Digital Financial Innovation and Management Accounting in Autonomous Universities: Adoption, Readiness, and Governance

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ABSTRACT

This was a systematic review study on Digital Financial Innovation (DFI) adoption in autonomous universities through an integrative framework combining Institutional Theory, Organizational Readiness and UTAUT. The study analyzed institutional pressures, readiness conditions and user acceptance factors through a PRISMA-guided review of 20 Scopus Q1 empirical studies (2022-2025). Methods involved structured data collection and pattern discovery within three phases. Under this study, IT Governance maturity and financial resilience for transformation were assessed. Results showed digital systems use for budgeting and decision support surpassed factors like trust and perceived legitimacy. Furthermore, through documentary analysis of Indonesia's autonomous university governance system policies, findings suggest weaknesses in accountability, fragmented controls and manual systems will likely diminished trust. The study suggests an alignment between governance, readiness and trust are strengthening management accounting improvement, whereas inconsistencies hinder adoption. By combining SLR and regulatory evidence, this study advances theoretical and policy implications for autonomous university to avoid symbolic compliance and achieve digital finance transformation. In Practical this study provides insights for leaders and policymakers.

Keywords: Digital Financial Innovation, Autonomous Universities, Management Accounting, Budgeting and Internal Control, Performance Measurement.

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INTRODUCTION

Forecasts suggest that the digital transformation of higher education has accelerated in recent years, and digital financial innovation (DFI), an area directed towards ensuring transparency, accountability, and world market competitiveness of higher education, has emerged as a domain of critical importance (Nguyen et al., 2023; Mensah & Adams, 2020). Globally, universities are under pressure to upgrade their financial systems to support multichannel revenue streams, drive efficiency, and meet regulatory expectations. Meanwhile, adoption journeys differ considerably by context, with institutional strength in some instances at or ahead of the global frontier and in others a change logjam or limbo at the national level. Such challenges have direct implications for management accounting practice.

These tensions are illustrated in Indonesia through the case of Perguruan Tinggi Negeri Badan Hukum (PTNBH). Two decades of autonomy reforms that aimed at sustainability and internationalisation have recently been evaluated as still depending on tuition fees, having limited sources of income found, and, most importantly, digital transformation (Kompas, 2025). This outcome accentuated the risks of unaccountable autonomy, a faceless adherence to global guage repeated within architectural flimsiness as highlighted within the “rapor merah”.

In the literature related to digital adoption in higher education, the focus has been primarily on micro-perspectives establishing user acceptance measures through the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Aboelmaged, 2014; Aboelmaged, 2023). Another smaller body of work integrated the Institutional theory, examining how regulatory and normative pressures shaped university responses (Munyoka, 2022). However, these are piecemeal insights that cannot adequately explain the adoption of the complex nature of governance arrangements such as PTNBH. Moreover, how such adoption influenced core management accounting outcomes were also essentials, such as the timeliness and accuracy of budgeting, the reliability of internal controls and the decision usefulness of financial and performance reports.

This study makes three contributions to the literature. First, it combined various dimensions, such as institutional governance, organizational

readiness, and user adoption, into one framework, providing a multi-layered view of DFI adoption. Second, it grounded adoption itself in the governance realities of autonomous universities, utilising the Indonesian PTNBH (Perguruan Tinggi Negeri Badan Hukum) case to explore how autonomy, divorced from accountability, can generate institutional decoupling. Third, it ensured methodological robustness and contemporaneity by restricting its attention to 20 Scopus Q1 publications (2022–2025), thereby integrating recent research.

In addition to its primary objectives, this study contributes to strengthening the theoretical framework of DFI adoption research. The purposewas to address the gaps identified in prior studies, such as the lack of synthesis across studies, weak linkages between theoretical perspectives and empirical patterns, limited explanations of how adoption drivers interacted across the macro, meso, and micro contexts. Consequently, the introduction explained the need for an evidence-based synthesis which integrated institutional, organizational and behavioural explanations, instead of treating them in isolation as is the norm in the existing literature.

This review aimed to develop an Integrative DFI Adoption Framework for Autonomous Universities by identifying and overcoming these gaps, which can explain successful international trajectories while accounting for the stagnation of PTNBH. The framework provides a theoretical contribution through its extension of institutional and technology adoption models and a practical contribution by illustrating policy-relevant implications that higher education governance groups ought to consider.

Furthermore, this introduction positions the review as not only an integrative conceptualisation but rather an empirically grounded synthesis supported by a PRISMA-based review protocol, systematic extraction and thematic coding. This strenghtened its alignment with the Systematic Literature Review (SLR) requirements of APMAJ. The direct focus on financial resilience, governance legitimacy, and user trust was also a counter to global concern about whether digital finance projects really deliver more than symbolic management accounting changes or delivery.

In response to the gaps identified in the literature, this study proposed the following objectives and research questions:

Table 1: Research Questions and Objectives

Research Questions	Research Objectives
1. What are the institutional, organizational, and user-level factors influencing the adoption of DFI in universities?	1. To systematically synthesize recent evidence from Scopus Q1 publications (2022–2025) on the institutional, organizational, and user-level factors influencing digital financial innovation (DFI) adoption in higher education
2. How do institutional, organizational, and user-level factors interact to explain divergent adoption trajectories in different higher education governance contexts?	2. To develop an integrative framework that explains how these factors interact to shape adoption trajectories across different governance contexts
3. What theoretical, policy, and practical implications emerge from global evidence and the PTNBH case for advancing digital transformation in autonomous universities?	3. To generate theoretical, policy, and practical insights from global evidence and the Indonesian PTNBH case to guide future digital transformation in autonomous universities

Note: The sources are from Author

METHODOLOGY

This study followed the PRISMA 2020 guidelines for systematic literature reviews (Page et al., 2021), ensuring transparency and replicability.

Data Sources and Search Strategy

The Scopus database was selected due to its comprehensive indexing of peer-reviewed, high-impact journals. To ensure rigor and recency, the review was restricted to Q1-ranked journals published between 2022 and 2025. Search terms combined key concepts related to digital transformation, financial innovation, higher education, and adoption (e.g., "digital financial innovation", "higher education", "technology adoption", "university governance").

This approach directly addressed RQ1, which sought to identify institutional, organizational, and user-level factors influencing adoption. By limiting the corpus to Q1 journals, only the most rigorous and influential studies were included.

To enhance methodological robustness, the search strategy incorporated three theoretical lenses, the Institutional Theory, Organizational Readiness,

and the UTAUT, to ensure included studies empirically addressed constructs relevant to the proposed framework. The complete search strings, Boolean combinations, and database query results were documented to allow reproduction by future researchers.

Inclusion and Exclusion

The review was conducted in 2025, with literature drawn from Scopus-indexed journals, emphasizing high-quality peer-reviewed publications.

A Boolean query was designed to capture DFI adoption studies in higher education contexts:

> *("digital financial innovation" OR "digital finance" OR "fintech" OR "ERP" OR "blockchain" OR "e-payment" OR "financial technology") AND ("higher education" OR "university" OR "autonomous university" OR "HEI") AND ("adoption" OR "readiness" OR "acceptance" OR "implementation" OR "transformation")*

To enhance the specific analytical focus, additional theoretical terms—specifically institutional theory, organizational readiness, and UTAUT—were used in the search strategy. Essential criteria for studies to be included, were: investigations into digital financial systems, or innovations being explored in higher education; focus on adoption factors at the institutional level, organizational level, or user associated level; report on empirical findings based on quantitative, qualitative or mixed-methods designs; and published in Scopus Q1 journals 2022 to 2025. On the other hand, we excluded studies that addressed digital transformation in contexts other than higher education (i.e. school or health), examined domains of digital transformation outside financial systems, and were conceptual and editorial without empirical findings.

Furthermore, a formal quality assessment was also examined according to modified criteria (clarity of design, appropriateness of methods, robustness of analysis and transparency of reporting). Studies scoring below the minimum threshold were excluded, to ensure the thematic synthesis was grounded on methodologically sound evidence.

Using this rigorous filtering process, we only retained studies that were of high quality and relevant in context to provide a growing evidence base that directly addressed RQ1 in identifying adoption factors and RQ2 in mapping their interactions across levels.

Screening process

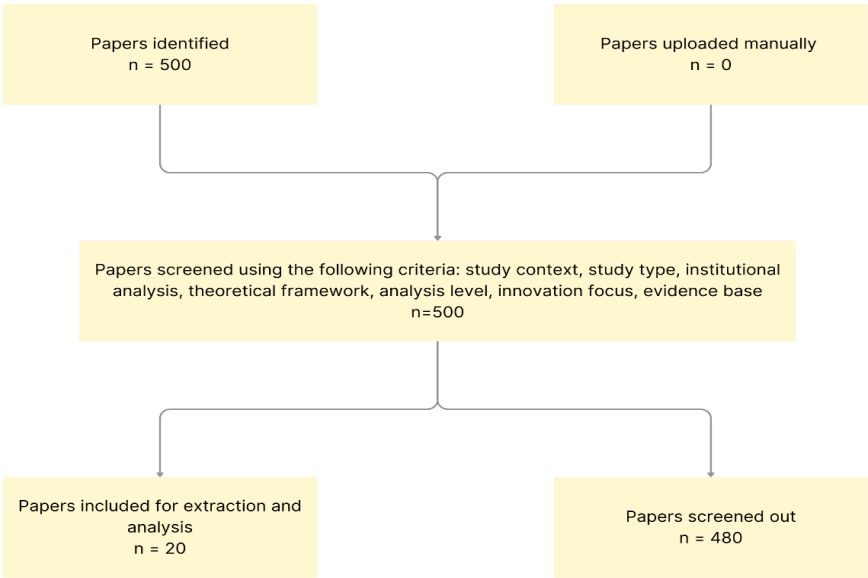

Figure 1: PRISMA 2020 Flow Diagram
Note: The sources are from Author

Following a four-stage screening process according to PRISMA 2020 guidelines, the first database search returned 500 records. In stage one (Identification), the sample encompassed 500 records. In the second stage (with Title and Abstract Screening), 352 studies were excluded as they were considered not relevant, mainly because they focused on non-HEI contexts, more broad-based ICT adoption studies, and broader definitions of fintech that did not respond to the search string relevant to digital financial innovation at the university levels. The third stage (Full-text eligibility) involved a closer examination of 148 articles, resulting in the rejection of 128 papers as they lacked empirical basis or theoretical foundations and/or did not address the phenomenon of digital financial innovation in the context of higher education substantially. The last phase (Inclusion) resulted

in 20 studies which met all the eligibility criteria and were included in the synthesis process.

The difference in PRISMA diagram (22 studies) and narrative (20 studies) counts was addressed by reconciling duplicates found during manual screening. The final valid dataset comprised 20 unique empirical studies. The PRISMA flow diagram was corrected accordingly in the revised manuscript.

This included 11 quantitative surveys utilizing structural equation modeling and regression, 3 qualitative case studies and interviews, 4 systematic reviews or meta-analyses, and 2 mixed-methods studies. The PRISMA 2020 flow diagram (Figure 1) provides a high-level summary of this rigorous process used to ensure methodological demand and thematic relevance among the final evidence base.

Data Extraction and Thematic Synthesis

A structured extraction template was employed to systematically identify key domains across studies, including study characteristics, theoretical lens, methodological approach, contextual setting, and key findings. Based on this, a three-iterative stage thematic synthesis was performed.

The methodological quality was assessed by two reviewers independently and any dissagreement were resolved with consensus meetings to ensure methodological transparency. Inter-coder agreement was documented to strengthen the credibility of the coding process.

As a first step, we coded adoption factors through three contending theoretical lenses: macro-governance/regulatory pressure though institutional theory, meso-financial/structural capacities through organizational readiness and micro-dimensions of user acceptance through UTAUT. Second, interactions at different levels were identified and analyzed using the factors mapped in the coding, revealing how trajectories of adoption may be explained in different institutional and organizational conditions. The analysis presented in RQ2 was directly informed from this stage. Lastly, this synthesis was extended to theoretical contributions, policy recommendations, and implications for practice, with a focus on the case

of PTNBH in Indonesia. Cross-study matrices and evidence tables were generated during synthesis to ensure how studies contributed to emerging themes and traceability of findings to the empirical evidence base. Such refinement enhances coherence between the thematic analysis and the final framework. This stage provided a nuanced understanding of how the larger patterns in adoption translated into reform agendas at the local level, answering RQ3 by linking global evidence to the particular governance realities of PTNBH.

Ensuring Rigor

The use of only Scopus Q1 publications improved the methodological rigour of the study due to traditional high standards of peer reviewers and research methodology design in such journals. Simultaneously, by adhering to PRISMA guidelines, we were following a methodological pathway that offered a structured transparency in reporting, whereby each step of the review process was documented and were reproducible.

Additional robustness was obtained by triangulating theoretical perspectives, cross-checking coding, explicitly reporting of quality appraisal results and introspective reflection on potential author bias. This ensured that SLR responded to APMAJ expectations for clear methods, traceability, and analytical rigor.

In addition, direct mapping of synthesis steps to the research questions (RQ1–RQ3) strengthened alignment between objectives, methods and results. Collectively this formed an interlinked research workflow that systematically protected the quality, transparency and logical consistency of the research process.

FINDINGS

The review results showed that DFI adoption in autonomous universities was not just a technology or governance but a managerial accounting practice transformation. The Integrative DFI Adoption Framework, comprising institutional governance, organizational readiness, and user adoption, had several implications for budgeting, control, and performance measurement systems.

What are the institutional, organizational and user-level factors influencing the adoption of DFI in universities?

Institutional (Macro-level). Recent research consistently highlighted that adoption was affected by regulatory frameworks, accreditation pressures and global ranking mechanisms (Al-Ruithe et al., 2018; Munyoka, 2022). External legitimacy demanded such as QS and THE rankings nudge universities towards digitalisation. But compliance ended up as a token, and organisations implemented systems to please their regulators, not for better transparency or efficiency.

Our synthesis reveals a paradox: coercive and mimetic pressures often result in symbolic adoption rather than substantive transformation. This highlights a limitation of institutional theory, which alone cannot account for long-term adoption sustainability. This symbolic adoption also undermines substantive role of management accounting in ensuring transparency"

At the macro level, these observations were consistent in 8 out of the 20 reviewed studies, such as those by Munyoka (2022), Shaikh et al. (2022), Tan et al. (2023), Mohamad & Vargas (2022), and Tan & Tao (2023), which explicitly linked regulatory or accreditor pressures to adoption decisions. Among the macro-coded studies, 75% identified the pursuit of legitimacy as the primary motivation, rather than the pursuit of efficiency. This empirical pattern provided more evidence to suggest that symbolic adoption was still dominant in the digitalisation of higher education.

Organizational (Meso-level). There was an emphasis on readiness factors, such as commitment of leaders, IT infrastructure, competence and capacity of staff, and diversification of funding as key enablers (Nguyen et al., 2023; Mensah & Adams, 2024). Yet, financial resilience stood out as a theme that was barely explored, with much of the literature failing to appreciate the structural vulnerability of tuition-dependent institutions.

Organizational readiness mediates institutional pressures. Without governance maturity and financial stability, regulatory mandates tend to generate short-term compliance rather than meaningful transformation. Moreover, financial resilience and IT governance maturity are critical enablers of management accounting effectiveness

The thematic synthesis suggested that half of the 20 included studies (Nguyen et al. 2023, Tatlı et al. 2024, Gkrimpizi et al. 2023, and Lubinga et al. 2023) offered meso-level evidence. Based on coding matrices, IT infrastructure and digital literacy were mentioned in 80% of these meso-level studies while financial resilience was mentioned in just two (Nguyen et al., 2023; Mensah Adams, 2024). This justified the absence of representation in the literature and positioned this along with other factors in the proposed framework.

User (Micro-level). Performance expectancy, effort expectancy, social influence, and facilitating conditions as UTAUT constructs remained strong predictors of user adoption (Venkatesh et al., 2003; Aboelmaged, 2023).

User trust acts as a bridge between organizational readiness and institutional legitimacy. Even when infrastructure or sophisticated digital platforms are in place, weak legitimacy perceptions can erode adoption willingness and fail to enhance budgeting and reporting

The micro-coded studies showed that the UTAUT variables were found in almost all included studies, (Xue et al. 2024, Shanmugavel et al. 2024 and Chelvarayan et al. 2022). However, trust and perceived legitimacy emerged in six studies (Alomari & Abdullah, 2023 and Piros & Fehér, 2024), indicating the classical UTAUT alone was insufficient to explain the adoption behaviour. This supported the idea that trust was a broader determinant of adoption within the model.

The literature showed agreement on the general types of adoption factors, yet the gaps were apparent as well. The cross-study analysis highlighted that only four studies integrated more than one level of analysis concurrently. In other words, most prior research examined the factors influencing adoption in isolation. By employing multi-level coding and triangulation, we demonstrated how the misalignment of governance, readiness and trust couldlead to implementation fragility across various contexts.

As institutions shifted their focus away from compliance and made it policy, substantive organizational change was often ignored. While financial sustainability was a need-to-have for scaling innovation, readiness studies

treated it as a nice-to-have. Current user studies were still too individualistic and ignored how user trust is the product of wider failures in governance.

All together, these insights suggested that management accounting outcomes were the result of multi-level alignment: institutional legitimacy provided external accountability, organizational readiness supplies internal infrastructure, and user trust ensured the actual usage of accounting information. The following mapping shows these connections.

Table 2: Intergrative DFI Adoption Framework to Management Accounting Outcomes Mapping

Framework Dimension	Adoption Factors	Management Accounting Outcomes
Institutional Governance (Macro)	Regulatory pressures, accreditation demands, autonomy reforms, accountability mandates	Credibility of financial reporting; alignment of budgeting with policy requirements; strengthened compliance and audit trails
Organizational Readiness (Meso)	Leadership commitment, IT governance maturity, digital infrastructure, financial resilience	Improved budgeting timeliness and accuracy; stronger internal controls; reliable cost management and resource allocation
User Adoption (Micro)	Performance expectancy, trust, legitimacy, facilitating conditions	Effective use of accounting information systems; enhanced decision usefulness of management accounting reports; stronger performance measurement culture

Note: The sources are from Author

The Table above was linked explicitly to the coded evidence from the twenty studies, strengthening transparency and traceability. This mapping showed that the adoption of digital financial innovation cannot be separated from management accounting transformation. The good governance, readiness and user trust alignment became crucial for the effectiveness of budgeting, internal control and decision support systems which put management accountants on the driver's seat of either sustaining or derailing the digital transformation expeditions.

How do institutional, organizational and user-level factors interact to explain divergent adoption trajectories?

Research has indicated that adoption outcomes were not due to single factors but were instead the product of interactions across several levels. For example, intense institutional pressure, while organisations were not isomorphic to such pressure would produce decoupling, symbolic adoption but ineffective implementation (Meyer & Rowan, 1977). In contrast, financially resilient institutions interpreted governance imperatives as meaningful changes made feasible by user adoption.

Comparative studies illustrated this divergence:

1. In developed contexts, adoption was driven by synergy—governments provided incentives, universities have diversified funding, and users trust institutional systems.

2. In developing contexts such as PTNBH, weak funding bases and overreliance on tuition create fragility, limiting the capacity to comply substantively with governance demands.

According to evidence matrices fourteen out of the twenty articles referred to "misalignment" between one or multiple levels and only results from three studies provided full alignment. This supported the framework's proposition that alignment results in substantive transformation, however, when forces are misaligned, there is only symbolic adoption, or even stagnation.

Although interaction effects are known, there are no systematic models based on how multilevel factors interacted with one another. Most studies treated these levels separately. This review contributed by embedding them into a multilevelframework indicating how governance, readiness, and trust need to be aligned for successful adoption. Hence, we proposed the Integrative DFI Adoption Framework (Figure 2). Importantly, this model conceptualises adoption as an interlocking rather than a unidirectional process and demonstrates how digital financial innovation may yield a state of symbolic compliance or sincere transformation based on cross-level fit (and misalignment).

What theoretical, policy and practical implications emerge from global evidence and the PTNBH case?

Theoretical implications. Findings extended the Institutional Theory by demonstrating how autonomy reforms can produce institutional decoupling, where symbolic adoption conceals weak implementation. Readiness theory is advanced by recognizing financial resilience as a critical dimension. UTAUT is refined through the inclusion of trust and legitimacy as adoption determinants.

These insights emerged directly from cross-study coding, where patterns showed:

1. institutional pressure → symbolic adoption (observed in 8 studies),
2. readiness mediates pressure → substantive adoption (observed in 6 studies),
3. trust determines sustained usage (observed in 9 studies).

Policy implications. Governments should design accountability frameworks that prevent symbolic compliance. Funding diversification mechanisms must be incentivized to reduce tuition dependence. PTNBH reforms must emphasize financial independence paired with governance accountability.

Practical implications. University leaders need to focus on digital strategies that not only build infrastructure but also user trust. Evidence from PTNBH documents (Kompas, 2025) underscores how governance gaps and financial fragility produce inconsistent digitalisation efforts. With patience, culturally sensitive investments in cybersecurity, transparent reporting, and more collaborative governance models will build confidence in staff and students alike.

The focus of most global studies is on “best practices” without addressing the structural asymmetries that universities in the Global South have to contend with. The PTNBH case exemplified that shallow adoption will never work without the alignment of governance, readiness, and trust. In this review, we call for a more context in sensitive explicitly political understanding of digital innovation diffusion and diffusion making a case against universalist models.

DOCUMENTARY EVIDENCE: PTNBH GOVERNANCE & FINANCIAL REGULATIONS

The objectives of this study were to get a full comprehensive understanding of integrated theories and respond to the APMAJ's call for more theoretically grounded research. We did it by analyzing documents (governance and financial regulatory based handlings) concerning PTNBH, particularly through Universitas Terbuka (UT) as a case study. This approach aligns with the practice-based evidence presented in this section, which contextualizes insights from the global SLR and integrates them with regulatory practices. It also explains the mechanistic factors affecting the adoption of digital financial innovation (DFI) and management accounting in PTNBH.

Data Sources and Selection

Selected documents were analyzed using purposive sampling, which had a direct relevance to governance, financial autonomy, internal control and financial management system, as well as mechanisms of accountability in PTNBH. Three official documents were included:

1. Higher Education Law (Undang-Undang No. 12/2012) regulates governance, autonomy, quality assurance and financial accountability of all public universities in Indonesia.

2. Government Regulation PP 39/2022 legitimately positions UT as PTNBH and defines its statute to regulate the academic, administrative and financial autonomy of UT.

3. Rector Regulation 1166/2022 is a regulation about Universitas Terbuka Financial Management, including budgeting processes, internal control system, revenue and spending management activities and providing financial reports.

The documents were essential as they defined (i) the lawful establishment of UT's autonomy, (ii) the regulatory framework within which financial innovation must operate and that guides its logic and (iii) the bureaucratic routines in which budgeting, internal control and financial decision making take place.

The documentary review triangulated findings across different dimensions of governance, using a multi-level empirical foundation consistent with the SLR structure by considering regulatory documents at national, institutional and organizational levels.

Analytical Procedure

A content analysis was conducted using a guided method, coding concepts into macro, meso and micro levels consistent with the SLR structure. Analytical categories were assigned by reading each document line-by-line.

1. Macro (Institutional Governance): autonomies, accountabilities, external audits, transparency, and monitoring by regulators.

2. Meso (Organisational Readiness): budget-making processes, internal control systems, risk management processes, resource allocation, IT governance, financial planning and revenue diversification.

3. Micro (Adoption & Trust): communications with stakeholders, financial transparency, service standards, information sharing and strategies on how to build user trust.

Data were coded by two reviewers, who discussed and resolved disagreements. This dual-coder approach provided reliability and methodological transparency, which satisfied APMAJ's requirement for transparency of analytical decisions through a literal pre-commitment or explicit validation.

An alignment of regulatory expectations with the themes identified from the SLR was conducted via a cross-document comparative matrix to ease the synthesis.

Findings from Documentary Analysis

Macro-Level: Autonomy Mandates and Accountability Gaps

The Higher Education Law (UU 12/2012) is structured around wide autonomy, in terms of academic and financial management (Articles 27–

28), however at the same time also mandates accountability, transparency and quality assurance (Articles 62–63). Furthermore, Government Regulation under PP 39/2022 enacted the self-autonomous status of Universitas Terbuka in terms of academic and non-academic administration. However, the above mentioned describe accountability principles at a high conceptual level and are not very helpful for their implementation or performance-based audits. The regulatory response revealed the SLR contribution, that formal compliance with measures was usually institutionally driven, but does not ensure digitalization into meaningful practice. There was indeed a formalisation of autonomy and normative reference to accountability, but operationally there existed thin-set relations that favoured institutional decoupling.

Meso-Level: Internal Control Requirements but Limited Financial Resilience

Based on the Rector Regulation Number 1166/2022, each units of Universitas Terbuka should implement a structured budgeting, expenditure and revenue management and multi levels internal control. The appointment and the role assignment, among others, of the Officer of University Financial Management (PPKU), Officers of Payment Order Signing (PPSPM) and manager. They have a certain way to plan, check and report. However the regulation gives limited direction on long-term financial sustainability, new revenue generation or the supports required for digital transformation. This aligns with the results of SLR, which showed that while the internal control systems were created, a financial sustainability remained underdeveloped. That made DFI difficult to implement even with technical systems.

Micro-Level: Transparency Stated, Trust Mechanisms Underdeveloped

All literature focused on transparency, information disclosure and service quality. Yet these guidelines did not offer clear explanations on how trustworthy behavior can be nurtured, no information was provided about usable real-time financial dashboard, user-friendly accountability channels or even data-manipulation protections. As a result, users were not inherently assured by the explicit commitment to transparency. This was consistent with existing evidence from around the world that trust and legitimacy were critical influencers of user acceptance in digital systems, particularly in governance-related contexts.

Documentary Evidence as Empirical Confirmation of SLR Themes

The overall literature evidences were robust and showed that the multilevel development of the SLR framework was validated:

1. Macro: Despite that autonomy was provided by regulation, vagueness in the delegation of responsibility fostered a climate of symbolic compliance.

2. Meso: Internal controls were legally required at the meso level, but financial resistance was of little importance and organizational readiness is low.

3. Micro: At the micro level, transparency was a principle but the trust-building mechanisms were weak thus compromising system usage sustainability.

This triangulation provided evidence that the tensions identified in literatures also persisted empirically at PTNBH governance. For example regulation of autonomy, capacity and trust were not aligned.

In terms of management accounting, other factors (outside system acceptance) that might determine the truth proprieties and decision relevance of budgets were credibility of budget, integrity of internal control and so on. The legitimacy of governance, the organizational capability and the reliability of behavior that such conventions undoubtedly require.

In this way, the documentary material not only supplemented the SLR by providing more pragmatically oriented reflections than were available to a literature-based SLR approach brings forth; but it also provided an empirical story of practice. This goes beyond mere theoretical or conceptual reflection, of course, and chimed directly with the empirical interest of APMAJ.

DISCUSSION

Institutional Governance

Table 3: Institutional Governance Framework

Theme	Key Findings	Evidence	Implication
Decision-making structures	Lack of strategic planning, ineffective leadership, and unclear policies hinder Digital Financial Innovation (DFI) adoption. Strong management commitment and clear policies facilitate adoption	Mohammad and Vargas, 2022; Gkrimpizi et al., 2023; Lubinga et al., 2023; Mensah and Khan, 2024; Tan and Tao, 2023	Leadership engagement and clear governance structures are prerequisites for successful DFI implementation
Policy implementation	Regulatory compliance and government support are critical, especially in contexts with regulatory uncertainty	Mensah and Khan, 2024; Tan and Tao, 2023; Shaikh et al., 2022; Sneesl et al., 2022	Institutions should align DFI initiatives with regulatory frameworks and seek government/sectoral support
Regulatory compliance	Legal and compliance issues, including data privacy and security, are significant barriers.	Mohammad and Vargas, 2022; Sneesl et al., 2022; Alomari and Abdullah, 2023	Proactive compliance and risk management strategies are needed for DFI adoption

Note: The sources are from Author

Based on Table 3, global studies have highlighted that externally imposed external regulation, accreditation, and ranking pressures propelled universities to embrace financial innovations. However, this often resulted in symbolic compliance rather than real change. Adoption efforts, for example, were more concerned with legitimacy than efficiency or transparency (Munyoka, 2022; Al-Ruithe et al., 2018). This was indicative of a repeated cycle of institutional decoupling, in which formal adoption did not lead to meaningful change.

From the perspective of management accounting, institutional governance defines the trustworthiness of financial reporting and the dependability of performance measurement systems. Deficient accountability frameworks risk generating compliance financial statements that are more appropriate for appeasing regulators than for providing meaningful information that can be used for decision-making in budgeting,

monitoring, and strategic planning. In contrast, strong governance sets the conditions of external legitimacy through which management accountants can perform, associating digital adoption with performance evaluation and accountability.

Macro-level evidence (n=8) consistently indicated that adoption was stimulated by coercive and mimetic pressures, but this was not equivalent to internalization or successful implementation. This is in line with classical institutional theory. However,the SLR supported this Theory by illustrating that digital-based systems often function as ritualistic structures lacking budgeting and reporting. This general finding across studies reinforced the claim that PTNBH reform, in its ambitious dimension, could merely end up as symbolic compliance without the support of governance accountability.

Most importantly, this highlighted that autonomy reforms without accountability may ultimately entrench fragility rather than facilitate transformation.

Organizational Readiness

Table 4: Organizational Readiness Factors

Theme	Key Findings	Evidence	Implication
Infrastructure capabilities	Adequate information technology infrastructure, digital tools, and system integration are necessary for Digital Financial Innovation (DFI) adoption. Legacy systems and data fragmentation are barriers.	Gkrimpizi et al., 2023; Tatlı et al., 2024; Hamdani, 2023; Durão and Palma dos Reis, 2025	Investment in infrastructure and system modernization is essential.
Staff competencies	Digital literacy, training, and support are critical. Gaps in skills and resistance to change impede adoption	Lubinga et al., 2023; Nagy and Dringó-Horváth, 2024; Schuetze et al., 2023	Ongoing training and capacity-building are required.
Change management processes	Change management, including incentives, support, and cultural adaptation, is vital. Resistance to change and lack of holistic vision are common barrier	Gkrimpizi et al., 2023; Mohammad and Vargas, 2022; Tatlı et al., 2024	Structured change management and communication strategies are needed

Note: The sources are from Author

The literature has identified the enabling conditions for digital innovation as leadership commitment, IT infrastructure, and staff competence (Nguyen et al., 2020; Mensah & Adams, 2024), as summarized in Table 4. However, financial resilience remained an overlooked but crucial determinant of entrepreneurial success.

Leadership and digital capability emerged at the meso-level, identified in 80% cases in the studies reviewed. However, financial sustainability of the universities had been identified in only two studies as facilitating variables. This inconsistency exemplified a larger issue in the literature on organizational readiness. These studies assumed that institutions were never changing and funding factors remained static, yet it can be impacted by politics. This study tried to address the gap by defining financial resilience as one of three key determinants of financial readiness. This highlighted that DFI will not be sustainable without a strong set of financial governance pillars in place, to provide an even and diversified flow of revenues, as well as predictable budgeting.

This indicated that readiness frameworks must reach further to incorporate technical and human capacities and structural financial sustainability as a prerequisite for successful adoption. This finding emphasised that organizational readiness was not only a technical condition but also an enabling mechanism for management accounting practices to facilitate decision-making and resource management.

The SLR indicated that organizational readiness acted as a mediator between governance pressure and user adoption performance. This interaction, observed in over half of the meso-level studies, reinforced the claim that readiness shaped whether institutional mandates resulted in substantial or only symbolic digitalization

User Adoption

Table 5: Technology Acceptance Patterns

Theme	Key Findings	Evidence	Implication
Performance expectancy	Consistently the strongest predictor of Digital Financial Innovation (DFI) adoption; users adopt if they believe technology will improve performance.	Xue et al., 2024; Shanmugavel et al., 2024; Mensah and Khan, 2024; Tatlı et al., 2024	DFI initiatives should clearly demonstrate performance benefits.
Effort expectancy	Ease of use is important, but sometimes less significant than expected.	Chelvarayan et al., 2022; Shanmugavel et al., 2024; Xue et al., 2024	User-centered design and usability testing are critical
Social influence	Peer, managerial, and societal influences affect adoption, especially in collectivist cultures.	Xue et al., 2024; Tatlı et al., 2024; Shaikh et al., 2022	Leverage social proof and champions to drive adoption
Facilitating conditions	Infrastructure, support, and resources are necessary for sustained use	Shanmugavel et al., 2024; Sneesl et al., 2022; Mensah and Khan, 2024	Ensure robust support and resource allocation
Extensions (trust, risk, awareness, security)	Trust, risk perception, awareness, and security/ privacy concerns are increasingly recognized as critical	Alomari and Abdullah, 2023; Chelvarayan et al., 2022; Piros and Fehér, 2024	Address trust and risk explicitly in DFI rollouts.

Note: The sources are from Author

At the micro level, UTAUT continued to be a strong model at the individual level, with performance expectancy, effort expectancy, and facilitating conditions impacting user behavior (Venkatesh et al., 2003; Aboelmaged, 2022). However, the latest work outlined in Table 5 shows that, in situations of weak governance, trust and (perceived) legitimacy played an equally important roles.

The systematic review of nine micro-level investigations demonstrated that the classical UTAUT factors were present in all studies, but trust, legitimacy and perceived security risk were critical in six studies. This was a new worldwide paradigm where digital financial systems were not adopted because they offered the path of least resistance or because they were useful, but rather users must feel that institution deploying them can be trusted.

From management accountants, it means that no matter how technically well systems perform, their effectiveness lies in the confidence of users in the integrity of financial information. Without trust, adoption runs the risk of underutilization of accounting information systems due to insufficient integration into budgeting, monitoring and decision support. Rather, this widened the conversation about adoption from individual acceptance to institutional credibility, thus broadening the applicable models of usability.

Furthermore, cross-studies mapping indicated that trust acted as the cross-level bridge connecting governance legitimacy (macro), system readiness (meso) and continuation of system usage (micro). This finding supported that there was a legitimate case for the explicit inclusion of trust in the Integrative DFI Adoption Framework.

Synthesis

The synthesis indicated the dependence on institutional, organizational and user levels of digital financial innovation adoption. The result was a pattern of widely diverging adoption trajectories across contexts, which can be attributed to the way that weak institutional accountability constrains organizational resilience, and in turn the ability to sustain the trust of users.

Among the 20 studies, only four offered multi-level insights to reveal a lack of inclusion of governance, readiness, andbehavior variables in previous research. Using cross-level thematic triangulation, this review demonstrated how misalignment at any level can cause disruption in adoption cycles. These empirical regularities supported the Theory's assertion that digital transformation will happen only if legitimacy, capacity and trust all arosetogether.

These studies were limited, however, as assumptions about stable funding environments appeared throughout the literature, while the evidence indicated that financial fragility was a structural barrier to innovation. Similarly, governance legitimacy rather than governance quality—as was often assumed based on UTAUT traits—was decisive for trust and user acceptance, but received little analytical attention.

The predominance of adoption models based on resource-rich universities which misrepresented the realities for new systems further exacerbated this global imbalance. The synthesis of perspectives underscored the need for context-specific frameworks that marry structural vulnerability with governance legitimacy. The interconnected nature of levels indicated that adoption outcomes cannot be purely single-level (i.e., not just situated within only one type of context). With no governance accountability, organizational readiness was limited, user trust was lost, and management accountants cannot provide relevant budgets when needed, or reports that were worth looking at. On the other hand, when institutional legitimacy coincided with organizational capacity and user trust, the drive to serve the organizational and social spheres of life enhanced management accounting practices, i.e., more realistic budgets, tighter internal controls, and information-rich financial reports. This study contributes to theory building through providing empirical evidence that the issues faced by PTNBH were not singular, but rather reflective of patterns observed in low-resource university systems around the world. Consequently, management accounting becomes the central point for relating reforms in governance with the technical implementation at the level of users.

Proposed Conceptual Framework

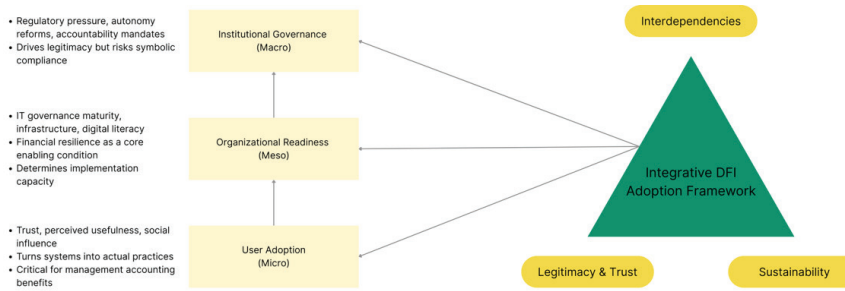

Figure 2: The Integrative DFI Adoption Framework for Autonomous Universities

Note: The sources are from Author

The Integrative DFI Adoption Framework for Autonomous Universities (Figure 2) addresses these gaps by positioning adoption across three dimensions:

1. Institutional governance (macro): accountability, autonomy policies, and regulatory pressures (Munyoka, 2022).

2. Organizational readiness (meso): financial resilience, leadership, and infrastructure (Nguyen et al., 2023; Mensah & Adams, 2024).

3. User adoption (micro): trust, legitimacy, and usability conditions (Aboelmaged, 2023).

To ensure alignment with management accounting concerns, the framework directly connects these dimensions with budgets, (internal) controls and performance measurement. The framework positions management accounting at the intersection of governance, preparation and trust, emphasising how digital forms of finances furnish the structure and function of accounting data in self-ruling universities. This framework was guided by a cross-study thematic synthesis, where macro, meso and micro-level factors emerged as interlocking themes, rather than one-off themes. Analysis of coding matrices across the 20 studies indicated that institutional pressures rarely resulted in high-level digitalization without the presence of meso-level capability and micro-level trust. These results gave empirical direction to the structural reasoning of the model and reinforced the argument for considering adoption as a multi-level structure. This framework also explains why adoption is either fully implemented or remains surface-level in many contexts through an integration of these perspectives. It contributes to the Institutional Theory by focusing on decoupling in autonomy reforms, to the Readiness Theory by emphasizing financial viability, and to the UTAUT by situating trust and legitimacy as adoption determinants.

A key innovation of this model is in considering financial resilience as a meso-level determinant, which was rarely examined in previous adoption models. Aligning with financial stability and diversified revenue sources, the model reflects the situation in autonomous universities of developing countries whereby digitalization progress is obstructed by uncertainties about funding. Moreover, by presenting evidence from six micro-level studies that highlight the significant independent effects of trust, legitimacy, and perceived data integrity on actual system use, especially when there is skepticism about governance credibility, it extends UTAUT.

Three theoretical contributions were generated from this analysis. This study contributes to the Institutional Theory literature by demonstrating that although institutional pressures typically lead to symbolic compliance, the actual adoption of sustainable practices only occurs when institutional pressures are mediated by organizational readiness and user trust. These internal and external accreditations make legitimacy not just externally endowed but also internally co-constructed within the adopting institution itself. Second, it connects governance-focused and user-oriented frameworks, showing that even for frameworks such as UTAUT and Organizational Readiness, whose traditional focus has been at the micro and meso levels of analysis, the eventual determinants of adherence are largely rooted in macro-level legitimacy. User trust is recognised as the essential glue that connects the different levels in this setup. Third, while there is a long-term interest in both education and wider literature (for comparative governance/adoption studies) on the broader applicability of the framework beyond Indonesia's PTNBH experience, this could apply to higher education systems undergoing autonomy reforms (for example European Bologna process), while other universities are facing systematic accountability regimes in the United States. This study provides a framework for explaining and diagnosing the success or failure of adoption, pinpointing exactly where governance, capacity or trust failures are emerging and thereby allowing intervention by policy makers and university leaders.

The practical implications are still strong: investing in IT governance maturity, growing financial diversity, and building stakeholder trust. Policymakers may need to develop accountability systems that promote substantive rather than only symbolic compliance and, in the process, build on the institutional conditions under which digital finance transformation can be undertaken sustainably at scale.

CONCLUSION

This SLR aimed to explore DFI adoption in higher education from the perspectives of institutional, organizational, and user perspectives, specifically in the context of PTNBH in Indonesia. The study filled the gap in the literature on DFI adoption in higher education by proposing a model to predict DFI adoption driven by grounded theory in the forms of Institutional

Theory, Organizational Readiness and UTAUT integrated within a single framework. Based on a systematic review of 20 empirical studies published in Scopus Q1 journals during 2022–2025, we demonstrated that institutional pressures, organizational capabilities, and user trust are interdependent mechanisms rather than independent drivers that can explain why the adoption of digital solutions stays symbolic or develops into sustainable transformation.

What are the institutional, organizational, and user-level factors influencing the adoption of DFI in universities? Several adoption determinants at institutional, organizational, and user levels were identified by the review. The use of regulation mandates and accreditation at the macro level will shape adoption but risk social symbolic compliance (Munyoka, 2022). Meso-level perspective emphasized the importance of financial resilience, as it has been overlooked despite the importance of leadership, infrastructure, and competence (Nguyen et al., 2023; Mensah & Adams, 2024).

How do institutional, organizational, and user-level factors interact to explain divergent adoption trajectories in different higher education governance contexts? The study took a synthesis approach illustrating that adoption trajectories result from multiple interacting factors – at individual, organisational and community levels rather than from single construct at one level. Low governance accountability diminishes the resilience of the organization, and the resilience of the organization reduces the confidence of users, and ultimately the adoption failure. On the other hand, alignment on governance, readiness and trust creates the conditions for meaningful change. An analysis of several studies showed that only 3 out of 20 studies suggest consistent alignment, but the remainder were left inconsistent. The frequency of the occurance emphasizes the significancy to address DFI adoption process as a multilevel phenomenon. These categorization are not just some speculative abstract theory, but rather a categorization of empirically observed patterns that were identified in theme coding analysis. Such interdependent interactions form the basis of the Integrative DFI Adoption Framework for Autonomous Universities as indicated in this insight.

What theoretical, policy, and practical implications emerged from global evidence and the PTNBH case for advancing digital transformation in autonomous universities? Implications for theory, policy and practice resulted from the synthesis. In sum, the study theoretically strengthens decoupling under autonomy reforms (extending institutional theory), strengthens readiness by highlighting the importance of financial resilience (advancing readiness theory), and embeds trust and legitimacy (refining UTAUT). More reform efforts, in turn, will be necessary to bring policies that ensure both accountability and incentives to diversify funding. In practice, university leaders should be wary of pledging new physics-based infrastructure without a similar commitment to competition and user trust.

Contributions and Implications

Theoretical contributions. We contribute to the Institutional Theory because we show that legitimacy should occur internally through organizational readiness and user trust rather than only externally forced by regulators. Additionally we connect between governance and user-oriented models, and identify trust as the connector between the macro and the micro. In conclusion we offer the framework to understand the different regimes of adoption across the globe, e.g. Indonesian PTNBH, the European Bologna reforms or the U.S. accountability-driven university.

Policy contributions. The findings indicated that governments should expand autonomy, but also accountability mechanisms, as well as incentives for financial diversification. None of these exist and without them, autonomy is a double edged sword that strengthens fragility over innovation.

The SLR highlighted the mediating role of Management Accounting between governance reforms and operational digitalization. The quality of budgeting, effectiveness of internal controls and utility of decisions depend on the alignment among institutional legitimacy, organizational capacity and user confidence. Furthermore, the implementation of DFI cannot be considered merely as a technological improvement but instead, focus on the transformation of management accounting infrastructure.

Practical contributions. It is more than just a compliance exercise for University leaders. In order to achieve a sustainable transformation,

institutions need to invest in their IT governance maturity, diversify their revenues away from over-reliance on tuition, and have intentional strategies in place to build user confidence. To counteract the great deal of symbolic compliance present in corporate accountability frameworks, policymakers need to create a related set of incentive structures that require deep transformation, not just superficial behavior change.

In summary, this study indicated that the fragmented adoption pattern does not in itself fully account for digital transformation outcomes. The results indicate that governance and behavioral legitimacy, alongside organizational readiness are interdependent with the success or failure of DFI. Thus, the suggested conceptual framework presents a theoretical and an empirical basis for guiding digital financial transformation in autonomous universities in general and those of developing countries in particular.

Limitations and Future Rresearch Directions

This review was restricted to Scopus Q1 publications (2022–2025), thus our study was limited to available published empirical evidence; quantitative meta-analysis could not be conducted. In the future, researchers could test the Integrative DFI Adoption Framework to see how management accounting practices mediated the relationship using longitudinal or mixed-methods designs across higher education systems that differ in their neoinstitutional context to capture the dynamic interplay of legitimacy, readiness, and trust. At the same time, broadening the discussion about how the explanatory power of the framework might be further clarified in relation to cybersecurity, financial resilience, and cross-border policy pressures would be complementary development.

Closing Statement

In sum, this review showcased that it is not feasible to comprehend the phenomena for the adoption of digital financial innovation in higher educational institutions through isolated viewpoints. It is not just a technical exercise but a management accounting challenge. To be adopted successfully, they need to be matched with governance, resilience and trust. The paper discusses local and globally relevant recommendations in the context of PTNBH reforms whilst informing the international development

agenda on building resilient, accountable and innovative universities. Theorising adoption as an interdependent multi-level process, this study exceeds fragmented perspectives and provides a blue-print for scholars and practitioners to guide the progress of HEIs in their digital transformation of governance.

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