

Stakeholder Perceptions of Digital Transformation in Higher Education: A Case Study of a Vietnamese University

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ABSTRACT: *Digital transformation has become a strategic priority in higher education worldwide, yet its success depends largely on how it is perceived and enacted by institutional stakeholders. This study explores the perceptions of teachers, students, administrative staff, and institutional leaders regarding digital transformation at a public university in Vietnam. Guided by Ecological Systems Theory, the research adopts a qualitative single-case study design to examine digital transformation as a multilevel institutional process. Data were collected through semi-structured interviews with 10 teachers, 6 administrative staff, and 5 institutional leaders, as well as four focus group discussions with 18 students. Thematic analysis revealed four overarching themes: digital transformation as institutional restructuring rather than mere technology adoption; human capacity and readiness as the critical determinant of success; persistent misalignment between digital systems and organizational processes; and tensions between innovation, control, and educational quality. The findings highlight digital transformation as a socio-organizational phenomenon shaped by interactions across individual, institutional, and policy contexts rather than a purely technological initiative. By providing a holistic multi-stakeholder perspective from an emerging higher education system, the study contributes to understanding how digital transformation is negotiated in practice and offers implications for policy, leadership, and capacity development in Vietnamese and comparable contexts.*

KEYWORDS: Digital transformation; Vietnamese higher education; stakeholder perceptions; Ecological Systems Theory; qualitative case study.

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1. Introduction

Digital transformation has become a defining priority for higher education institutions (HEIs) worldwide as they respond to rapid technological change, shifting labour market demands, and the expectations of digitally native learners. Unlike earlier digitization efforts focused on converting analog materials into digital formats, digital transformation entails a fundamental reconfiguration of institutional structures, pedagogical practices, and governance through the strategic integration of digital technologies (Benavides *et al.*, 2020). It extends beyond teaching and learning to encompass research management, administrative services, student support, and institutional decision-making, reshaping universities into more flexible, data-driven, and innovation-oriented organizations.

Momentum for digital transformation

intensified after the COVID-19 pandemic, which exposed both the vulnerabilities and potential of higher education's digital infrastructure. Universities rapidly adopted online learning platforms, digital communication tools, and remote administrative systems, accelerating changes that might otherwise have taken years (Marks & Al-Ali, 2022). Yet digital transformation is not merely a technological shift; it is a multidimensional change process involving people, processes, and organizational culture (Taher, 2023). Effective implementation therefore requires alignment across these dimensions and meaningful engagement from diverse stakeholders, including students, faculty, administrative staff, and institutional leaders.

Despite its promise, digital transformation faces persistent barriers. Systematic reviews highlight limited digital competencies, inadequate

infrastructure, resistance to organizational change, fragmented policies, and insufficient leadership support (Gkrimpizi *et al.*, 2023). These challenges are experienced differently across stakeholder groups: teachers may struggle with pedagogical adaptation, students may face inequitable access and digital fatigue, and administrative staff may find new workflows difficult to navigate. Perceptions and use of digital media also vary substantially between teachers and students, shaping the effectiveness of institutional initiatives (Bond *et al.*, 2018). Understanding these differences is therefore essential for designing inclusive and sustainable transformation strategies.

Stakeholder engagement is increasingly recognized as a key determinant of digital transformation outcomes. Universities operate as complex social systems in which multiple actors interact across interconnected environments. Students' growing reliance on digital communication technologies for learning, collaboration, and information access has pushed institutions to adapt to evolving practices (Santos *et al.*, 2019). At the same time, leadership perspectives and governance structures strongly shape institutional strategies and resource allocation (Marks & Al-Ali, 2022). Examining digital transformation through a stakeholder lens therefore offers deeper insight into how institutional change is negotiated and enacted.

In emerging contexts such as Southeast Asia, digital transformation is further shaped by national development agendas, resource constraints, and uneven technological readiness. Comparative evidence suggests that while countries such as Singapore have advanced infrastructures and coherent policy frameworks, Vietnamese universities continue to navigate uneven implementation and capacity challenges (Nguyen-Anh *et al.*, 2023). Policy analyses indicate that Vietnam is moving toward greater digitalization, but institutional readiness varies widely and stakeholder coordination remains inconsistent (Nguyen *et al.*, 2025). National reports also point to persistent gaps in infrastructure, digital skills development, and strategic alignment, suggesting that transformation

remains at an early stage of maturity (Pitt *et al.*, 2022). These conditions underscore the value of examining digital transformation within specific institutional settings rather than relying on global generalizations.

Although research has addressed technological adoption, policy development, and pedagogical innovation, relatively few studies examine how multiple stakeholder groups perceive digital transformation within a single university. Most work focuses on isolated perspectives, often students or faculty, without capturing the interconnected experiences of administrative staff and institutional leaders. This gap is especially significant in Vietnam, where digital transformation is a national priority but implementation remains uneven and context-dependent. A more comprehensive understanding of stakeholder perceptions is therefore needed to identify opportunities, challenges, and misalignments that may influence transformation success.

To address this gap, the present study investigates how teachers, students, administrative staff, and institutional leaders perceive digital transformation at a Vietnamese university. Using a qualitative case study approach, it examines digital transformation as experienced across multiple levels of the institutional ecosystem. The study addresses the following research questions:

- (1) How do different stakeholder groups perceive the process of digital transformation at the university?
- (2) What opportunities and challenges do stakeholders identify in the implementation of digital transformation? and
- (3) How do institutional policies and practices influence stakeholder experiences of digital transformation?

By adopting a multi-stakeholder lens in a developing context, this study contributes to international discussions on digital change in higher education and offers insights for policymakers and institutional leaders seeking sustainable transformation strategies.

This study contributes to the literature in three important ways. First, it extends existing research

on digital transformation in Vietnamese higher education, which has predominantly focused on isolated dimensions such as teacher readiness, student acceptance, or policy implementation, by examining how these dimensions intersect within a single institutional ecosystem. Rather than treating stakeholder perceptions as separate strands, the study reveals how digital transformation is experienced as a shared but uneven process shaped by interactions across roles and organizational levels.

Second, the study demonstrates the analytical value of a qualitative single-case design for capturing digital transformation as a situated and relational phenomenon. By focusing on one institution as a bounded system, the research is able to trace how tensions between policy, institutional strategy, organizational processes, and individual practices unfold in practice—insights that are difficult to obtain through multi-site or survey-based approaches.

Third, by applying Ecological Systems Theory, the study reconceptualizes digital transformation as an ecological process rather than a purely technological or individual-level issue. The findings show how challenges such as system misalignment, uneven capacity, and tensions between innovation and control emerge from interactions across micro-, meso-, and macro-level structures. This ecological perspective offers a more integrated understanding of digital transformation as a socio-organizational process, providing insights that extend beyond existing frameworks focused primarily on technology adoption or user readiness.

2. Literature review

2.1. Digital Transformation in Higher Education

Digital transformation in higher education refers to a systemic reconfiguration of institutional operations, pedagogical practices, and governance through the strategic integration of digital technologies, extending beyond earlier phases of digitization and digitalization that focused on converting materials or optimizing existing processes (Benavides *et al.*, 2020; Branch *et al.*, 2020). Scholars conceptualize this transformation as a multidimensional

socio-technical process involving technological infrastructure, organizational change, and stakeholder value creation, aligned with Education 4.0 and Industry 4.0 paradigms that position universities as key actors in knowledge economies (Rof *et al.*, 2020; Valdés *et al.*, 2021; Goulart *et al.*, 2022; Wang *et al.*, 2023). Advances in artificial intelligence, cloud computing, and learning analytics, together with rising expectations for flexible and personalized learning, have accelerated transformation globally (D'Ambra *et al.*, 2022; Niță & Guțu, 2023).

The COVID-19 pandemic served as a major catalyst, forcing rapid adoption of online teaching and remote operations while exposing disparities in infrastructure and digital competencies (Mhlanga *et al.*, 2022; Erdmann *et al.*, 2021; Hervás-Gómez *et al.*, 2021; Bećirović & Dervić, 2023). Despite expanded access and innovation, persistent barriers—including limited digital skills, workload pressures, resistance to pedagogical change, fragmented governance, and funding constraints—continue to impede sustainable implementation (Sjöberg & Lilja, 2019; Rogozin *et al.*, 2022; Anh & Phong, 2023; Gkrimpizi *et al.*, 2023; Valdés *et al.*, 2021). Students also face challenges related to digital inequality and engagement in poorly designed online environments (Bond *et al.*, 2018; Díaz-Noguera *et al.*, 2020; Mårtensson *et al.*, 2023). Consequently, digital transformation is increasingly understood as a socio-organizational process requiring alignment among technological, human, and institutional dimensions.

2.2. Digital Transformation in Emerging Higher Education Contexts

In emerging higher education systems, digital transformation is closely linked to national modernization agendas and global competitiveness strategies, with governments promoting digital governance, online learning ecosystems, and technological integration (Hung, 2023; Aditya *et al.*, 2022; Fadli & El Mediouni, 2025). Vietnam exemplifies this trajectory through policy initiatives prioritizing digital

transformation in education (Anh & Phong, 2023). However, research consistently highlights a gap between policy ambitions and institutional realities due to uneven infrastructure, limited funding, and insufficient human capacity (Le & Vu, 2022; Valdés *et al.*, 2021; Branch *et al.*, 2020).

Institutional readiness varies depending on leadership capacity, governance structures, and professional development opportunities, and fragmented strategies may lead to superficial implementation (Gkrimpizi *et al.*, 2023; Lakshmypriya *et al.*, 2022; Hung, 2023; Aditya *et al.*, 2021). At the same time, emerging contexts demonstrate adaptive innovation through mobile-first learning, open-source technologies, and community-based solutions, reflecting “leapfrogging” approaches that bypass traditional development stages (Trevisan *et al.*, 2024; Mukul & Büyüközkan, 2023). In Vietnam, social media and mobile applications have been widely used to support teaching and communication where formal systems are limited (Le & Vu, 2022; Hung, 2023). These dynamics underscore the importance of context-specific studies examining how transformation policies translate into practice.

2.3. Stakeholder Perspectives on Digital Transformation

Digital transformation is fundamentally a multi-stakeholder process shaped by the perceptions and interactions of teachers, students, administrators, and leaders. The people–process–technology framework emphasizes that sustainable transformation requires alignment among human factors, organizational processes, and technological systems (Taher, 2023). Multi-stakeholder approaches highlight the need to reconcile competing priorities, as differences in expectations can influence the trajectory of institutional change (Brunetti *et al.*, 2020; Housewright & Schonfeld, 2008).

Teachers occupy a central yet ambivalent role as implementers of digital pedagogies, balancing recognition of technological necessity with concerns about workload, training, and professional identity (Rogozin *et al.*, 2022;

Yureva *et al.*, 2020). Students value flexibility but express concerns about engagement, interaction, and equity (Bond *et al.*, 2018; Santos *et al.*, 2019; Erdmann *et al.*, 2021). Leadership and administrative actors shape transformation through strategic vision and resource allocation, influencing institutional coherence and sustainability (Niță & Guțu, 2023; Gaweł *et al.*, 2024). Divergent stakeholder priorities may generate tensions between innovation and stability (Biedermann *et al.*, 2019). However, most studies examine stakeholder groups separately, limiting understanding of how their experiences intersect within a single institutional context.

2.4. Digital Transformation in Vietnamese Higher Education

Vietnam provides a compelling context due to strong state leadership combined with diverse institutional capacities. National policies position universities as drivers of digital innovation and economic development (Nguyen *et al.*, 2025; Uoc, 2023), while a three-layer implementation model including macro policy, meso institutional strategy, and micro pedagogical practice illustrates how transformation unfolds across governance levels (Nguyen & Hong, 2026). Institutional readiness varies according to infrastructure, governance, and staff competencies (Giang *et al.*, 2021), teacher readiness depends on training and institutional support (Anh & Phong, 2023), and student acceptance is influenced by perceived usefulness and instructional quality (Luong *et al.*, 2021). Although effective digital environments can enhance engagement and satisfaction, disparities in access remain significant (Van Vu *et al.*, 2022).

The COVID-19 pandemic accelerated digital adoption, revealing both adaptive capacity and structural weaknesses, suggesting that sustainable transformation requires coherent integration of technology, pedagogy, and governance (Nguyen *et al.*, 2025; Uoc, 2023). Despite growing research, few studies examine perceptions across multiple stakeholder groups within a single institution, leaving limited understanding of how transformation is collectively experienced.

2.5. Theoretical Framework: Ecological Systems Theory

This study is grounded in Ecological Systems Theory (Bronfenbrenner, 1979), which conceptualizes human experiences as shaped by nested environmental systems including microsystem, mesosystem, exosystem, macrosystem, and chronosystem that interact dynamically over time. This framework is particularly suited to digital transformation, a multilevel process affecting classroom practices, organizational coordination, institutional policies, and societal expectations simultaneously. Teachers' classroom experiences (microsystem), interactions among departments (mesosystem), leadership decisions (exosystem), national digital agendas (macrosystem), and temporal dynamics such as accelerated adoption during COVID-19 (chronosystem) collectively shape stakeholder perceptions.

Ecological perspectives have been shown to capture the complexity of digital change by highlighting interactions among individual competencies, institutional support, and policy environments (Zhang *et al.*, 2023; Voronenko *et al.*, 2024). By applying this framework to multiple stakeholder groups within a single university, the present study conceptualizes digital transformation as an ecosystem rather than a linear technological process and seeks to generate context-sensitive insights into how transformation is experienced and negotiated in Vietnamese higher education.

Despite growing research on digital transformation in Vietnamese higher education, existing studies tend to focus on discrete aspects such as readiness, acceptance, or policy analysis. As a result, limited attention has been paid to how these dimensions interact within institutional contexts and across stakeholder groups. Moreover, theoretical approaches often emphasize technological adoption or individual competencies, offering less insight into how transformation unfolds across interconnected institutional levels. Addressing this gap requires an approach that integrates stakeholder perspectives within a unified

analytical framework, which the present study seeks to provide through an ecological lens.

3. Methodology

3.1. Research Design

This study adopted a qualitative single-case study design to explore how multiple stakeholder groups perceive the process of digital transformation within a public university in Vietnam. A qualitative approach is appropriate for examining complex social phenomena and capturing the meanings individuals assign to their experiences in context (Creswell & Poth, 2018). Given that digital transformation in higher education involves technological, organizational, and cultural changes shaped by stakeholder interactions, qualitative inquiry allows for a nuanced understanding of how these dynamics are interpreted and negotiated.

The case study method is defined as an empirical investigation of a contemporary phenomenon within its real-life context, particularly when the boundaries between the phenomenon and context are not clearly delineated (Yin, 2018). Digital transformation in universities exemplifies such a phenomenon, as it is embedded within institutional structures, policies, and practices. A single-case study design enables an in-depth examination of the interplay among stakeholders, institutional processes, and policy environments, consistent with the ecological systems perspective underpinning this study. By focusing on one institution as a bounded system, the research aims to generate rich, contextually grounded insights into how digital transformation is experienced across different levels of the university ecosystem.

3.2. Research Setting

The study was conducted at a large public university in southern Vietnam specializing in economics, business, and management disciplines. Over the past two decades, the institution has reported a sustained digital transformation trajectory, evolving from the implementation of basic administrative software systems to comprehensive digitization and

integration of institutional operations. Since the early 2020s, digital transformation has been institutionalized as a university-wide strategy guided by formal frameworks and multiple strategic pillars, emphasizing digital infrastructure, capacity building, and data-driven governance across teaching, research, and administration.

During this foundational phase, the university established a unified digital workplace, expanded digital learning ecosystems, and implemented online administrative services, integrated data platforms, and secure authentication systems. Institutional reports and internal evaluations suggest a relatively high level of digital maturity, particularly in digital education and governance, supported by substantial investments in technological infrastructure and cybersecurity. The institution has articulated a strategic goal of transitioning toward a ‘smart university’ model focused on advanced analytics, artificial intelligence applications, personalized learning, and evidence-based decision-making.

Like many universities in emerging contexts, the institution operates within a national policy environment that prioritizes digital transformation while facing constraints related to resources, human capacity, and organizational change. This context reflects broader dynamics identified in the literature, particularly the tension between ambitious policy directives and institutional implementation capacity. As a comprehensive university with multiple faculties and administrative units, it provides a representative and information-rich setting for examining how diverse stakeholders interpret and respond to digital transformation in Vietnamese higher education.

The institution was selected as an information-rich case for examining digital transformation in practice (Yin, 2018). Specifically, it represents a strategically advanced yet contextually constrained university within the Vietnamese higher education system, where digital transformation has been formally institutionalized but continues to face implementation challenges. This positioning makes the case particularly suitable for exploring how transformation is

experienced and negotiated across stakeholder groups, rather than assuming either full success or failure. The case is therefore not intended to be statistically representative, but analytically informative, enabling in-depth examination of the interactions between policy ambitions, institutional strategies, and everyday practices within a bounded organizational context. In this study, the case is bounded by the institutional context of the university, including its teaching, administrative, and governance systems, and focuses specifically on stakeholders directly engaged with digital transformation initiatives within this environment.

3.3. Participants and Sampling Strategy

The study involved four key stakeholder groups within the university ecosystem: teachers, students, administrative staff, and institutional leaders. These groups were selected because they occupy distinct yet interconnected roles in the implementation and experience of digital transformation, consistent with the ecological systems framework guiding the study. Examining perspectives across these roles enables a comprehensive understanding of how digital transformation is interpreted at different levels of institutional practice and governance.

A purposive sampling strategy was employed to recruit participants with relevant experience related to digital transformation initiatives (Palinkas *et al.*, 2015). Participants were selected to ensure diversity in gender, disciplinary background, academic level, and professional responsibilities, thereby capturing a wide range of experiences across teaching, learning, administration, and leadership. In total, 39 participants took part in the study.

The teacher group consisted of 10 participants (5 males and 5 females) aged between 26 and 45. The group represented diverse academic qualifications, including four master’s degree holders, four doctoral degree holders, and two doctoral candidates. Participants came from seven different schools and taught a wide range of subjects, including English, Accounting, Marketing, Digital Technology, International Law, Economics, Philosophy, Design, and

Research Methodology. This diversity allowed the study to capture variations in digital transformation experiences across disciplinary contexts and pedagogical practices.

The student group comprised 18 participants (12 females and 6 males) aged between 18 and 25, organized into four focus group discussions. Fourteen were undergraduate students representing different years of study (five first-year, four second-year, and four third-year students), and four were postgraduate students. Undergraduate participants came from a variety of majors, including Economics, Real Estate, Law, Business Administration, Data Analysis, Digital Marketing, and Business English. Postgraduate participants were enrolled in programs in Business Administration, Economics, and

Accounting. This composition enabled the study to capture diverse student experiences across academic levels and disciplines.

The administrative staff group included 6 participants (3 males and 3 females) aged between 24 and 32. Their roles covered key operational areas supporting digital transformation, including Finance, Student Support Services, Quality Assurance, Information Technology, Assessment and Planning, and Marketing and Communication. Three participants held bachelor’s degrees and three held master’s degrees. This group provided insights into how digital transformation affects institutional processes and service delivery.

The leadership group consisted of five senior administrators (three males and two females) holding key decision-making roles related to

Table 1. Teacher Participants

Pseudonym	Gender	Age	Qualification	Discipline	School
T1	Male	32	PhD Candidate	English	School A
T2	Female	29	Master’s	English	School B
T3	Male	41	Doctorate	Accounting	School C
T4	Female	35	Doctorate	Marketing	School D
T5	Male	38	Doctorate	Digital Technology	School E
T6	Female	30	Master’s	International Law	School F
T7	Male	45	Doctorate	Economics	School G
T8	Female	27	PhD Candidate	Philosophy	School A
T9	Male	34	Master’s	Design	School B
T10	Female	31	Master’s	Research Methodology	School C

Table 2. Student Participants

Pseudonym	Gender	Age	Level	Major	Focus Group
S1	Female	18	UG Year 1	Economics	FG1
S2	Female	19	UG Year 1	Real Estate	FG1
S3	Male	18	UG Year 1	Law	FG1
S4	Female	20	UG Year 2	Business Administration	FG1
S5	Male	21	UG Year 2	Data Analysis	FG2
S6	Female	20	UG Year 2	Digital Marketing	FG2
S7	Female	19	UG Year 2	Business English	FG2
S8	Male	21	UG Year 3	Economics	FG2
S9	Female	22	UG Year 3	Real Estate	FG3
S10	Female	21	UG Year 3	Law	FG3

Pseudonym	Gender	Age	Level	Major	Focus Group
S11	Male	23	UG Year 3	Business Administration	FG3
S12	Female	22	UG Year 3	Data Analysis	FG3
S13	Female	24	Postgraduate	Business Administration	FG4
S14	Male	25	Postgraduate	Business Administration	FG4
S15	Female	24	Postgraduate	Economics	FG4
S16	Female	23	Postgraduate	Accounting	FG4
S17	Female	20	UG Year 1	Digital Marketing	FG1
S18	Male	19	UG Year 1	Business English	FG1

Table 3. Administrative Staff Participants

Pseudonym	Gender	Age	Qualification	Functional Area
A1	Male	30	Bachelor's	Finance
A2	Female	28	Master's	Student Support
A3	Male	32	Master's	Quality Assurance
A4	Female	24	Bachelor's	Information Technology
A5	Male	27	Master's	Assessment & Planning
A6	Female	29	Bachelor's	Marketing & Communication

institutional governance, digital infrastructure, academic planning, and program development. Due to the small size of this group and the risk of indirect identification, individual demographic details are reported in aggregate rather than in tabular form. Collectively, these participants provided strategic perspectives on policy implementation, resource allocation, and long-term planning for digital transformation.

Overall, participants were recruited through purposive sampling using institutional networks and email invitations. Initial participants were identified based on their involvement in teaching, learning, administration, or leadership related to digital transformation, and additional participants were recruited to ensure diversity across gender, discipline, role, and experience. The final sample size was determined based on informational sufficiency, where no substantially new insights emerged across stakeholder groups. The inclusion of four stakeholder groups and varied roles allowed for depth and breadth of perspectives rather than statistical representation.

3.4. Data Collection Instruments and Procedures

Data were collected through semi-structured individual interviews and student focus group discussions, two complementary methods enabling in-depth exploration of individual experiences and collective perspectives on digital transformation. The design of interview and focus group protocols was informed by Ecological Systems Theory to ensure that data captured experiences across multiple institutional levels. Questions were structured to elicit participants' perspectives on immediate practices (e.g., classroom teaching, learning activities, and daily administrative tasks), interactions across units and roles (e.g., coordination between departments and communication between stakeholders), institutional policies and leadership decisions, and broader national or societal influences on digital transformation. This multilevel focus enabled the study to systematically capture how digital transformation is experienced within and across micro-, meso-, exo-, and macro-level contexts.

All interviews and focus group discussions were conducted by the author, who is a faculty member at the institution. Participants were informed of the researcher's role prior to participation. A common semi-structured protocol was used across stakeholder groups, with minor adaptations to reflect role-specific experiences. To minimize power imbalances, participation was voluntary, no participants were in direct supervisory relationships with the researcher, and sessions were conducted in neutral, non-evaluative settings. Participants were encouraged to share both positive and critical perspectives.

Semi-Structured Interviews

Individual interviews were conducted with teachers, administrative staff, and institutional leaders (21 interviews in total). Protocols were developed in alignment with Ecological Systems Theory (Bronfenbrenner, 1979) to capture experiences across institutional levels. Questions addressed participants' roles in digital transformation, experiences with digital systems, perceived institutional support, cross-unit coordination, and implementation challenges. The semi-structured format ensured comparability while allowing flexibility to probe stakeholder-specific issues (Kvale & Brinkmann, 2015). Interviews lasted 45–60 minutes and were conducted in private settings to ensure confidentiality.

Focus Group Discussions with Students

Student perspectives were collected through four focus group discussions organized to include diverse undergraduate and postgraduate perspectives across groups (first-year, second-year, third-year undergraduates, and postgraduates) to facilitate discussion among participants with similar experiences. This design enabled comparison of digital learning experiences across stages of study. Guided by Ecological Systems Theory, discussions explored classroom practices, peer and teacher interactions, institutional digital services, and broader influences on learning. Focus group discussions are particularly suited to examining shared meanings and diverse perspectives within peer contexts (Morgan, 1997). Sessions lasted

60–75 minutes and were facilitated using open-ended prompts.

All sessions were conducted in Vietnamese, audio-recorded with consent, transcribed verbatim, and anonymized. Vietnamese transcripts were used for analysis to preserve linguistic nuance, with selected excerpts translated into English for reporting.

3.5. Data Analysis

Data were analysed using reflexive thematic analysis following Braun and Clarke's (2006) six-phase framework. This approach enabled identification of patterns across stakeholder narratives and aligned with the study's ecological perspective. Analysis involved iterative familiarization, coding, theme development, review, definition, and narrative construction. Coding was conducted manually to maintain close engagement with the data. While initial coding was inductive, allowing themes to emerge from participants' accounts, the process was also informed by Ecological Systems Theory. Codes were iteratively examined in relation to different ecological levels, including individual practices (microsystem), interactions across roles and units (mesosystem), institutional structures and policies (exosystem), and broader socio-political influences (macrosystem), as well as temporal dynamics (chronosystem). This approach enabled the integration of data-driven insights with a theoretically informed interpretation of digital transformation as a multilevel process.

Cross-group comparisons identified convergences and divergences among teachers, students, staff, and leaders, reflecting interactions across ecological levels. Analytic memos documented emerging interpretations. Particular attention was given to how themes reflected relationships between institutional structures (exosystem), organizational processes (mesosystem), and individual experiences (microsystem), enabling an integrated understanding of digital transformation as a socio-organizational process.

Coding Scheme and Theme Development

Open coding generated a broad set of codes related to digital systems, policies, practices, and

Table 4. Coding Scheme and Theme Development

Initial Codes	Categories	Overarching Theme
Digital workflows; centralized platforms; hybrid teaching	Structural changes in operations	Digital Transformation as Institutional Restructuring
Training needs; uneven skills; workload; student self-regulation	Human readiness	Human Capacity as the Critical Determinant
System fragmentation; inconsistent procedures; coordination problems	Organizational misalignment	Process Misalignment and Integration Barriers
AI use; assessment integrity; data governance; cybersecurity	Innovation vs. control tensions	Tensions Between Innovation and Educational Quality

governance. Through iterative comparison, codes were grouped into categories and synthesized into four overarching themes.

The coding scheme is presented as a heuristic summary of the final analytic interpretation; however, theme development was iterative, recursive, and shaped through the researcher’s reflexive engagement with the data rather than a linear coding process.

Themes were developed as interpretive patterns across the dataset, capturing shared and divergent meanings in participants’ accounts rather than representing fixed or exhaustive categories. Each theme was further interpreted in relation to ecological levels to capture how stakeholder experiences were shaped by interactions across the institutional ecosystem. For example, themes related to teaching practices and student learning reflect microsystem processes, while issues of coordination and system integration correspond to mesosystem interactions. Institutional policies and governance structures are associated with exosystem influences, and broader national agendas and technological trends reflect macrosystem dynamics. Temporal factors, such as the acceleration of digital transformation during the COVID-19 period, illustrate chronosystem effects.

3.6. Ethical Considerations

The study followed established ethical guidelines. Participants provided informed consent and were assured of voluntary participation and the right to withdraw. Confidentiality was maintained through pseudonyms and removal

of identifying information. Data were securely stored on password-protected devices, and ethical approval was obtained from the institutional review board.

3.7. Trustworthiness

Trustworthiness was ensured using Lincoln and Guba’s (1985) criteria. Credibility was strengthened through data triangulation across stakeholder groups (teachers, students, administrative staff, and leaders) and methods (interviews and focus group discussions), as well as member checking with a subset of participants (n = 39), who reviewed summaries of key themes. Their feedback confirmed the overall interpretations, with minor clarifications incorporated into the analysis. Transferability was supported by detailed contextual descriptions of the research setting and participants. Dependability was ensured through an audit trail documenting key stages of data collection, coding, and theme development. Confirmability was enhanced through reflexive journaling, in which the researcher recorded analytic decisions and critically examined potential bias related to their insider position. As an insider researcher and university teacher, I maintained reflexivity regarding potential bias. Participants with direct supervisory relationships were excluded, and voluntary participation was emphasized. Reflexive notes were used to critically examine how my positionality might influence interpretation while leveraging contextual understanding to enhance analytical depth.

4. Results

This section presents the findings of the study based on qualitative data collected from interviews with teachers, administrative staff, and institutional leaders, as well as focus group discussions with students. The analysis revealed four overarching themes that capture how different stakeholder groups perceive and experience the university's digital transformation. While the themes reflect shared institutional patterns, stakeholder accounts also revealed important differences, tensions, and role-specific experiences that shape how digital transformation is understood and enacted. Although stakeholders occupied different roles within the institutional ecosystem, their accounts converged around shared tensions between structural change, human readiness, organizational coordination, and emerging concerns about educational quality and governance. Together, these themes illustrate digital transformation as a complex, multilevel process rather than a purely technological initiative.

4.1. Digital Transformation as Institutional Restructuring rather than mere Technology Adoption

Across stakeholder groups, digital transformation was consistently framed as a comprehensive restructuring of institutional operations rather than the simple introduction of new tools. Leaders emphasized that digital transformation had become unavoidable due to institutional expansion, policy pressures, and the increasing complexity of governance. One leader (L2) described digitalization as *"a trend that everyone must follow,"* noting that traditional manual processes could no longer sustain a large, multi-disciplinary university. Another leader (L1) elaborated:

When the university became larger and more complex, manual coordination was no longer possible. Digital systems were not introduced just to modernize but to ensure that decisions, reporting, and monitoring could function efficiently across multiple campuses and units.

Administrative staff experienced this restructuring most concretely through changes

in workflows. Tasks that previously relied on paper documents, email exchanges, or face-to-face coordination were replaced by centralized digital systems such as electronic office platforms, online approval processes, and integrated reporting tools. As one staff member (A3) explained, *"Previously everything went through email... now all plans and approvals go through the system."* While these changes improved transparency and traceability, they also required staff to learn new procedures and adapt to standardized workflows. Another participant (A1) reflected on the magnitude of change:

Before, each department had its own way of handling documents. Now everything must follow one digital procedure, which improves control but also reduces flexibility. We have to adjust not only our skills but also how we think about coordination.

Teachers highlighted how digital transformation altered both administrative and pedagogical practices. Digital signatures, online course management systems, and automated submission platforms reduced time spent on bureaucratic tasks. Teacher T4 remarked that in the past they had to physically obtain signatures from multiple offices, whereas now documents could be submitted electronically within minutes. At the same time, teaching practices were reshaped through the integration of digital resources, online assessments, and hybrid learning formats. As T2 observed:

Digital transformation has changed not only how we submit documents but how we design teaching. I now prepare materials differently, think about online engagement, and consider how students access content outside class. It is a complete change in professional practice.

Students likewise perceived transformation through changes in learning environments. They reported that course materials, assignments, communication with instructors, and administrative services had increasingly moved online. While many appreciated the convenience and flexibility of digital access, some expressed uncertainty about navigating multiple platforms and adapting to new expectations. A student in FG2 (S7) noted that *"assignments,*

communication, and materials are all online now,” reflecting the pervasive influence of digital systems on academic life. Another student (S3) described both benefits and challenges:

It is convenient because everything is accessible anytime, but sometimes we feel overwhelmed because different courses use different systems. We spend time figuring out where to submit or check information instead of focusing on learning.

Taken together, these accounts indicate that digital transformation reconfigured institutional structures across governance, administration, teaching, and learning. Rather than operating as isolated technological upgrades, digital initiatives reshaped the university ecosystem, altering relationships among stakeholders and redefining everyday practices. Notably, perceptions varied by role. While leaders framed digital transformation as a strategic necessity, administrative staff and teachers were more likely to emphasize its operational and workload implications. Some staff also expressed concern that increased standardization reduced flexibility in local practices, highlighting a tension between institutional control and contextual responsiveness.

4.2. Human Capacity and Readiness as the Critical Determinant of Success

Despite the expansion of digital infrastructure, stakeholders overwhelmingly identified human capacity as the most significant factor influencing the effectiveness of digital transformation. Leaders acknowledged that staff readiness varied considerably, with some individuals adapting quickly while others struggled to keep pace. Leader L3 observed that differences in digital competence created uneven implementation across units, noting that *“technology is only effective when people know how to use it properly.”*

Administrative staff emphasized the need for sustained training and hands-on support. Although introductory workshops and instructional videos were provided, many staff members found these insufficient for mastering complex systems. Participant A5 stated that *“video tutorials are not*

enough... we need direct guidance,” highlighting the importance of practical, context-specific training. Staff also noted that older employees and those with limited technological experience required additional assistance to overcome anxiety and build confidence. A2 explained:

Some colleagues are afraid of making mistakes in the system because errors are recorded and visible. Without continuous support, they prefer to avoid using advanced features, which slows down the whole process.

Teachers described the increased workload associated with adapting to digital teaching and assessment methods. Integrating new platforms, redesigning course materials, and monitoring online learning environments demanded additional time and effort. Teacher T1 expressed concern that digital transformation was implemented faster than their capacity to adjust pedagogically:

We were told to adopt digital tools quickly, but meaningful integration requires time to redesign courses. Otherwise, we just transfer old teaching methods into digital form without improving learning outcomes.

Nevertheless, many teachers also recognized opportunities to enhance engagement and flexibility when adequate support was available. T6 reported that once familiar with digital tools, they could provide richer learning resources and more timely feedback to students.

Students’ perspectives revealed another dimension of readiness. Although often assumed to be digitally proficient, students reported challenges related to self-regulated learning, information overload, and maintaining motivation in online environments. A student in FG4 (S15) explained that digital tools made it easy to find answers quickly but did not necessarily promote deep understanding:

We can search for solutions immediately, but sometimes we rely too much on quick answers instead of thinking deeply. Online learning requires discipline, and not all students are prepared for that.

Differences also emerged within stakeholder groups. While some teachers viewed digital tools as enhancing pedagogical flexibility,

others experienced them primarily as an additional burden due to limited time for adaptation. Similarly, although students were often assumed to be digitally proficient, several reported difficulties with self-regulated learning and information overload, suggesting uneven readiness within this group.

Overall, the findings indicate that digital transformation depends fundamentally on people rather than technology. Institutional success requires continuous capacity building, differentiated training, and supportive cultures that enable stakeholders to adapt to evolving digital practices.

4.3. Process Misalignment and System Integration as Persistent Barriers

A third major theme concerned the mismatch between digital systems and existing organizational processes. Stakeholders described numerous instances where technological solutions failed to align with institutional workflows, resulting in inefficiencies rather than improvements.

Leaders emphasized that effective digital systems require clearly defined procedures. Without process mapping and role clarification, software implementation could create confusion and delays. Leader L4 noted that “*software cannot be built without clear procedures,*” underscoring the interdependence between organizational design and technological infrastructure.

Administrative staff provided concrete examples of coordination challenges across departments. Participant A4 reported situations in which one unit completed its responsibilities but subsequent units failed to update information within the system, causing delays that affected students and faculty. They explained:

We completed our tasks on time, but another unit did not upload the results, so students could not see their grades. The system showed that everything was pending even though we had already finished our part.

Teachers encountered similar issues when interacting with administrative systems. Inconsistent requirements, unclear guidelines, and varying platform usage across faculties

created additional workload and uncertainty. Teacher T3 noted that different units sometimes requested the same information in different formats, reducing the efficiency gains promised by digitalization.

Students also experienced the consequences of misalignment, particularly when different courses required different submission platforms or communication channels. A student from FG1 (S2) remarked that each lecturer seemed to use a different system, making it difficult to keep track of requirements. Another student (S11) commented:

We spend a lot of time checking multiple platforms—email, LMS, messaging apps—because there is no single place for information. It can be confusing, especially during exam periods when deadlines overlap.

These challenges were experienced differently depending on stakeholders’ roles and proximity to decision-making. Administrative staff tended to focus on breakdowns in coordination across units, whereas teachers and students emphasized confusion caused by inconsistent platform use. In some cases, participants reported adapting informally to system limitations, indicating the presence of workarounds rather than fully integrated processes.

These findings suggest that digital transformation exposes underlying organizational fragmentation. Technology alone cannot resolve coordination problems; instead, successful implementation depends on synchronized governance structures, standardized procedures, and effective communication across units.

4.4. Tensions between Innovation, Control, and Educational Quality

The final theme highlights emerging tensions related to academic integrity, governance, and the broader implications of digital transformation for educational quality. Teachers expressed significant concern about the impact of artificial intelligence and digital tools on assessment practices. Teacher T8 reported difficulties ensuring that online tests accurately reflected students’ knowledge, particularly when AI applications could generate answers rapidly:

If students rely on AI tools during assessments, we cannot be sure that scores represent their own understanding. This forces us to rethink how we evaluate learning rather than simply transferring traditional exams to online formats.

Leaders recognized these challenges at the institutional level, emphasizing the need for policies addressing cybersecurity, data governance, and ethical use of digital technologies. Leader L5 highlighted the risks associated with centralized data management, noting that system administrators hold significant authority over sensitive information.

Administrative staff also raised concerns about data control and accountability. Participant A6 explained that while centralized systems improved efficiency, they also created dependencies on technical units responsible for system maintenance.

Students acknowledged both benefits and dilemmas associated with AI-enabled learning. While digital tools provided assistance with assignments and research, students were aware that excessive reliance could undermine genuine learning. A student from FG3 (S12) commented: *“AI helps us generate ideas quickly, but sometimes we worry that we are not learning deeply. It becomes tempting to depend on technology instead of developing our own skills.”*

Tensions were also evident within stakeholder groups. While some teachers advocated for stricter control mechanisms to ensure academic integrity, others emphasized the need to redesign assessment practices rather than rely on surveillance. Students similarly expressed ambivalence, recognizing the benefits of AI tools while questioning their impact on genuine learning, reflecting competing priorities between efficiency and educational depth.

This theme illustrates how digital transformation introduces complex trade-offs between efficiency and integrity, innovation and control, and accessibility and quality. Stakeholders must navigate these tensions as institutions seek to harness technological advances while preserving core educational values.

Collectively, the four themes portray digital

transformation as an ecological process shaped by interactions among institutional structures, human capacity, organizational coordination, and ethical considerations. At the same time, these shared themes were shaped by role-specific priorities and varying degrees of influence within the institutional hierarchy, indicating that digital transformation is experienced unevenly across stakeholder groups. Different stakeholders experienced transformation through their specific roles, yet their perspectives converged in highlighting both opportunities and challenges. Leaders focused on strategic direction, staff on operational processes, teachers on pedagogical implications, and students on learning experiences. Understanding these interconnected perspectives provides a holistic view of how digital transformation unfolds within a complex university environment.

5. Discussions

The findings indicate that digital transformation in higher education functions as an ecological process shaped by interactions across institutional, organizational, and individual levels, reinforcing the relevance of Ecological Systems Theory (EST). Rather than viewing digital transformation as a set of discrete challenges (e.g., skills gaps or system adoption), the findings suggest that these issues are interdependent and arise from misalignments across ecological levels. Stakeholders consistently perceived digital transformation not as a discrete technological intervention but as systemic restructuring affecting governance, workflows, pedagogy, and learning environments. At the microsystem level, teachers and students reported shifts toward hybrid teaching, digital assessment, and increased reliance on online platforms, reflecting moves toward learner-centered and data-informed environments (Benavides *et al.*, 2020; Mukul & Büyüközkan, 2023). Importantly, these pedagogical changes were understood as outcomes of broader institutional restructuring rather than isolated innovations.

At the mesosystem level, coordination among units significantly shaped implementation. Misalignment between administrative procedures

and digital systems underscored the importance of interdepartmental relationships and supported the people–process–technology framework (Taher, 2023). Fragmentation, widely documented in prior research (Gkrimpizi *et al.*, 2023; Valdés *et al.*, 2021), was experienced by stakeholders as everyday operational inefficiencies, suggesting that digital transformation exposes underlying organizational weaknesses rather than automatically resolving them. These patterns of misalignment also have implications for institutional legitimacy and trust. When digital systems produce inconsistent or inefficient experiences across units, stakeholders may perceive transformation as imposed rather than enabling, potentially weakening confidence in institutional initiatives.

Exosystem influences emerged through leadership decisions, governance structures, and policy directives. Compliance with national agendas and expansion pressures demonstrated how external expectations shape institutional actions, consistent with the three-layer implementation model in Vietnamese policy research (Nguyen & Hong, 2026). However, tensions between top-down mandates and local capacities reflected gaps between policy ambition and institutional readiness (Le & Vu, 2022; Hung, 2023). Administrative staff concerns about system integration further indicated unintended consequences of policy-driven change. The Vietnamese policy context further intensifies these dynamics. Strong national emphasis on digital transformation creates momentum for rapid implementation, but may also exacerbate tensions when institutional capacity and coordination mechanisms are uneven, highlighting the gap between policy ambition and local practice.

At the macrosystem level, narratives reflected societal expectations for modernization and global competitiveness. While leaders framed digital transformation as inevitable (Nguyen *et al.*, 2025; Uoc, 2023), stakeholders expressed concerns about educational quality, academic integrity, and technological dependence, echoing international debates on balancing innovation with core educational values (Biedermann *et al.*,

2019; Brunetti *et al.*, 2020). The chronosystem dimension was evident in references to the COVID-19 pandemic as a catalyst for rapid adoption, which accelerated transformation but generated lasting challenges such as increased workload and concerns about learning quality (Mhlanga *et al.*, 2022; Erdmann *et al.*, 2021).

Across levels, human capacity emerged as the critical determinant of success. Stakeholders emphasized training, support, and adaptability, aligning with research on digital competencies and institutional culture (Rogozin *et al.*, 2022; Anh & Phong, 2023). The findings also challenge assumptions of student digital proficiency, revealing difficulties with self-regulated learning and critical engagement. Beyond highlighting capacity gaps, these findings also point to implications for leadership and organizational change. Digital transformation requires not only strategic direction but also sustained investment in professional learning and coordination, suggesting the importance of adaptive leadership approaches that support continuous capacity development across stakeholder groups. Within the Vietnamese context, characterized by strong state direction and uneven resources, participants' experiences reflected tensions between national ambitions and institutional constraints (Giang *et al.*, 2021; Van Vu *et al.*, 2022), alongside adaptive “leapfrogging” strategies (Trevisan *et al.*, 2024; Mukul & Büyüközkan, 2023).

Beyond these multilevel dynamics, the findings also point to the limits of digitally driven reform in emerging higher education systems. While investment in digital infrastructure enables rapid transformation, the case suggests that technological expansion does not automatically result in coherent organizational change. Persistent misalignment between systems and practices indicates that transformation may remain partial when underlying processes and roles are not adequately redesigned.

By integrating perspectives from teachers, students, staff, and leaders within a single institution, the study addresses a gap in the literature and demonstrates that digital transformation is experienced as a shared institutional phenomenon shaped by role-specific implications. Overall,

digital transformation in Vietnamese higher education is best understood as a multilevel socio-organizational process requiring alignment across ecological levels—linking policy, institutional strategy, organizational processes, and individual readiness—rather than a purely technological initiative.

6. Conclusions and Recommendations

This study examined how teachers, students, administrative staff, and institutional leaders perceive and experience digital transformation within a public university in Vietnam through the lens of Ecological Systems Theory. The findings reveal that digital transformation is not viewed as a purely technological initiative but as a complex institutional restructuring that reshapes governance, organizational processes, teaching, learning, and professional roles. Four interconnected themes emerged: digital transformation as comprehensive institutional reorganization rather than simple technology adoption; human capacity and readiness as the decisive factor in implementation; persistent misalignment between digital systems and organizational processes; and tensions between innovation, control, and educational quality, particularly in relation to artificial intelligence and academic integrity. Together, these findings conceptualize digital transformation as an ecological phenomenon shaped by interactions across multiple levels of the university environment.

By integrating perspectives from multiple stakeholder groups within a single institutional context, this study moves beyond fragmented accounts of digital transformation and demonstrates that transformation challenges are not discrete or stakeholder-specific, but inherently relational and systemic. Rather than attributing these challenges solely to issues of technological adoption or individual readiness, the findings reveal how they emerge from dynamic interactions across institutional levels. The application of an ecological framework further advances understanding by showing how tensions such as system misalignment, uneven capacity, and competing priorities are produced

through interdependencies between micro-, meso-, and macro-level structures. In doing so, the study offers a more nuanced and integrative account of digital transformation as a multilevel socio-organizational process.

The findings have important implications for higher education institutions. Universities should prioritize sustained and differentiated capacity development for both staff and students, recognizing that digital readiness extends beyond technical skills to include pedagogical adaptation and self-regulated learning. Institutional leaders should also ensure alignment between digital systems and organizational processes through clearer procedures and stronger cross-unit coordination. In addition, policies addressing the ethical use of emerging technologies, particularly artificial intelligence, are needed to balance innovation with academic integrity and educational quality.

This study has several limitations. As a qualitative single-case study, the findings are context-specific and not intended for statistical generalization. In addition, the reliance on self-reported data may reflect participants' perspectives at a particular point in time. Future research should adopt comparative, longitudinal, and mixed-methods approaches to examine how stakeholder perceptions and institutional practices evolve across contexts and over time. Further studies may also explore emerging issues such as artificial intelligence governance and data-driven decision-making in higher education. Ultimately, the study highlights that digital transformation in higher education is a human-centered, context-dependent process embedded within complex institutional ecosystems, and understanding stakeholder perspectives is essential for designing policies and practices that are technologically robust, socially sustainable, and educationally meaningful.

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