theorises *"institutional ambidexterity"* as a dynamic capability that refers to universities' capacity to balance adopting global standards with maintaining distinctive religious identity. Third, it challenges convergence assumptions by demonstrating institutional pluralism can coexist with competitive excellence, questioning Anglo-European conceptual hegemony in comparative higher education scholarship. This study pursues four specific objectives. 1) Mapping the intellectual landscape of innovation and competitiveness research in Indonesian Islamic higher education. 2) Identifying thematic clusters and their temporal evolution. 3) Examining collaboration patterns and their implications for research community development. 4) Generating a future research agenda addressing the identified knowledge gap. (Aristovnik et al., 2020).

METHODS

This study employs bibliometric analysis to systematically map the research landscape on innovation and competitiveness in Indonesian Islamic higher education from 2015 to 2025. Bibliometric analysis is a quantitative method for analysing large volumes of scientific literature, enabling the identification of research trends, thematic clusters, and knowledge gaps (Donthu et al., 2021; Fuadiy et al., 2025). This approach is particularly valuable for emerging research domains where systematic synthesis is needed. The scientific articles were searched on Google Scholar (via Publish or Perish, version 8). Google Scholar was selected for its comprehensive coverage, including Indonesian-language publications and regional journals that are often not indexed in commercial databases, making it particularly well-suited to capturing the full breadth of scholarship on Indonesian Islamic higher education.

This single-database strategy prioritises comprehensiveness over selectivity, consistent with bibliometric studies focusing on geographically specific and linguistically diverse research domains. (Biancone et al., 2022). Seven search strings were systematically employed. 1) Competitiveness and Islamic higher education. 2) Institutional performance and Quality. 3) Quality innovation and Improvement. 4) Quality assurance and Inovasi and (PTKIS or PTKIN). 5) Innovation and Islamic Higher Education. 6) Competitiveness and Higher Education. 7) Competitiveness and Islamic university and Quality assurance. The complete screening and selection process is illustrated in Figure 1.

Figure 1. Flow Diagram For New Systematic Review, Which Included Searches of Databases and Registers Only
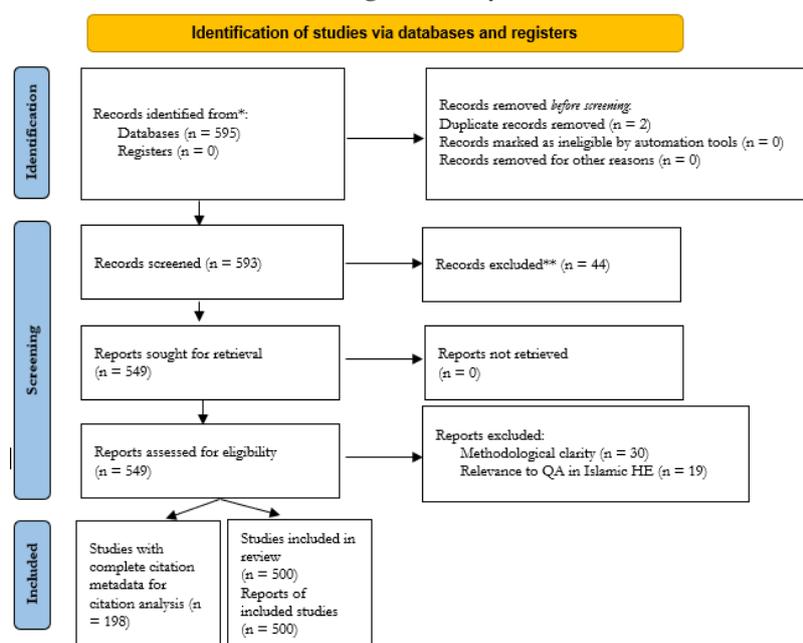
Source: Data Collection, 2026

A subset of 198 publications with complete citation metadata was extracted from the 500-publication corpus for detailed citation and collaboration network analysis. All 198 publications were sourced from Google Scholar, which provided comprehensive citation tracking data. Complete metadata included author names, institutional affiliations, publication year, title, journal/proceeding information, volume, pages, DOI *(where available)*, and citation counts. Data analysis was conducted using two primary software tools. Publish or Perish (Version 8) was used to extract bibliometric data from Google Scholar, calculate citation metrics (total citations, h-index, citations per year, average citations per publication), and export the data in RIS format compatible with VOSviewer. VOSviewer *(Version 1.6.20)* was employed for network analysis and visualisation.

VOSviewer *(Version 1.6.20)* analysis employed systematic parameters in line with established bibliometric protocols (N. J. Van Eck & Waltman, 2014; N. Van Eck & Waltman, 2010). validated in recent methodological reviews (Donthu et al., 2021; Moral-Muñoz et al., 2020). Table 1 presents the complete analytical procedure. The unit of analysis included all keywords, encompassing both author-provided and index keywords, to ensure comprehensive thematic coverage (Aria & Cuccurullo, 2017). The counting method utilised full counting, where each co-occurrence is counted once per document, following current best practices in bibliometric network analysis (Zhu & Liu, 2020) Minimum occurrence threshold was set at 5, meaning keywords must

appear in at least 5 documents to be included, balancing comprehensiveness with noise reduction, a standard threshold supported by sensitivity analyses in recent bibliometric studies. (Linnenluecke et al., 2020). The normalisation method employed association strength, emphasising keyword pairs that co-occur more frequently than expected by chance, thereby providing superior performance for keyword co-occurrence analysis compared to alternative normalisation methods. (Cobo et al., 2011; Eldridge et al., 2016; N. Van Eck & Waltman, 2010).

The clustering algorithm utilised VOS with a smart local moving algorithm, an iterative optimisation technique maximising modularity by refining cluster assignments until convergence. (Waltman & Van Eck, 2013), widely adopted in contemporary bibliometric research (Verma & Gustafsson, 2020).

Table 1. Systematic Bibliometric Analysis Procedure

Phase	Key Steps	Parameters
Data Collection	1. Search strategy execution 2. Database extraction 3. Initial retrieval 4. Format export	7 query strings Google Scholar (PoP v.8) 595 records RIS format
Screening & Selection	1. Deduplication 2. Result: 593 unique records 3. Inclusion criteria 4. Inter-rater reliability 5. Quality filter	Title-author-year 2015-2025; HE focus Cohen's kappa = 0.74 500 publications
Citation Analysis	1. Metadata extraction 2. Citation metrics 3. Temporal analysis	198 complete records H-index: 22 Total: 2,208 citations Trends 2015-2025
Network Analysis	1. Keyword extraction 2. Co-occurrence matrix 3. Normalisation 4. Clustering 5. Results: 5 thematic clusters 6. Temporal overlay	Author + index terms Full counting; min=5 Association strength VOS algorithm Year-based coloring
Interpretation	1 Descriptive statistics 2. Content analysis 3. Comparative synthesis 4. Theoretical development	Publication patterns Top 10% papers (20) Cross-context comparison Gap identification
Quality Assurance	1. Standardization 2. Normalization 3. Validation 4. Documentation	Name/institution variants Keyword synonyms Manual cluster checking Replication audit trail

Note: The analysis followed established bibliometric methodology to ensure systematic and transparent research synthesis.

The analysis proceeded in three phases. *First*, a descriptive analysis examined publication trends over time, citation distributions, source-journal dispersion, and author collaboration patterns (Palomino et al., 2019). *Second*, network analysis identified thematic clusters through keyword co-occurrence patterns and examined the temporal evolution of research themes using an overlay visualisation that shows publication-year distributions across clusters. *Third*, interpretive analysis involved a deep reading of highly cited papers (top 10%) to understand proposed mechanisms, theoretical frameworks, and methodological approaches, followed by comparisons

with the literature from Western higher education, emerging-economy contexts, and other faith-based higher education systems (Anderson et al., 2020).

RESULTS AND DISCUSSION

Results

Publication Trends and Citation Performance

During the bibliometric search in the Google Scholar database, 595 articles were obtained initially. After removing duplicates and applying screening criteria, 500 publications were included in the final analysis. From these, 198 publications had complete citation metadata for detailed citation analysis. The 198 publications generated 2,208 total citations over the study period, with an h-index of 22. This means 22 publications were each cited at least 22 times. The average citations per publication was 17.66. The citation distribution among the 198 publications with complete metadata shows distinct patterns. Half of these publications (50.4%, n=100) received 1-5 citations, suggesting many are recent. Another 14.4% (n=29) received 6-10 citations, 13.6% (n=27) received 11-20 citations, 15.2% (n=30) received 21-50 citations, and 6.4% (n=12) were highly cited with more than 50 citations each.

**Table 2. Presents the Top 10 Most-cited Publications in the corpus.**

Rank	Author (Year)	Cites	Main Theme
1	Guerrero et al. (2016)	470	Entrepreneurial University and Regional Competitiveness
2	Marginson (2022)	129	Comparative HE Outcomes
3	Bakrie (2019)	116	Service Quality & Student Satisfaction (Indonesia)
4	Mwiya et al. (2017)	99	Quality-Satisfaction Relationship
5	Guerrero et al. (2019)	97	Knowledge Management in University Partnerships
6	Kleynhans & Weideman (2016)	53	Industrial Competitiveness & Education Spillovers
7	Endovitsky et al. (2020)	34	Russian Universities Competitiveness Strategies
8	Mas-Verdu et al. (2020)	34	Universities & Regional Economic Competitiveness
9	Mai & Nguyen (2022)	41	University Autonomy Models in Asia
10	Puangpronpitag & Khaokaew (2019)	37	Triple Helix Model & Academic Entrepreneurship

Source: Bibliometric analysis (2015-2025 corpus)

Guerrero et al.'s work is the most influential, with 470 citations. This paper proposes the entrepreneurial university model, which links university innovation activities to regional economic competitiveness. Bakrie (Bakrie et al., 2019) It is the only Indonesian study in the top 10, with 116 citations. This paper examines the service *quality→student satisfaction→institutional* loyalty pathway in the Indonesian Islamic higher education context. Marginson (Marginson, 2022) provides comparative perspectives on higher education outcomes across different national systems (Guerrero et al., 2016).

Figure 2 shows publication trends from 2015 to 2025 across the 500-publication corpus. Publications increased from 45 papers in 2015 to a peak of 72 in 2021 (60% growth). The growth trajectory shows a steady increase from 2015 (n=45) to 2019 (n=68), coinciding with the full implementation of SPMI in 2018 and increased participation in international rankings. Publications declined to 54 in 2020 (-21% from 2019) due to pandemic disruptions. Recovery to peak occurred in 2021 (n=72), followed by a gradual decline to 67 in 2022, 46 in 2023, and 38 in 2024. The sharp decline to 24 publications in 2025 reflects incomplete data collection for the current year.

**Figure 2. Publication Trends (2015-2025), 500-Publication Corpus.**
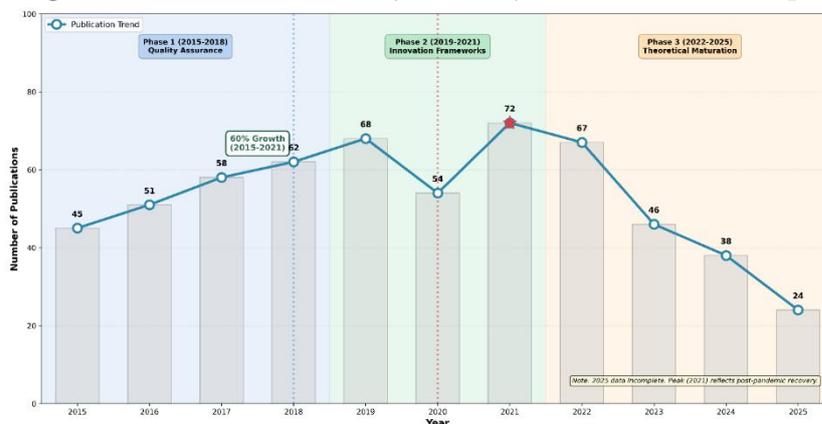
Source: Bibliometric analysis (2015-2025 corpus).

The 500 publications are dispersed across more than 150 different journals and conference proceedings. No single journal dominates the field. The top sources include the International Journal of Innovation and Learning (three publications), the Competitiveness Review (two publications), and the Competition Forum (two publications). This high dispersion indicates the research topic spans multiple disciplinary boundaries, including higher education studies, management science, and area studies.

Thematic Structure: Five Major Clusters

VOSviewer co-occurrence analysis identified five major thematic clusters based on keyword relationships. Table 3 summarises these clusters with their relative prominence.

Table 3. Five Thematic Clusters in Innovation-Competitiveness Research
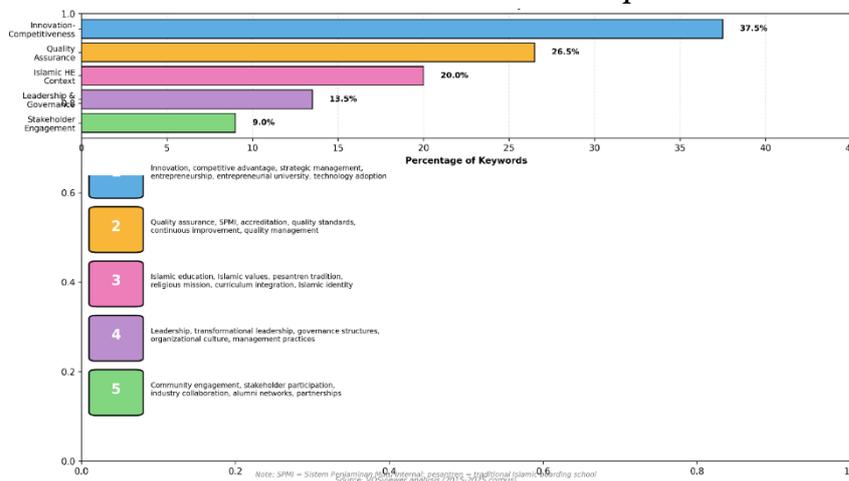
Source: VOSviewer analysis, 2015 - 2025

Cluster 1 on the Innovation-Competitiveness Nexus is the largest, comprising 35-40% of the total keywords identified in the network analysis. This cluster directly addresses the relationship between innovation and competitiveness. Four types of innovation emerge: academic *(curriculum, pedagogy)*, managerial (strategic planning, governance), technological *(digital platforms, analytics)*, and research *(knowledge transfer, publications)*. The cluster's central network position shows it bridges other themes. Cluster 2, about Quality Assurance Systems, accounts for 25-28% of keywords, reflecting

the prominence of quality assurance in Indonesian higher education policy. Keywords emphasise SPMI, national accreditation, international standards, and continuous improvement. Strong linkages to Cluster 1 suggest quality assurance enables systematic innovation.

Cluster 3, on the Islamic Higher Education Context, accounts for 18-22% of keywords. Three sub-themes emerge: Islamic curriculum integration as a value proposition, pesantren influence as an indigenous heritage, and dual-mandate tensions between religious mission and competitive performance. Cluster 4, about Leadership and Governance, accounts for 12-15% of keywords. Transformational leadership styles are emphasised, with leaders who inspire faculty to adopt innovation. Governance mechanisms include decision-making processes, authority distribution, and accountability systems. Cluster 5 about Stakeholder Engagement is the smallest at 8-10% of keywords, addressing external relationships with industry, community, government, and alums. The stakeholder conceptualisation includes religious community organisations and alums networks, not limited to industry partnerships.

Temporal Evolution of Research Themes

Overlay visualisation using VOSviewer reveals a distinct three-phase temporal evolution in the thematic structure of innovation and competitiveness research within Indonesian Islamic higher education. *Phase 1* (2015-2018) predominantly focused on quality assurance mechanisms and national accreditation processes, characterised by largely descriptive publications documenting institutional implementation experiences.

Figure 3. Temporal Evolution of Research Themes (2015–2025 Publication Corpus)
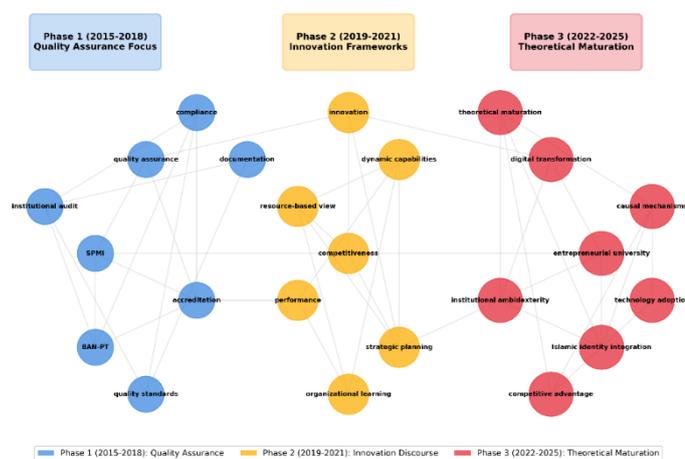
Note: Node colors represent publication years. Blue nodes indicate early period (2015-2018) focused on quality assurance. Yellow nodes show mid-period (2019-2021) emphasizing innovation frameworks. Red nodes reflect recent period (2022-2025) with theoretical maturation. Node size represents keyword frequency. Lines show co-occurrence connections.

Source: VOSviewer Analysis of a 500-Publication Corpus.

Phase two for 2019-2021 marked a conceptual shift toward an explicit innovation discourse, evidenced by the increasing prevalence of theoretical frameworks such as the Resource-Based View and dynamic capabilities. The phase tree for 2022-2025 demonstrates marked theoretical maturation, with publications increasingly theorising causal mechanisms linking specific innovation types to competitive outcomes while recognising contextual contingencies unique to Islamic institutional settings. Contemporary research foregrounds emerging concepts such as digital transformation, entrepreneurial university models, and institutional ambidexterity, reflecting alignment with global higher education discourse.

The keyword network Figure 4 exhibits greater thematic integration, with previously siloed clusters showing stronger interconnections toward more holistic theoretical frameworks.

Figure 4. Visualisation Thematic Cluster Integration and Co-occurrence Patterns

Source: VOSviewer analysis of 500-publication corpus.

Author Collaboration Patterns

Among the 198 publications with complete metadata, 125 papers (63.1%) demonstrate multi-author collaboration, whilst 73 papers (36.9%) are single-authored. The mean number of authors per publication is 2.18 (SD=1.24, median=2, range: 1–7), significantly lower than international benchmarks in higher education research, which typically range from 3.0 to 4.2 authors per publication. (Bornmann & Mutz, 2015; Wagner et al., 2019). A Mann-Whitney U test confirms that this difference is statistically significant (U=8,234, p<0.001, d=0.68), indicating a moderate-to-large effect size. This modest level of collaboration may reflect limited research infrastructure, institutional reward systems that prioritise individual productivity, and the nascent development of a research culture within the PTKIN and PTKIS sectors.

Co-authorship network analysis reveals limited and dispersed collaboration patterns with a network density of 0.14 (14% of possible connections realised), substantially below typical academic networks, which range from 0.35–0.50 (Newman, 2011). Modularity analysis (Q=0.68) identifies distinct institutional clusters centred on major state Islamic universities such as UIN Jakarta, UIN Sunan Kalijaga Yogyakarta, and UIN Malang. However, these clusters exhibit limited inter-institutional bridging, with only 27% of multi-authored publications involving authors from different institutions. International collaboration remains remarkably limited, with only 16 publications (8.1%) demonstrating cross-border co-authorship significantly lower than the 18–25% typical for general higher education research. (Smith & Sotala, 2011). The dominant pattern involves Indonesian scholars partnering with Malaysian researchers (43.8% of international collaborations, n=7), reflecting geographic proximity and shared Islamic educational traditions, whilst the predominantly domestic authorship patterns are consistent with constrained engagement with global research networks and limited access to international publication channels.

Co-authorship network analysis reveals fragmented research communities, with a network density of 0.14 (14% of possible connections realised), substantially below that of typical academic networks, which range from 0.35 to 0.50 (Newman, 2011). The network exhibits a mean node degree of 2.8 connections per author, with the largest connected component comprising only 42%

of authors, confirming limited integration. Modularity analysis (Q=0.68) indicates a strong community structure with distinct institutional clusters centred on major state Islamic universities such as UIN Jakarta, UIN Sunan Kalijaga Yogyakarta, and UIN Malang, yet these clusters exhibit limited inter-institutional bridging. Only 27% of multi-authored publications involve authors from different institutions, compared to 45-60% in mature research systems. (Adams, 2013). The network's clustering coefficient of 0.23 falls well below the 0.45-0.65 range typical of established research fields. (Barabási et al., 2002; Watts & Strogatz, 1998), confirming weak collaborative ties and suggesting that authors rarely form sustained research teams or interconnected scholarly communities.

DISCUSSION

The bibliometric analysis of 500 publications (2015–2025) reveals a thematic architecture that, taken together, suggests a triple-pathway model through which innovation may translate into competitive advantage in Indonesian Islamic higher education. The first pathway, quality assurance as competitive infrastructure, emerges directly from Cluster two on quality Assurance Systems (25–28% of keywords), which occupies a structurally central position in the co-occurrence network, with strong linkages to Cluster one on the Innovation-Competitiveness Nexus (35–40% of keywords). This network proximity suggests that quality assurance mechanisms, particularly SPMI implementation and BAN-PT accreditation processes, function not merely as regulatory compliance instruments but as enabling infrastructure through which innovation activities acquire institutional legitimacy and competitive recognition (Miotto et al., 2020; Rachman et al., 2025).

The second pathway, digital transformation as capacity enhancement, is embedded within Cluster 1 and gains prominence in Phase three of the 2022–2025 temporal overlay, where keywords such as digital transformation, learning analytics, and entrepreneurial university emerge more frequently. This temporal pattern suggests that digital innovation represents an evolving rather than an established competitive mechanism in Indonesian Islamic higher education, consistent with broader trajectories observed in emerging-economy higher education systems. (Jayabalan & Jeyanthi, 2024; Ruano-Borbalan, 2025). Notably, the co-occurrence of digital transformation keywords with Islamic education terms in Cluster 3 indicates that technological adoption in this context is not acontextual but rather negotiated within Islamic pedagogical frameworks, distinguishing this pathway from equivalent mechanisms in secular institutional settings.

Derived from the intersection of Cluster three for the Islamic Higher Education Context (18–22% of keywords) and Cluster five for stakeholder engagement (8–10% of keywords), the third pathway positions Islamic identity integration as a mechanism for community legitimacy. Co-occurrence patterns within these clusters reveal that pesantren influence, Islamic curriculum integration, and community engagement consistently appear together, suggesting that religious identity functions as a distinctive competitive asset operating through community endorsement rather than formal quality metrics. (Melisa et al., 2025). This pathway is unique to faith-based institutional contexts and represents a competitive dimension absent from mainstream higher education frameworks.

Critically, in Cluster four for leadership and governance, 12–15% of keywords appear as cross-cutting enabling conditions rather than discrete pathways, with co-occurrence linkages spanning all five clusters, suggesting that transformational leadership mediates the

operationalisation of all three pathways simultaneously. The integrated relationship among these three pathways and their enabling conditions is illustrated in Figure 5.

Figure 5. The Integrated Relationship Among These Three Pathways and Their Enabling Conditions
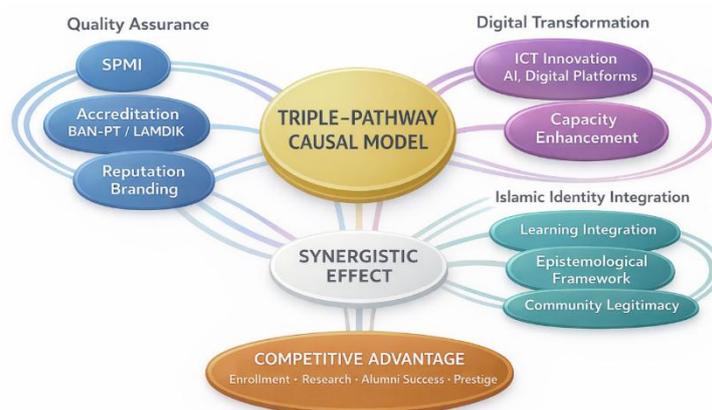
Source: Data Collection, 2025

Significant disparities in how innovation translates into competitive outcomes across institutional types are evident in the collaboration and citation patterns. State Islamic universities (PTKIN) demonstrate systematically higher citation impact and research visibility than private Islamic institutions (PTKIS), a pattern consistent with resource dependence theory, which posits that organisational performance depends critically on access to external resources (Hillman et al., 2009). PTKIN institutions benefit from stable governmental funding, enabling sustained investment in research infrastructure that smaller PTKIS institutions cannot readily match. The co-authorship network analysis reinforces this disparity: modularity analysis (Q=0.68) identifies distinct institutional clusters centred on major state Islamic universities such as UIN Jakarta, UIN Sunan Kalijaga Yogyakarta, and UIN Malang, yet these clusters exhibit limited inter-institutional bridging, with only 27% of multi-authored publications involving authors from different institutions.

Beyond resource disparities, the dominance of internationally developed theoretical frameworks in highly cited publications warrants critical examination. The widespread adoption of the entrepreneurial university model developed primarily in European contexts reflects what DiMaggio and Powell term mimetic isomorphism, whereby organisations facing uncertainty imitate seemingly successful models from prestigious contexts. (Dimaggio & Powell, 2021b). However, this theoretical borrowing may not adequately address the distinctive institutional realities of Indonesian Islamic higher education, particularly the dual mandate of preserving religious mission alongside competitive performance. The temporal evolution from descriptive studies (2015–2018) through an emphasis on innovation (2019–2021) to theoretical sophistication (2022–2025) signals field maturation, yet simultaneously reveals persistent concerns about theoretical dependence, compounded by the remarkably limited international co-authorship (8.1%) identified in the collaboration analysis. (Marginson, 2022; Marginson & Yang, 2022).

Sustaining religious identity whilst driving systematic innovation constitutes a central organisational challenge illuminated by the thematic cluster analysis. The co-occurrence network

demonstrates substantive interconnections among all five clusters, consistent with a synergistic rather than additive model of innovation-competitiveness dynamics. Institutions capable of simultaneously activating quality assurance infrastructure, digital transformation capacity, and Islamic identity integration conditions are more readily met by resource-advantaged PTKIN than by smaller PTKIS and may achieve competitive outcomes exceeding what any single pathway could generate independently. (Kawabata & Camargo Junior, 2020; Sumiati, 2024). When universities merely append Islamic labels to conventional innovations without substantive integration, they risk generating legitimacy deficits among both religious and secular constituencies, a phenomenon organisational scholars term 'diluted distinctiveness'. (Srivastava et al., 2017; Zhao et al., 2023). Authentic synergy demands organisational alignment where religious identity genuinely shapes innovation priorities, implementation approaches, and outcome evaluations.

Several methodological limitations constrain the accumulation of knowledge in this field, as revealed by the bibliometric synthesis. The overwhelming concentration of publications in PTKIN institutions, particularly those in Java, creates a systemic underrepresentation of smaller, rural PTKIS institutions that face the most acute innovation-competitiveness challenges. Publications from 2024–2025 have limited citation accumulation, which may underestimate their eventual scholarly impact. Furthermore, the high journal dispersion across more than 150 sources, with no single journal contributing more than three publications, indicates fragmented scholarly communities that impede the cumulative building of knowledge.

These findings carry differentiated implications for multiple stakeholder groups. Institutional leaders should pursue contextually appropriate innovation strategies aligned with their missions and resource endowments rather than mimicking resource-intensive models developed in secular Western contexts. Policymakers at Kemenag require differentiated quality frameworks that accommodate the substantial diversity between PTKIN and PTKIS, rather than applying uniform standards that may distort priorities for smaller, teaching-focused institutions serving underserved populations. (Calhoun, 2021). Quality assurance agencies should assess the contextual appropriateness of innovation, evaluating whether innovations authentically integrate Islamic values rather than merely measuring adoption rates.

CONCLUSION

This bibliometric study demonstrates that quality assurance research in Indonesian Islamic higher education has evolved from descriptive compliance documentation (2015–2018) toward a sophisticated investigation of causal mechanisms (2022–2025). The analysis reveals a triple-pathway framework quality infrastructure, digital transformation, and Islamic identity integration, all mediated by leadership and governance as a critical cross-cutting condition. By extending the Resource-Based View and Dynamic Capabilities frameworks, this research theorises "institutional ambidexterity" as the unique capacity of Islamic universities to balance global standards with religious missions. Despite this conceptual maturation, the field remains structurally fragmented, characterised by low network density (0.14) and limited international co-authorship (8.1%), suggesting that scholarly infrastructure has yet to catch up with the field's theoretical ambitions.

The primary limitations of this study include its reliance on a single database (Google Scholar), which may underrepresent regional Indonesian-language journals, and the insufficient citation accumulation for the most recent publications (2024–2025) to fully reflect their long-term impact. To address these gaps, future research should employ quasi-experimental designs to identify causal relationships between innovation and competitiveness, rather than mere

correlations. Furthermore, there is a strategic need for psychometrically validated instruments specifically calibrated for religious institutional contexts and longitudinal panel studies. Such efforts would better illuminate the implementation trajectories of PTKIN and PTKIS, distinguishing genuine institutional routinization from superficial adoption of quality standards.

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