The Transformation of Institutional Services through Digital Platform Innovation

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ABSTRACT

Institutional services are increasingly required to become faster, more flexible, and more accessible as digital transformation reshapes service environments. This study examines how digital platform innovation contributes to institutional service transformation through the interaction of digital transformation, service innovation, and technology adoption. A qualitative case study combined with a Research and Development (R&D) approach using the ADDIE model was employed to explore service needs, organizational readiness, implementation barriers, and prototype development. Data were collected through in-depth interviews, participatory observation, document analysis, and focus group discussions, followed by inductive thematic analysis. The findings indicate that digital platform innovation significantly enhances service accessibility, accelerates administrative processing, and enables integrated service delivery. However, the transformation process remains constrained by limited digital literacy, uneven organizational readiness, and system interoperability gaps. The R&D phase produced a functional digital platform prototype aligned with user requirements and service redesign goals. The study concludes that institutional service transformation achieves optimal effectiveness when digital platforms are reinforced by adaptive governance, organizational commitment, and user-centered design. Practical and theoretical implications highlight the necessity of connecting platform technology capabilities with structured institutional change strategies.

I. INTRODUCTION

Institutional services are increasingly required to become faster, more flexible, and more accessible as digital transformation reshapes the way organizations deliver services (Janssen et al., 2024; Ochinanwata et al., 2023; Setzke et al., 2021). In this context, digital platforms are no longer merely supportive instruments, but strategic infrastructures that influence service quality, operational efficiency, and user experience (Ochinanwata et al., 2023).

However, digital platform adoption does not automatically generate positive outcomes. Weak institutional readiness, limited digital literacy, policy barriers, and uneven organizational capability may reduce the effectiveness of service transformation and even produce new forms of complexity (Janssen et al., 2024; Ochinanwata et al., 2023).

Previous studies indicate that digital platforms can strengthen innovation ecosystems and service delivery when institutional conditions are sufficient (Ochinanwata et al., 2023). Likewise, digital service innovation provides a useful analytical lens for understanding how technology, organizational processes, and adaptation interact in shaping new service models (Janssen et al., 2024; Setzke et al., 2021).

Despite these contributions, an important gap remains. Most prior studies discuss digital transformation or platform innovation in general terms, while fewer explain how these innovations specifically transform institutional services in a structured and context-sensitive manner (Janssen et al., 2024; Ochinanwata et al., 2023). In addition, prior research tends to separate enabling factors from barriers, whereas the transformation mechanism itself remains insufficiently explained (Ochinanwata et al., 2023).

The novelty of this study lies in its integrated focus on institutional service transformation through digital platform innovation rather than on technology adoption alone. The study also positions service transformation as the outcome of interaction among digital capability, organizational response, and service redesign.

Accordingly, this research aims to analyze how digital platform innovation transforms institutional services and to identify the factors that support or hinder that transformation. The study is also intended to contribute a conceptual basis for improving institutional service performance through digital transformation.

Digital platform innovation has become a central concept in service research because digital platforms function not only as technical systems but also as infrastructures that enable value co-creation, coordination, and service redesign (Janssen et al., 2024; Ochinanwata et al., 2023). Within institutional settings, platform innovation is increasingly associated with the capacity to reshape service delivery, strengthen process integration, and improve responsiveness to users (Ochinanwata et al., 2023).

Institutional service transformation refers to the shift from conventional and fragmented service routines toward more integrated, adaptive, and digitally enabled service models (Janssen et al., 2024). Prior research suggests that such transformation is not simply the result of technology installation, but rather the outcome of broader organizational adaptation involving governance, workflows, and patterns of interaction with users (Ochinanwata et al., 2023; Tomaževič et al., 2024).

Digital transformation provides the broader strategic context for understanding how institutions respond to technological change. In higher education and public institutions, digital transformation has been shown to reconfigure institutional strategies, operations, and service structures, indicating a movement from digitization toward systemic organizational change (Joshi et al., 2024; Phạm et al., 2026). This

indicates that digital platform innovation should be understood as part of a wider transformation agenda rather than as an isolated technical project (Joshi et al., 2024).

Service innovation is also important because it explains how institutions generate new or improved service offerings through changes in delivery processes, user interaction, and organizational routines (Janssen et al., 2024). The literature on digital service innovation emphasizes that technological change becomes meaningful when it produces new service value and improves user experience within the institution (Janssen et al., 2024; Setzke et al., 2021). Therefore, digital platform innovation can be interpreted as one operational pathway through which service innovation occurs in institutional contexts (Janssen et al., 2024; Ochinanwata et al., 2023).

Technology adoption in institutions is a critical enabling factor because even a well-designed digital platform cannot produce transformation without acceptance, use, and integration by organizational members (Ali et al., 2024; Tomaževič et al., 2024). Studies on institutional adoption indicate that people, culture, structure, processes, and technology jointly determine whether digital initiatives become embedded in practice (Tomaževič et al., 2024). This implies that adoption must be understood as both a behavioral and organizational process rather than as a matter of system availability alone (Ali et al., 2024).

The relationship among these variables can therefore be synthesized as follows: digital platform innovation provides the mechanism, digital transformation forms the strategic environment, service innovation represents the service outcome, and technology adoption determines whether the change is effectively implemented (Janssen et al., 2024; Ochinanwata et al., 2023; Tomaževič et al., 2024). In this framework, institutional service transformation becomes the visible outcome of interactions among technological, organizational, and human factors over time (Joshi et al., 2024; Phạm et al., 2026).

A consistent finding in the literature is that institutional readiness strongly influences the success of digital change. Studies on higher education and public institutions show that digital transformation is more likely to progress when governance is supportive, personnel is competent, and organizational structures are aligned, whereas weak readiness leads to partial or uneven implementation (Joshi et al., 2024; Phạm et al., 2026). Similarly, research on public institutions shows that people, culture, structure, and processes are decisive enablers of adoption and should be addressed before or during technology deployment (Tomaževič et al., 2024).

The existing literature still leaves an important gap because many studies examine digital transformation, technology adoption, or service innovation separately rather than as an integrated model of institutional service transformation (Janssen et al., 2024; Ochinanwata et al., 2023). In addition, many studies focus on general institutional digitalization, while fewer explicitly explain how digital platform innovation reshapes service delivery at the institutional level in a structured manner (Joshi et al., 2024; Phạm et al., 2026).

Table 1. Summary of Research Novelty

No	Novelty Aspect	Condition in Prior Research	Contribution of This Research
1	Integration of modularity and HR	Modularity discussed separately from HR readiness (Baldwin & Woodard, 2008)	Combines both dimensions simultaneously
2	Methodological approach	SLR generally stands alone without field data (Adeyinka-Ojo, 2021)	Combines SLR with a field questionnaire
3	Research locus	Platform architecture studies focus on the general digital industry (Sabbioni et al., 2022)	Takes up the context of vocational tourism education
4	Empirical evidence of HR readiness	HR readiness is often assumed normatively (Vrontis et al., 2022)	Provides real questionnaire data as empirical evidence

Table 2. Research Gap

No	Identified Gap	Reference Source	How This Research Fills the Gap
1	Technical focus, minimal human dimension	Sabbioni et al. (2022)	Adds the HR readiness dimension
2	Cross-sector generalization of modularity	Tiwana et al. (2010)	Contextualizes to tourism services
3	HR readiness not linked to platform architecture	Bresciani et al. (2021)	Directly links the two
4	SLR without field validation	Adeyinka-Ojo (2021)	Adds a field questionnaire
5	Vocational tourism education locus rarely studied	Xiang & Fesenmaier (2017)	Makes Poltekpar Bali the research locus

II. METHODOLOGY

This study uses a Systematic Literature Review (SLR) approach combined with qualitative and empirical analysis to address five Research Questions (RQ) regarding digital platform architecture modularity and HR readiness in travel service reconfiguration. The SLR process followed the PRISMA protocol across Scopus-indexed databases using search terms: tourism services, digital platform architecture, travel services, reconfiguration, and modularization (Moher et al., 2009). Data management, bibliographic extraction, and thematic coding of literature were executed using NVivo 12 software and Microsoft Excel to construct comparative synthesis matrices.

The systematic search initially retrieved 284 articles. After removing duplicates (n = 62) and screening titles/abstracts based on inclusion criteria (peer-reviewed articles published in English focusing on digital tourism architectures or HR readiness), 142 records remained. Full-text eligibility appraisal excluded 94 articles lacking architectural or HR specifics, leaving 48 papers for detailed review, from which 6 core studies were extracted for primary comparative synthesis. To empirically validate the SLR synthesis, a survey was administered at Politeknik Pariwisata Bali, targeting N = 65 purposively sampled respondents (40 tourism business students, 10 lecturers, and 15 industry

partner representatives). Empirical questionnaire findings validated the literature synthesis by contrasting technical platform affordances against operational workforce competency levels.

The research instrument comprised a structured 5-point Likert scale questionnaire (1 = Strongly Disagree to 5 = Strongly Agree) assessing platform modularity, HR readiness, and service reconfiguration. We established instrument validity through Pearson product-moment correlation analysis, with all items yielding r-calculated values exceeding the critical table value ($r > 0.361$, $p < 0.05$). Internal consistency reliability was confirmed with an overall Cronbach's Alpha value of 0.884, indicating large-scale reliability. Complementary semi-structured interviews were conducted to elaborate upon questionnaire trends qualitatively.

The research procedure followed seven structured steps: (1) formulating five Research Questions (RQs); (2) defining search keywords; (3) database querying; (4) PRISMA screening; (5) article quality appraisal; (6) NVivo-assisted thematic synthesis; and (7) field validation via questionnaire and qualitative triangulation.

Table 3. Research Subjects Breakdown

No	Subject Category	Role in the Research	Number of Respondents
1	Tourism Business Students	Users of digital tourism platform services in academic practice	40 respondents
2	Study Program Lecturers/Instructors	Curriculum managers & observers of digital HR readiness	10 respondents
3	Industry Partners/Travel Agencies	Service providers operating the digital platform	15 respondents

Table 4. Research Questionnaire Instrument and Reliability

Variable	Indicator	Sample Question Item	Scale	Source
Platform Modularity	Understanding of separable/combinable service components	I understand that tourism services on the platform can be flexibly combined	1-5	Baldwin & Woodard (2008)
HR Readiness	Basic digital literacy	I feel able to operate digital tourism service applications/platforms	1-5	Xiang & Fesenmaier (2017)
HR Readiness	Readiness to participate in digital training	I am willing to participate in training to improve my digital competency	1-5	Bresciani et al. (2021)
Service Reconfiguration	Adaptation to service changes	I am ready to adapt when tourism services are reconfigured through a new platform	1-5	Tiwana et al. (2010)

III. RESULTS AND DISCUSSION

The literature synthesis summarized in Table 5 illustrates that platform architecture modularity functions as a technical enabler, while HR readiness serves as an organizational enabler governing implementation success. Reconfiguration of travel services is optimal only when both technical flexibility and human capability advance in tandem (Bresciani et al., 2021; Pastrakis et al., 2026; Tiwana et al., 2010).

Empirical questionnaire data presented in Table 6 show that while respondents possess strong readiness to participate in digital training (mean = 4.1) and high basic digital literacy (mean = 3.8), their conceptual understanding of platform service modularity is low (mean = 2.9). This confirms that while psychological readiness and foundational digital skills are present, technical concepts of modular system architecture remain unfamiliar to operational stakeholders (Bresciani et al., 2021; Xiang & Fesenmaier, 2017).

Addressing RQ1, platform architecture modularity in travel services is realized by decoupling transportation, accommodation, and activity modules into reconfigurable bundles (Baldwin & Woodard, 2008; Pastrakis et al., 2026). For RQ2, HR training readiness directly dictates platform adoption efficacy, supporting Vrontis et al. (2022). For RQ3, service reconfiguration occurs incrementally relative to HR absorption capacity (Tiwana et al., 2010). Regarding RQ4, cognitive gaps regarding modularity represent the primary barrier, whereas training motivation acts as the main catalyst (Bresciani et al., 2021). For RQ5, platform modularity and HR readiness function as complementary assets for sustainable reconfiguration success (Zhang et al., 2025).

In discussion, technical platform modularity cannot deliver expected flexibility without corresponding workforce literacy in modular architecture (Baldwin & Woodard, 2008; Weng et al., 2024). High willingness to undergo training presents an immediate opportunity for vocational institutions to bridge this cognitive gap through structured curricula (Issakov et al., 2023; Vrontis et al., 2022). Sustainable digital transformation requires destination managers to pair platform infrastructure investments with human resource capacity building (Khatami et al., 2024; Zhang et al., 2025).

Table 5. Summary of Systematic Literature Review Results

No	Author(s) & Year	Research Focus	Method	Main Findings
1	Sabbioni, Villano, & Corradi (2022)	Smart tourism service integration architecture	Architecture case study	Modularity supports personalization of tourism services
2	Tiwana, Konsynski, & Bush (2010)	Platform architecture evolution	Conceptual	Modularity accelerates recombination of service components

3	Buhalis & Leung (2018)	Smart hospitality ecosystem interconnectivity	Conceptual	Platform interoperability is crucial for tourism services
4	Bresciani, Ferraris, Romano, & Santoro (2021)	HRM and digitalization	Conceptual/case study	Digital HR readiness is a prerequisite for transformation
5	Vrontis et al. (2022)	Advanced technology and HR management	Systematic review	Continuous training improves digital HR readiness
6	Zhang, Chen, Li, & Jiao (2025)	Digital transformation and tourism performance	SLR	HR strategy aligned with technology improves performance

Table 6. HR Readiness Questionnaire Results (1-5 Likert Scale, N = 65)

No	Indicator	Average Score	Category
1	Basic digital literacy	3.8	High
2	Ability to adapt to new technology	3.4	Moderate
3	Understanding of platform service modularity	2.9	Low
4	Readiness to participate in digital training	4.1	High
5	Digital self-efficacy	3.5	Moderate

IV. CONCLUSIONS

This study demonstrates that digital platform architecture modularity and HR readiness are interdependent determinants of successful travel service reconfiguration. While modular architecture yields structural flexibility for component recombination, workforce readiness dictates operational execution. Empirical findings highlight high training willingness (mean = 4.1) alongside a distinct gap in modularity literacy (mean = 2.9).

It is recommended that vocational tourism education institutions integrate platform architecture and modular system dynamics into technical curricula. Destination managers must synchronize platform technology acquisitions with targeted employee upskilling programs to ensure long-term digital agility and sustainable service transformation.

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