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Transformational Leadership in the Digital Age: Adaptive Strategies in Higher Education Institutions

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ABSTRACT

The accelerating pace of digital transformation poses significant leadership challenges in higher education, particularly in developing countries with limited infrastructure and hierarchical cultures. Transformational leadership is increasingly recognized as a key factor in enabling strategic adaptation and innovation in this context. This study employed a qualitative phenomenological approach to explore how transformational leadership facilitates digital innovation in higher education institutions. Data were collected through in-depth interviews with 36 participants—including academic leaders, faculty members, and students—across three universities in Indonesia with varying levels of digital readiness. Thematic analysis was used to identify patterns and meanings in participant experiences. Findings reveal that transformational leadership—characterized by visionary direction, participatory governance, and empowerment—plays a critical role in fostering a collaborative digital culture. Leadership practices emphasizing transparency, inclusion, and emotional support reduced resistance to change and enhanced faculty and student engagement. Cross-unit collaboration, contextual training, and adaptive strategies further contributed to sustainable innovation. This study highlights the socio-cultural nuances of digital leadership in resource-constrained settings, demonstrating both the potential and limitations of transformational leadership in higher education digitalization. The findings contribute to leadership theory and offer practical guidance for institutions navigating digital change.

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1. INTRODUCTION

The main problem that often arises is the gap between the demands of the ever-changing external environment and the internal leadership capacity of institutions to respond adaptively (Gafurov, Safiullin, Akhmetshin, Gapsalamov, & Vasilev, 2020). In many universities, institutional leaders focus on administrative and managerial aspects and pay little attention to strategic dimensions of innovation and digital transformation. Additionally, many academic leaders have not fully grasped the role of

digital technology in enhancing operational efficiency, learning quality, and institutional competitiveness. As a result, although some digital initiatives have been implemented, their sustainability and impact are often insignificant (Klempin & Karp, 2018). Furthermore, the changing generation of students who are increasingly digital natives demands transformation at the technological level and in leadership patterns that can understand their learning preferences, communication styles, and expectations. In such a situation, leaders who rely solely on structural authority without adopting a transformational approach will likely fail to create meaningful change (Valdés, Alpera, & Suárez, 2021). Therefore, a deep understanding of transformational leadership in higher education is crucial, especially in managing complex and dynamic digital innovation and adaptation (Al-Husseini, El Beltagi, & Moizer, 2021).

Higher education has faced rapid and fundamental changes in recent decades, particularly due to the digital revolution that has permeated almost all aspects of life (Vachkova et al., 2022). Digital transformation is no longer an option but an inevitability that higher education institutions worldwide must confront (Galvis & Carvajal, 2022). This phenomenon encompasses the digitization of teaching and learning processes, institutional management, academic information systems, and patterns of interaction among academic staff. In this context, leadership plays a strategic role in navigating these changes, ensuring that the innovations brought about by technology are properly internalized and result in sustainable institutional transformation (Garcez, Silva, & Franco, 2022). With its visionary, inspirational, and empowerment-based characteristics, transformational leadership has become a relevant and widely discussed leadership model in organizational change. In higher education, transformational leaders can build an innovative culture, stimulate the creativity of lecturers and educational staff, and create an adaptive environment to technological dynamics (Henderikx & Stoffers, 2022). However, the implementation of these leadership principles is not always easy. Many universities, especially in developing countries, are still stuck in rigid and hierarchical administrative bureaucracy, which hinders the digital transformation process that should be fast and dynamic (Zhou, Smith, & Al-Samarraie, 2023).

This research's urgency is based on conceptual and theoretical developments and empirical evidence showing a gap between leadership strategies and digital transformation outcomes in many higher education institutions (Mohamed Hashim, Tlemsani, & Matthews, 2022). For example, a UNESCO report (2022) states that only about 36% of higher education institutions in developing countries have comprehensive digital strategies led by top institutional management (Fernández, Gómez, Binjaku, & Meçe, 2023). Most of them still adopt a partial and reactive approach to technological change. In Indonesia alone, data from the Ministry of Education, Culture, Research, and Technology shows that in 2023, only 28% of higher education institutions have a digitalization roadmap, while the rest are still in the initiation stage or have not even started (Hardiansyah & Zainuddin, 2022). This shows that strategic leadership for digital transformation is still not a widespread practice. From a qualitative perspective, interviews with several university leaders in Indonesia reveal major challenges in building collective awareness and institutional commitment to digital change. In a qualitative study conducted by (Barzman et al., 2021), it was found that universities led by rectors with a transformational leadership style showed higher levels of digital readiness, characterized by optimal adoption of LMS (Learning Management System), regular training for lecturers, and data-based management systems.

Analysis of the quantitative and qualitative data above shows a strong relationship between transformational leadership capacity and the success of digital adaptation in higher education institutions. However, little research has systematically analyzed how transformational leadership strategies are specifically applied in the context of digitalization and how this drives institutional innovation processes.

Therefore, this study is important to fill this gap and contribute to developing leadership theory in the digital era. The research questions to be addressed in this study are: (1) How do transformational leadership characteristics in higher education institutions drive digital adaptation and innovation processes? (2) What strategies do transformational leaders use to manage technology-based change in

higher education institutions? and (3) What factors support or hinder transformational leadership's effectiveness in campus digitalization? The main objective of this study is to identify and analyze the role and strategies of transformational leadership in facilitating digital adaptation and innovation in higher education. In addition, this study also aims to explore the internal and external dynamics that influence leadership effectiveness in the context of technological disruption, as well as to produce conceptual and practical contributions to the development of leadership models relevant to the challenges of the 21st century.

Several previous studies have highlighted the importance of transformational leadership in driving organizational innovation. Research by (Green et al., 2020), pioneers in developing transformational leadership theory, states that transformational leaders can create fundamental change in organizations through vision, inspiration, and individual support. In education, (Bryant, Ayers, Missimer, & Broman, 2021) show that transformational leadership contributes positively to learning culture, staff motivation, and institutional success. Research by (Żywiołek, Tucmeanu, Tucmeanu, Isac, & Yousaf, 2022) confirms that transformational leadership directly impacts the innovation climate within organizations by stimulating critical thinking and encouraging the exploration of new ideas. In a more specific study on higher education institutions, (Otto et al., 2024) found that transformational leadership enhances innovation capacity at both the individual and organizational levels through intrinsic motivation and empowerment. Similar results were found in a study by (Ngoc, Hoang, & Hung, 2020), which noted that strategic and adaptive leadership qualities significantly influenced universities that successfully transformed their digital learning systems. In the context of digital transformation, research by (Laufer et al., 2021) in Higher Education Quarterly states that the successful integration of technology in universities is largely determined by the role of leadership in facilitating organizational change. He notes that leaders who exhibit transformational characteristics tend to be more successful in creating an environment that supports digital innovation and technology-based learning. Similar research by (Loorbach & Wittmayer, 2024) identifies that inclusive and visionary leadership plays a significant role in enhancing digital readiness and active participation of academic staff in using new technologies.

However, most previous studies are still descriptive or focus on the impact of technology on teaching and learning processes without elaborating in depth on the strategic role of leadership in initiating, managing, and stabilizing digital change. These studies also often fail to distinguish the context of higher education in developing countries, which face unique challenges such as limited digital infrastructure, hierarchical organizational culture, and resistance to change. Therefore, although the existing literature has identified the link between transformational leadership and innovation, there is still a need for more comprehensive and contextual research that explains what works and how and why transformational leadership strategies can effectively promote the digitization of higher education institutions. This study seeks to address this need through empirical exploration based on data from universities in Indonesia as a representation of developing countries.

This gap is what this study aims to bridge. The absence of a conceptual model that integrates the dimensions of transformational leadership with digital innovation strategies in the context of higher education creates a need for comprehensive and contextual studies. Moreover, digital transformation is not merely a technical issue but a social and cultural process that requires leadership to be sensitive to organizational dynamics and capable of building cohesion amid change. This research offers a novelty in the form of an interdisciplinary approach that combines perspectives on leadership, strategic management, and digital transformation in the context of higher education. Unlike previous studies focusing on technological aspects or organizational structures, this research places leadership at the centre of digital change. The scientific justification for this research lies in formulating a conceptual and practical framework on how transformational leadership can be translated into concrete strategies that impact digital adaptation and innovation. Practically, this study's findings are expected to guide higher education leaders in designing policies, building a digital culture, and navigating the complexities of change with a visionary and inclusive approach.

2. METHODS

This study uses a qualitative approach with a phenomenological exploratory method. This approach was chosen because the study's main objective is to gain an in-depth understanding of the subjective experiences, perceptions, and practices of transformational leadership in promoting digital adaptation and innovation in higher education. The phenomenological approach is highly relevant for exploring the meanings constructed by individuals in facing specific social realities, in this case, digital transformation in higher education institutions. As stated by Creswell (2013), a qualitative approach is necessary when researchers want to gain a contextual and in-depth understanding of phenomena that have not been empirically studied and are still open to various interpretations. The research was conducted at three private universities in Madura, Indonesia: Universitas Wiraraja (Unija), Universitas Madura (Unira), and STKIP PGRI Bangkalan. These institutions were selected purposively to capture variation in organizational size and stages of digitalization. Unija (≈10,000 students) represents an institution at the stage of partial integration of digital services; Unira (≈7,000 students) is in the early adoption stage; and STKIP Bangkalan (≈4,000 students) is still at the initiation stage. This variation enabled a comparative understanding of leadership practices across different levels of readiness.

Sample and participants. The study included 36 informants participated in the study: 6 academic leaders (rectors, deans, program heads), 15 lecturers, and 15 students. Purposive sampling was applied to ensure the representation of stakeholders directly involved in and affected by digital transformation. The sample size was considered adequate to reach thematic saturation across cases. The research procedure begins with initial observation, namely observation of the digitalization systems implemented (such as LMS, academic information systems, and other digital services) and observation of interaction patterns between leaders and the academic community. These observations aim to identify the natural organizational context and map initial indicators relevant to transformational leadership characteristics. The results of the observations reveal variations in the level of technology adoption and differences in perceptions of the direction of change, confirming the need for further exploration through in-depth data collection techniques.

The primary data collection technique is through semi-structured, in-depth interviews. These interviews allow flexibility in exploring participants' experiences and perceptions in a personal and in-depth manner while remaining guided by the conceptual framework of the research. This technique was chosen due to the phenomenological nature of the research, which requires the exploration of subjective meanings, relational dynamics, and individual experiences of complex change processes. Each interview was recorded, transcribed, and analyzed systematically. The following table presents the indicators for in-depth interviews based on informant categories:

Table 1. Interview Indicators Based on Data Sources

Respondent Category	Thematic Aspect	Interview Indicators
Academic Leaders	Vision and Strategic Direction	- Perceptions on the urgency of digital transformation in higher education - Formulation of digitalization vision - Strategic commitment to innovation
	Leadership Style	- Daily leadership practices - Staff empowerment strategies - Decision-making models in change contexts
	Innovation Initiatives and Policies	- Launched digital programs/policies - Program planning and evaluation - Cross-unit academic and non-academic involvement
	Barriers and Challenges	- Obstacles in digital adoption on campus - Strategies to overcome resistance to

		change
	Perception of Transformational Role	- Support from external stakeholders - Awareness of role as change agent - Self-assessment of involvement in building innovation culture
	Impact of Change	- Changes in organizational culture - Impact of digitalization on institutional reputation and competitiveness
	Perception of Leadership	- Evaluation of rector/dean leadership in promoting innovation - Communication access to leadership - Involvement in strategic forums
	Adoption of Learning Technologies	- Experience using LMS and other digital platforms - ICT training and skill development - Changes in instructional design
	Support and Empowerment	- Facilitation from leadership in teaching innovation - Sense of ownership toward change - Recognition and incentives for innovation
Lecturers	Work Dynamics during Digitalization	- Workload during digital system transition - Technical and administrative support - Collaboration among lecturers and units
	Challenges and Resistance	- Individual or collective barriers in adopting technology - Perception of fairness in digitalization policies
	Outcomes and Impacts	- Perceived effectiveness of digital transformation - Impact on teaching quality and student satisfaction
	Digital System Usage Experience	- Ease/difficulty using LMS, e-learning, and academic information systems - Accessibility and responsiveness of digital services
	Perception of Change	- Views on changes in learning patterns - Comparison of experience before and after digitalization
Students	Interaction with Lecturers and Leaders	- Availability of lecturers and leaders via digital channels - Changes in academic communication
	Participation in Innovation	- Student involvement in evaluation and development of digital platforms - Opportunities to provide feedback
	Barriers and Challenges	- Technical issues (internet, devices, digital literacy) - Inequality in digital access among students

	Impact of Change on Learning Process	- Impact on learning motivation, independence, and academic outcomes - Perceptions of digital transformation sustainability

The data obtained from the interviews were analyzed using a Thematic Analysis approach described by (Farias-Gaytan, Aguaded, & Ramirez-Montoya, 2023). This analysis allows researchers to identify, analyze systematically, and report patterns (themes) in the data. This technique is chosen because of its flexibility in accommodating the complexity of qualitative data and its ability to link categories of meaning to developed theory. The analysis process began with repeatedly reading the interview transcripts, open coding relevant data segments, grouping codes into initial themes, refining and naming final themes, and interpreting the meaning of the relationships between themes in the context of transformational leadership and digital innovation.

To ensure data validity, this study applies source and method triangulation techniques, which involve comparing information from various categories of informants and methods (observation and interviews). Triangulation aims to increase the credibility and validity of findings and reduce researcher subjectivity bias. Validation was conducted through member checking and open discussions with selected participants to ensure the alignment of the researcher's interpretations with the informants' original experiences. With this in-depth and systematic methodological design, the study is expected to generate a rich contextual understanding and provide conceptual and practical contributions to developing an adaptive transformational leadership model for digital change in higher education.

3. FINDINGS AND DISCUSSION

3.1 Digital Leadership Vision and Strategy

Digital transformation in higher education involves more than merely the adoption of technological tools. It involves a paradigm shift, a change in values, and a reorientation of the institution's overall strategic direction. In this context, strategic leadership plays a vital role, especially in formulating a vision that can inspire all elements of the organization to move towards purposeful, participatory, and sustainable digital change.

Academic leaders across the three universities consistently emphasized the urgency of digital transformation. Rector A stated that '*digitalization was not just about technology but about rethinking work systems and culture."* Several campuses had drafted five-year digital blueprints, including the integration of academic information systems and faculty training. However, some lecturers expressed concern that the pace was "too fast, without sufficient preparation" (Lecturer B). This statement illustrates how the vision of digitalisation is directed at technological aspects and encompasses the values of organisational cultural change. Some leaders have even developed a five-year digital transformation blueprint: reformulating the digital curriculum, integrating academic information systems, strengthening digital literacy for lecturers, and mapping long-term infrastructure needs. In line with this, the "strategic commitment to innovation" indicator emerged in the narratives of faculty leaders who stated: "*We are not just following trends. Our vision must be concrete: how technology improves the efficiency and quality of academic services."* From a thematic analysis of the interviews, three patterns emerged consistently: (1) leadership awareness of the need for change, (2) participatory vision formulation, and (3) strategies for involving all units in digitalization planning.

Transformational leadership is characterized by building an inspiring vision and providing clear strategic direction (Gruzina, Mel'nichuk, & Belogash, 2020). In this context, a digital vision is not just a written document but a "collective mobilization tool" that encourages lecturers and students to feel involved in the change. A participatory vision, as found in the interviews, creates a sense of ownership and strengthens commitment to achieving digitalization goals. Research by (Hardiansyah, Sukitman,

Wahdian, & Hodairiyah, 2024) shows that a vision developed through cross-unit dialogue is more effective in creating consistency of direction and reducing resistance. This aligns with field data, where several institutions hold "digital town hall" forums as spaces for discussion and feedback on transformation plans.

In this framework, vision is not an isolated entity but the foundation of the entire campus management system. Interestingly, the interview results also show that students who understand the institution's vision are more proactive in adopting technology. One student said: "*We know the campus wants all systems to be paperless and fast. So, we are also learning to be adaptive.*" This shows that a digital vision's success is assessed from the perspective of leaders and lecturers, and how students respond and adjust their academic behaviour. In the framework of transformational leadership, this is an indicator of the success of inspirational motivation (Zhou et al., 2023), where the vision succeeds in creating collective enthusiasm.

Although most informants conveyed positive aspects, there were also critical notes. Some lecturers said that the formulation of the vision was sometimes too technocratic, failing to consider the readiness of human resources. One lecturer stated: "*The vision is good, but the implementation is often too fast, without sufficient training. We feel left behind.*" This criticism is important because it shows that the success of vision formulation depends heavily on the balance between big ideas and implementation realities. This is also reflected in a study by (Rof et al., 2020), which found that campuses with successful digital leadership always adjust the pace of change to the capacity of organizational readiness.

From the results and studies presented, it is clear that digital leadership vision is not just a technical instrument but a transformative strategy. It connects various elements of the organization, from values, policies, and resources to organizational culture. Vision serves as both a driver and a unifying force for change. Within the framework of organizational complexity theory, digital transformation led by strategic vision creates self-organizing behaviour, where organizational units begin to take the initiative autonomously while remaining aligned with the overarching direction. This finding enriches the literature on transformational leadership in a dynamic and multilevel digital context.

3.2 Leadership Style and Empowerment

Amidst the challenges of digital transformation, the ability of leaders to become facilitators of change and mentors for the academic community has become increasingly crucial. In the context of higher education, a participatory, supportive, and communicative leadership style is a characteristic that encourages innovation, emotional engagement, and resilience to the pressures of change. Interviews with lecturers revealed that an open and accessible leadership style greatly influenced their comfort and participation in digitization programs. One lecturer stated: "*We can directly contact the dean through a WhatsApp group. He often encourages us when we have difficulties developing digital teaching media.*" This statement indicates that an open leadership style—where leaders do not create rigid structural barriers—builds psychological safety for academic staff to ask questions, innovate, and try new things. Such leaders serve as role models, actively using digital platforms, responding quickly, and participating in training or innovation discussion forums. This aligns with the concept of "idealized influence" in (Khoza & Mpungose, 2022), which states that transformational leaders become role models because their values and actions are aligned. In digitalization, leaders willing to "get their hands dirty" using technology alongside lecturers will create a stronger innovative climate.

Transformational leadership style is also reflected in the way leaders build emotional relationships and two-way communication**.** Participants highlighted accessible and supportive leadership styles. For example, Lecturer C noted that the dean "was approachable via WhatsApp and encouraged us when difficulties arose." Students also valued being consulted: Student A remarked that their suggestion for automated attendance in the LMS was implemented. Yet, gaps remained. Some lecturers felt empowerment was "ambiguous" without adequate training (Lecturer D). In (Zamora-Polo & Sánchez-Martín, 2019) approach, this is referred to as "individualized consideration," which means paying attention to the needs and potential of individuals on a personal level. One student said: "*We once*

suggested an automatic attendance feature in the LMS, and it was actually implemented. We feel valued." This finding is supported by research by (Garcez et al., 2022), which shows that organizational emotional involvement increases when leaders demonstrate responsiveness and attention to individual needs.

Several academic leaders interviewed said that leadership in the digital era cannot be hierarchical and one-way. One rector said, "We changed the bureaucratic structure to flatter it. Innovation needs a fluid ecosystem, not barriers between departments." This structural transformation was followed by forming interdisciplinary units such as a digitalization task force of lecturers, students, and IT staff. These initiatives show that leaders are taking on the role of facilitators of an innovative ecosystem rather than mere decision-makers. (Bryant et al., 2021) also found that an organizational climate that encourages cross-functional collaboration, supported by transformational leaders, has higher levels of innovation. In this context, a collaborative leadership style encourages organizational learning and accelerates digital transformation.

However, transformational leadership does not always run smoothly. Some lecturers said that empowerment without technical training can be confusing. One lecturer said, *"We are given room to innovate, but not everyone knows where to start. The training is not intensive enough."* This shows that empowerment requires prerequisites such as resource readiness, training support, and clear expectations. Research by (Laufer et al., 2021) reinforces this by stating that innovative policies not accompanied by individual capacity building can create pressure and passive resistance.

From the above findings, it is evident that the transformational leadership style practised by university leaders significantly impacts the creation of a supportive, innovative, and adaptive work environment for digital transformation. The main drivers of change are elements such as autonomy, individual attention, collaboration, and open communication. This leadership style functions as a catalyst for change and an uncertainty buffer, where academic staff and students feel protected and guided in complex situations. Within the framework of educational leadership in the digital age, this role becomes increasingly vital as demands for adaptation, innovation, and lifelong learning continue to rise.

3.3 Innovative Initiatives and Digital Collaboration

Technological changes require not only the replacement of tools and systems but also adjustments to work culture, cross-unit learning, and synergy between organizational components. In the context of transformational leadership, leaders act as drivers of adaptive, progressive, and comprehensive innovation. From in-depth interviews with academic leaders, it was found that institutions that successfully implement digitalization generally have innovative initiatives that arise from a combination of strategic direction from leadership and bottom-up innovation. One rector stated: "We formed a digital innovation group of lecturers, students, and educational staff. The goal is for all parties to be involved from the beginning." This group serves as an incubator and a forum for evaluating ideas related to academic information systems, online learning, and digital administrative services. One tangible result of this forum is the development of an institutional Learning Management System (LMS) platform that was entirely designed by the campus's internal team. Students who were interviewed expressed their pride in being involved in testing and designing LMS features. One student said: *"We were asked to complete a survey, then invited to a workshop with lecturers. We suggested that the system be accessible via mobile phones and have automatic notifications."* The suggestion was accepted and implemented as a mobile-friendly interface and email reminders for academic assignments. Open collaboration between leaders, lecturers, and students can produce contextual and practical innovations.

Leadership support for the innovation ecosystem is not limited to facilitating ideas but also includes funding, incentives, and formal recognition of innovative work. Cross-unit innovation groups were reported in two universities, leading to internally developed LMS features. Student B shared that the inclusion of mobile accessibility resulted from student feedback. Nonetheless, Lecturer E observed that "task distribution in these groups was often unclear," leading to confusion. This funding and incentive model creates a culture of innovation that encourages staff to continue trying, experimenting,

and refining learning methods. Some lecturers have even initiated the development of academic YouTube channels, adaptive e-modules based on student needs, and automated assessment systems. These findings are in line with research by (Loorbach & Wittmayer, 2024), which states that institutional support, including from leadership, is a key factor in the emergence of sustainable digital education innovation.

Digital transformation requires cross-sectoral work within institutions—technology, academics, student services, and administration. The interview results found that institutions that encourage cross-unit collaboration have succeeded in creating more integrative innovations. A head of an IT unit said: *"In the past, systems were developed separately, but now we are invited to design them together with the faculty. Lecturers and students are also involved. The results are more in line with our needs."* This highlights the importance of removing structural barriers between technology and academic divisions. (Otto et al., 2024) concluded in their study that innovation only functions optimally in organizations that are open to cross-functional work and dare to break down bureaucratic silos.

Despite many successes, some lecturers noted that digital collaboration often faces psychological and structural barriers. One lecturer stated: "We are invited to participate, but sometimes the division of tasks is unclear. As a result, there is confusion in the field." This shows that good participation requires a clear coordination system and communicative leadership. Without proper coordination, collaboration can turn into overlap or become unproductive.

From the perspective of transformational leadership theory, collaboration and innovative initiatives reflect concrete forms of the principles of "inspirational motivation" and "intellectual stimulation." Leaders who motivate and encourage new ideas create a proactive and innovative work climate. (Gruzina et al., 2020) suggest that organizations with high transformational leadership tend to have a strong innovation climate, where initiatives come from leaders and all members of the organization. The findings of this study reinforce this theory, particularly in the context of higher education institutions in developing countries where digitalization still faces infrastructure and cultural challenges. Innovative initiatives and digital collaboration in higher education cannot be separated from the central role of transformational leadership.

3.4 Challenges in Digitalization and Strategies to Overcome Them

Digital transformation in higher education is a complex process that involves technical and administrative changes and touches on aspects of organizational culture, human resource readiness, and institutional governance. Therefore, the challenges in this process are often multidimensional, encompassing technical, psychological, social, and structural aspects. Based on in-depth interviews, it was found that the challenges of digitization in higher education occur at three primary levels: the institutional level, the individual staff level (especially lecturers), and the end-user level (students). Several academic leaders expressed infrastructure limitations as the main obstacle to implementing digital transformation. One dean stated: *"The server is often overloaded, and the system is slow when many students log in. This is a technical obstacle that is immediately felt."* Another issue that emerged was weak coordination between units in developing digital systems. An IT bureau chief revealed that there were "overlapping initiatives" due to a lack of integration between divisions.

This aligns with the findings of (Laufer et al., 2021), who stated that digitization will be hampered when organizations do not have a solid coordination framework and a structured change management system. Students, especially those from remote areas, cited internet access and device barriers as real challenges. One student stated: "*When it rains, the signal disappears. Sometimes, I have to climb a hill to find a network."* In addition, not all students have adequate devices. Digital literacy also varies; some students feel awkward using the LMS, uploading assignments, or communicating with lecturers online. This problem highlights the importance of viewing digitalization as a social issue, not just a technical one.

Although these challenges are systemic, academic leaders who apply transformational leadership principles have demonstrated several effective strategies to respond to and manage these obstacles.

Some faculty leaders have adopted an empathetic approach to addressing faculty difficulties. One dean explained: *"We do not blame faculty members who are slow to learn. We facilitate mentoring by younger faculty members."* This approach not only reduces psychological stress but also builds solidarity between generations. This strategy reflects the principle of individualised consideration in transformational leadership, in which leaders pay attention to individuals' personal conditions and needs (Bryant et al., 2021).

Another successful strategy is tiered training tailored to the literacy level of each group of lecturers. In addition to formal training, the institution also facilitates a peer mentoring program, where lecturers who are proficient in technology informally assist their colleagues. This program has been well received because it is more flexible and based on horizontal relationships. Research by (Mohamed Hashim et al., 2022) emphasizes that contextual and continuous training is more effective than one-way mass training. This was confirmed in field findings, where institutions that provided needs-based training showed higher levels of lecturer satisfaction.

Literature indicates that the success of digitalization strategies in higher education is not solely determined by technological sophistication but by the readiness and support of all levels of the organization. Research by (Barzman et al., 2021) confirms that infrastructure without a strengthened digital culture will create an internal "digital divide." This aligns with field findings, where universities with good training and communication strategies tend to have lower resistance levels. Transformational leadership plays a crucial role as both a direction-setter and an emotional regulator within the organization during times of change. This is emphasized in (Fernández et al., 2023) four-dimensional model, where leaders must balance motivation, consideration of individuals, ideal influence, and intellectual stimulation to drive sustainable change.

The challenges of higher education digitalization have proven complex and multidimensional. Infrastructure limitations, variations in digital literacy, workload, and access disparities are real obstacles that must be addressed. However, empathetic, adaptive, and collaborative transformational leadership strategies have proven effective in responding to these challenges constructively. Leaders who can turn crises into learning opportunities and obstacles into innovation opportunities demonstrate that digitalization is not merely a technological project but an institutional, cultural change that must be built from within.

3.5 Responses of the Academic Community to Leadership

Responses from the academic community are an important indicator of leadership effectiveness, especially amid major transformations such as the digitization of higher education institutions. In-depth interviews with lecturers and students revealed that emotional dynamics, trust, and engagement are strongly influenced by leadership style characteristics. Most of the lecturers interviewed showed positive responses to open and empowering leadership. One lecturer said: *"The faculty leaders don't just give orders, they often discuss and ask for our opinions. That makes me feel valued."* This response shows that involvement in the decision-making process has a positive psychological effect. Lecturers feel they have an active role in change rather than being mere objects of policy. This affirms the concept of "psychological ownership" in organizations, which, according to Pierce et al. (2001), encourages higher commitment and performance. However, responses to leadership are not always homogeneous. Some lecturers revealed that the leadership's overly formal and hierarchical communication style prevented expressing criticism or suggestions. One lecturer stated: *"If we have ideas, we sometimes hesitate to express them. We are afraid of being seen as criticizing the leadership."* This indicates that effective transformational leadership requires sensitivity to organizational culture and the context of communication.

This experience shows how the symbolic presence of leaders can build a sense of being heard and valued. In leadership literature, this is a form of inspirational motivation where leaders can inspire and unite people through direct interaction. Students responded positively when given space to participate in the digital innovation process, such as in platform trials, needs surveys, or feedback forums. Students felt that their involvement gave meaning to the decisions made. One respondent said: *"We were not just*

asked to follow the system but also to contribute to improving it. That's what made me feel valued as part of the campus."

Thematic findings from interviews reveal a correlation between the level of involvement and positive perceptions of leadership. Faculty members involved in developing digital policies reported higher satisfaction with leadership performance. They also demonstrated greater initiative in developing digital learning content and participating in training. Conversely, responses tend to be passive and resistant in units where decisions are made top-down. Similar patterns emerge among students. Students who feel active communication from leaders and a responsive system show higher academic satisfaction and stronger loyalty to the institution. This aligns with research by (Green et al., 2020), which shows that transformational leadership increases student motivation and participation in primary and secondary education. In higher education, the same principle applies to adaptation to student academic autonomy.

Within the framework of transformational leadership theory, positive responses from followers are one indicator of a leader's effectiveness. (Bryant et al., 2021) explain that transformational leaders influence not only through their structural position but also through inspiration, trust, and attention to individual development. (Żywiołek et al., 2022) also emphasize that the level of organizational members' involvement strongly indicates innovative leadership success. Responses from the academic community in the universities studied reinforce these findings. When leaders are present symbolically and substantively, the emerging responses are supportive and active. Conversely, bureaucratic and uncommunicative leadership creates a psychological distance that hinders collaboration. However, cultural context must also be considered.

The academic community's response to digital leadership highly depends on the quality of interaction, involvement, and transparency institutional leaders demonstrate. An open, participatory, and empathetic leadership style encourages faculty and students to feel like they are part of the change, not just recipients of policies. Transformational leadership has proven effective in fostering trust, participation, and loyalty in the digital transformation process at universities. Positive responses from the academic community serve as valuable social capital in maintaining the sustainability of innovation and enhancing the institution's competitiveness in the digital age.

3.6 The Impact of Digital Transformation on Institutional Culture and Performance

Digital transformation in higher education not only creates changes in campus technology or operational systems but also profoundly impacts organizational culture and institutional performance. These changes affect mindsets, work patterns, social relations, value systems, and perceptions of quality and competitiveness. This is where transformational leadership plays a central role—as the architect of cultural change and the driver of overall performance improvement. Field data from interviews with academic leaders, lecturers, and students was combined with a literature review to provide a comprehensive and in-depth analysis. Based on interviews with academic leaders, digitization has triggered a shift in the work culture on campus.

A vice-rector for academic affairs said: *"Previously, we were used to manual, structural, and slow work. Now, everything* is demanded to be faster, more open, and must be able to collaborate across departments." This statement confirms that digitization is replacing work media and reforming how the organization's actors think and act. An adaptive and open culture is replacing a rigid bureaucratic culture. This is reflected in changes in communication patterns among faculty members, faculty and students, and academic and administrative units. A study by (Bebbington, 2021) shows that sustainable digital innovation can only survive if accompanied by institutional cultural transformation. Institutions that can build a culture of learning, cross-disciplinary collaboration, and openness to technology will be better prepared to face the uncertainties of the times.

The lecturers indicated that digitization has changed how they design and deliver material. Most lecturers feel encouraged to be more creative in developing teaching media, more flexible in providing academic services, and more active in monitoring student progress. One lecturer said: *"I used to just use*

slides and lectures. Now I make my own videos, use interactive polls, and hold online discussions. Students have become more responsive." This shift shows that the work culture of lecturers has become more dynamic, technology-based, and responsive to student needs.

On the other hand, these demands also increase the workload and require continuous adaptation. However, most lecturers who feel supported by leadership show higher job satisfaction because they feel productive and relevant. This is reinforced by the findings of (Trevisan, Eustachio, Dias, Filho, & Pedrozo, 2024), who state that transformational leaders can increase individual engagement and creativity in organizations, especially when undergoing significant changes. From the students' perspective, digital transformation encourages the emergence of a more independent, reflective, and flexible learning culture. Students are no longer dependent on face-to-face meetings but are accustomed to accessing materials online, interacting through discussion forums, and managing their study time. One student stated: *"I study anytime from my cell phone. However, that also requires me to be disciplined. Otherwise, I could fall behind."*

Implementing an integrated information system facilitates real-time tracking of attendance, grades, research activities, and lecturer community service. One rector said, "With the digital system, we can make quick decisions because the data is complete and accurate. This has an impact on accreditation and performance evaluation." Institutional performance has improved in service, administrative efficiency, accreditation reporting, and academic publications. The campus also appears more professional in the eyes of new students, industry partners, and government agencies. This strengthens the institution's competitiveness and reputation at the national and even international levels. (Zamora-Polo & Sánchez-Martín, 2019) shows that structured digitalization can be a strategy for improving the competitiveness of higher education institutions, especially in the context of globalization and changes in the labour market.

From a transformational leadership perspective, the impact of cultural change and institutional performance results from value mobilization, shared vision, and individual empowerment within the organization. (Galvis & Carvajal, 2022) emphasize that transformational leaders motivate emotionally and direct collective energy toward meaningful strategic goals. The digital transformation that positively impacts institutional culture and performance demonstrates the success of leaders in uniting various dimensions of change: technology, people, and organization. However, this effectiveness also depends heavily on leaders' sensitivity to the diversity of individual needs and their ability to adapt structurally.

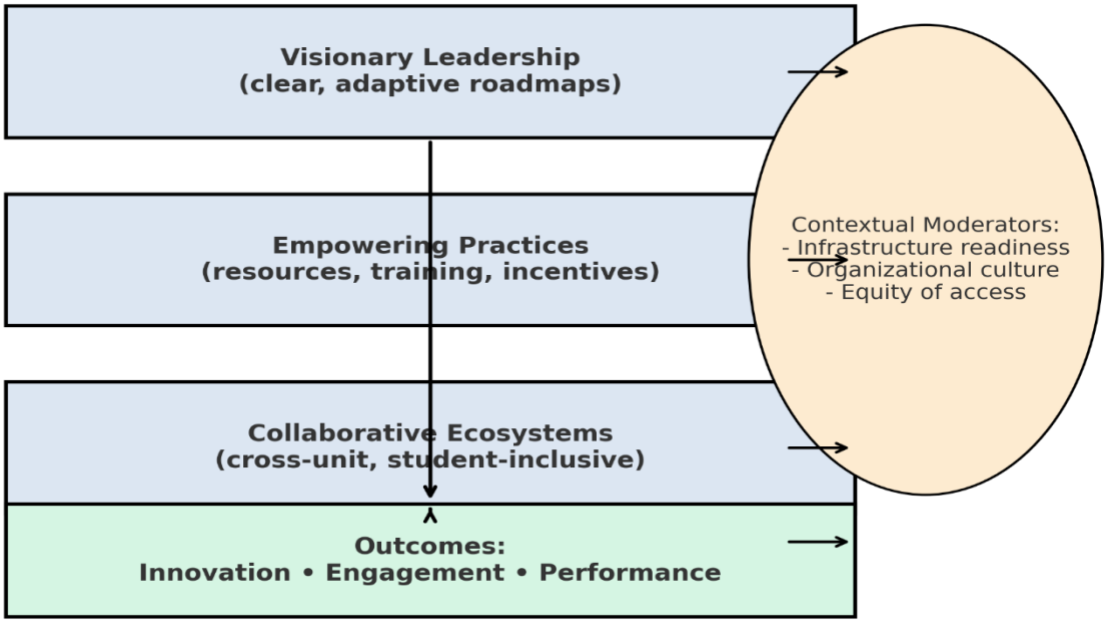

Figure 1. Conceptual Model of Transformational Leadership for Digital Transformation

Digital transformation in higher education profoundly impacts organizational culture and institutional performance. These changes include transitioning from a bureaucratic culture to a collaborative one, increased creativity among lecturers, student independence, and overall institutional efficiency and competitiveness. However, these positive impacts can only materialize when transformational leadership is genuinely present: facilitating, listening, and driving all organizational components toward a common direction. Thus, digital transformation is not merely a technical project but a process of redefining higher education institutions' identity, values, and future.

Discussion

The results of this study confirm that transformational leadership plays an important role in shaping organizational behaviour during the digital transition process. Leaders who have a forward-looking vision, open communication, and an empowering style have proven to be able to drive institutional cultural change. This is in line with the four dimensions of transformational leadership from (Garcez et al., 2022), particularly idealized influence and inspirational motivation. Furthermore, the findings indicate a strong correlation between participatory leadership styles and innovation adoption across various institutional units. When academic leaders involve lecturers and students in the planning and testing of digital platforms, a sense of ownership and user satisfaction increases significantly. This is consistent with the research by (Giesenbauer & Müller-Christ, 2020), which states that empowerment by transformational leaders can enhance organizational innovation. This study also provides empirical evidence of the importance of collaboration in the sustainability of digital initiatives. The formation of cross-unit task forces and feedback mechanisms between leaders, lecturers, and students successfully strengthened the learning management system (LMS) implementation. Integrating digital services between academic and administrative units strengthened transparency and efficiency, as per the concept of "innovation climate" proposed by (Zhou et al., 2023). Theoretically, this study enriches the discourse on transformational leadership by proving its relevance in higher education institutions in developing countries—a context that often faces bureaucratic challenges and infrastructure limitations. Practically, the findings provide applicable insights for higher education leaders and policymakers. Institutional leaders are encouraged to adopt participatory strategies and create an ecosystem that enables the entire academic community to propose, test, and refine digital innovations. This study also recommends transparent communication and ongoing dialogue to maintain motivation during the transformation process.

This study has several limitations. First, the scope of the study only covers one higher education institution, so the results cannot be generalized widely. Variations in organizational culture and digital readiness in other institutions may produce different findings. Second, the data sources focused on leaders, lecturers, and students. Although these are highly relevant, the absence of perspectives from educational staff, alums, or external stakeholders (such as the government or industry partners) is a limitation that should be noted. Third, the qualitative approach may contain subjective biases from respondents and researchers. Although the thematic analysis was conducted carefully and using triangulation, nuances of personal experiences still influence the results. This study also did not explore the technical aspects of digital platforms in depth.

Future research should expand the location and type of institutions to test the consistency of findings in different contexts. Comparative studies between public, private, or international institutions could enrich the understanding of the effectiveness of leadership in digital transformation. Using mixed methods, combining quantitative survey data with interviews could provide a complete picture, including correlations between leadership behaviour and institutional performance. Future research could also explore the competencies digital leaders need in the education sector—those capable of leading people and understanding technological systems. Longitudinal studies are also needed to assess leadership's long-term impact on innovation's sustainability. Digital transformation in higher education has significant social and ethical implications. This study highlights the technological access

gap, especially among students from remote areas or lecturers with low digital literacy. Ethical leaders need to be aware that digitization can widen the gap if not designed to be inclusive. Institutional policies should be geared toward equitable access, such as providing vulnerable groups with devices, internet subsidies, and digital training. In addition, the use of digital platforms must consider data privacy, transparency, and protection against misuse of personal information. Finally, it is important to ensure that technological efficiency does not sacrifice human values in education. Academic leaders need to balance system modernization with pedagogical empathy, ensuring that digital education remains centred on the needs of learners and grounded in ethics.

4. CONCLUSION

This study highlights that successful digital transformation in higher education depends less on the availability of technology and more on the quality of leadership that guides it. Transformational leadership—when expressed through visionary direction, empowerment balanced with support, and inclusive collaboration—emerges as a critical lever for sustainable innovation. The findings underscore that leadership must go beyond administrative management and embrace a human-centered approach that fosters ownership, reduces resistance, and aligns institutional culture with digital change. For institutional leaders, the call to action is clear: cultivate participatory strategies, invest in faculty and student capacity building, and pace digital initiatives according to organizational readiness. For policymakers, the priority should be to provide enabling environments that integrate infrastructure support with leadership development and equitable access policies. Only by bridging these two levels of responsibility can digital transformation achieve its intended outcomes of enhanced innovation, engagement, and institutional competitiveness. Finally, this study emphasizes the ethical dimension of digital leadership. As universities expand digital systems, leaders must safeguard inclusivity, equity, and data integrity. Ethical digital leadership is not optional; it is the cornerstone of ensuring that technology strengthens, rather than undermines, the values of higher education in an era of rapid change.

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