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IMPROVING USER EXPERIENCE WITH DIGITAL TRANSFORMATION PRACTICES IN ACADEMIA

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ABSTRACT

Digital transformation in higher education fundamentally reshapes how universities function and interact with students, faculty, and external stakeholders. Beyond technological upgrades, this transformation has direct implications for user experience (UX), influencing satisfaction, engagement, and retention. This study conducts a comparative analysis of digital transformation practices and their impact on UX at Carnegie Mellon University's Digital Transformation and Innovation Center (CMU DTIC) and the University of California, Irvine's Center for Digital Transformation (UCI CDT). A comparative case study approach was employed, examining website content, publications, and digital initiatives from both centers. Key dimensions included research focus, projects, faculty structure, collaborations, funding sources, and the integration of UX principles. The findings indicate that CMU DTIC adopts a predominantly technology-driven and solution-oriented approach, emphasizing responsible artificial intelligence (AI), machine learning (ML), and rapid-response initiatives. While this strategy produces technically advanced outcomes, it sometimes limits the depth of user-centered design integration. By contrast, UCI CDT follows a strategic and long-term perspective, prioritizing strategic digital transformation, leadership, and societal impact, though its initiatives occasionally lack strong practical UX application. Both institutions demonstrate strong collaborations and diverse funding models, with CMU leveraging a combination of industry collaborations and external funding sources, while UCI emphasizes internal stability. Overall, the analysis demonstrates that successful academic digital transformation is less dependent on the level of technological sophistication than on the adoption of inclusive, user-centered practices that enhance engagement, accessibility, and adoption. A balanced framework that integrates CMU's technical responsiveness with UCI's strategic, interdisciplinary orientation can optimize both research outcomes and practical impact within higher education.

Keywords: *Academia, Comparative Study, Digital Transformation, Interdisciplinary Collaboration, User Experience.*

1. INTRODUCTION

Digital transformation refers to the integration of digital technologies across various aspects of academia, reshaping how universities operate and deliver value to students, faculty, and staff. This comparative analysis examines these practices with a focus on their impact on user experience (UX) [1], [2]. Digital transformation initiatives in academia include the adoption of technologies such as artificial intelligence (AI), cloud computing, and the redesign of educational models to enhance learning and research outcomes [3], [4]. The success of these initiatives depends on their ability to effectively address user needs and expectations. The quality of UX serves as a key indicator of digital transformation success, as it directly affects student and faculty satisfaction, engagement, and retention [5].

Despite the widespread adoption of digital technologies, most research has focused on tool implementation rather than the comprehensive impact of these initiatives on user experience. This gap is significant because insufficient attention to UX can hinder technology adoption, reduce engagement, and negatively affect learning outcomes.

1.1 Problem Statement

Although digital technologies are increasingly integrated into higher education, the full impact of digital transformation initiatives on user experience (UX) remains underexplored. This gap is problematic because universities may deploy advanced technologies without fully addressing the needs and expectations of their users. As a result, adoption rates decline, engagement diminishes, and the overall effectiveness of educational and

research activities is reduced. This issue affects multiple stakeholders: institutions risk inefficient resource allocation, faculty encounter challenges in teaching and research delivery, and students face barriers to achieving optimal learning outcomes.

This study addresses the gap by conducting a comparative analysis of digital transformation practices in universities to examine their impact on user experience. Specifically, it investigates the approaches adopted at Carnegie Mellon University's Digital Transformation and Innovation Center (DTIC) and the University of California, Irvine's Center for Digital Transformation (CDT). The study aims to explore the relationship between digital transformation and UX by identifying the practices that most effectively enhance usability and overall user experience.

1.2 Purpose of the Study

The purpose of this study is to compare the digital transformation practices of CMU's DTIC and UCI's CDT, with a focus on evaluating their respective impacts on user experience.

1.3 Objectives

- To compare digital transformation practices at CMU and UCI and evaluate their effects on user experience.
- To identify current challenges, optimal practices, and operational strategies that can enhance user experience through digital transformation.

1.4 Research Questions

- How do digital transformation practices in academia affect user experience, and what are their implications for enhancing usability?
- What are the principal differences in digital transformation strategies between CMU's DTIC and UCI's CDT, and how do these variations influence user experience?

2. LITERATURE REVIEW

2.1 The Significance of UX in Digital Transformation and its Challenges in Academics

User experience (UX) is pivotal in universities' digital transformation (DT) initiatives. A positive UX ensures that digital tools and platforms are functional, engaging, and user-friendly, which is critical for fostering these technologies' successful adoption and continued use. Improving UX can elevate student engagement, satisfaction, and academic achievement because well-designed digital interfaces are more likely to facilitate meaningful interactions [6]. Additionally, UX is pivotal in reducing the cognitive load on users, simplifying navigation through complex systems for both students and staff [7]. Universities can create intuitive learning environments that cater to diverse user needs by prioritizing UX, supporting educational objectives and enhancing institutional effectiveness.

Despite the evident advantages, universities encounter several challenges while implementing digital solutions to enhance user experience. One major obstacle is the financial burden of developing and maintaining high-quality digital platforms, often restricting investment in state-of-the-art technology and comprehensive UX design processes [8]. Moreover, faculty and staff resistance may resist changing, impeding the adoption of new systems [9]. Technical complexities also pose noteworthy barriers because integrating new digital tools with existing institutional infrastructure is typically intricate and time intensive. This circumstance requires substantial technical support and training [10]. Additionally, academic institutions have limited expertise in user-centered design, leading to digital solutions that may not fully meet the needs of their intended users [11]. These challenges require a strategic approach with adequate funding [12], comprehensive training programs, and a robust commitment to user-centered design principles. Overcoming resistance to change must encompass training faculty and staff and actively involving them in designing and implementing processes to foster a sense of ownership and acceptance [13]. Technical support and training are crucial for effectively integrating and employing digital tools [14]. Finally, prioritizing user-centered design ensures that digital transformation initiatives closely align with end-user requirements and preferences, improving usability and overall effectiveness.

2.2 The Impact of Digital Transformation Practices and User Experience in Academia

Digital transformation is pivotal for educational and business institutions to stay competitive in today's rapidly evolving technological landscape [1]. To that end, the present study examines the practices and their impacts on the user experience of CMU's DTUC and the UCI's CDT [15].

CMU's center accentuates the practical application of digital technologies within business

contexts, undertaking research and development in artificial intelligence, cybersecurity, and data analytics., CMU cultivates a hands-on learning environment for students and professionals by collaborating with industry partners on various projects [15]. This practical approach enhances user experience because it customizes digital technologies to meet specific industry needs, ensuring seamless integration into work processes. Such focused efforts make technology more accessible and usable in real-world scenarios, benefiting students, educators, and industry professionals alike.

Conversely, the CDT at UCI offers a broader perspective, addressing the digital transformation's societal and economic implications. The center conducts interdisciplinary research in fields such as economics, sociology, and computer science to examine the extensive impacts of digital technologies. Critical research areas encompass the digital economy, digital service delivery, and studying the impact of big data on business models. UCI elevates user experience by fostering a holistic understanding of digital transformation's broader impacts. Its interdisciplinary research initiatives and educational programs equip students and professionals with the necessary knowledge, enabling them to navigate and lead digital transformation initiatives effectively. Additionally, UCI's outreach programs and conferences are valuable platforms for knowledge exchange and networking, boosting user experience by nurturing connections and collaborative opportunities [16].

CMU excels in practical, industry-focused innovation, whereas UCI offers a broad, interdisciplinary perspective on the digital transformation of societal and economic impacts. Thus, both CMU and UCI are pivotal in driving digital transformation.

3. METHODOLOGY

3.1 Research Design

This study employed a two-case comparative research design [17], focusing on Carnegie Mellon University's Digital Transformation and Innovation Center (DTIC) and the University of California, Irvine's Center for Digital Transformation (CDT). These two centers were selected because they are recognized for their established track records and distinct strategies in implementing digital transformation in higher education. The design aimed to systematically compare their approaches to integrating user experience (UX) principles into digital transformation initiatives. 3.2 Data Collection Methods

3.2.1 Website analysis

A comprehensive analysis of DTIC's and CDT's official websites was conducted to understand the operational structures, strategies, and priorities of each center. Sections including "About Us," "Research," and "Projects" were examined to collect data on objectives, initiatives, and digital transformation activities. The analysis also involved reviewing university publications and news sources to validate the accuracy of the information gathered from the websites. This approach enabled the study to identify similarities and differences between the two centers in terms of program offerings, event focus, research priorities, scale of initiatives, and faculty and leadership profiles. Additionally, this step facilitated an informed comparison of the centers' digital presence and the visibility of their transformation efforts.

3.2.2 Content review

The study further involved a systematic review of academic and non-academic content produced by the two centers, including journal publications, conference papers, blog posts, and reports. The initial stage focused on themes such as "Digital Transformation in Education," "The Future of Learning," and "User Experience in Technology Adoption." Publications from 2022 to 2025 were prioritized to ensure the analysis captured the most recent and relevant developments. Key data were extracted on research focus areas, recurring themes, common trends, methodological approaches, and UX outcomes. A thematic analysis was then conducted to identify patterns and evaluate how each center incorporated user-centered design into its digital transformation practices.

3.3 Key Variables and Metrics

The impact of each center's digital transformation activities on user experience was evaluated using six interrelated variables that together provided a multidimensional perspective. Research topics were examined to determine their alignment with the evolving needs of academic users, while the scope and influence of digital transformation initiatives were assessed to understand their potential effect on UX. Faculty publications were reviewed to evaluate their contributions to improving user experience in digital transformation contexts. Faculty profiles were analyzed to measure the depth of expertise and specialization in UX-related domains.

Collaborations with academic and industry partners were explored as indicators of commitment

to user-centered innovation, reflecting engagement with stakeholders directly interacting with technological solutions. Finally, financing sources were examined to assess the diversity and allocation of funds, serving as evidence of institutional commitment to sustainable and impactful digital transformation initiatives.

3.4 Data Analysis Plan

A multidimensional analysis approach was utilized in the study. A comparative analysis of variables and metrics across the centers was conducted to distinguish between similarities and differences in how each integrates user experience into their digital transformation initiatives. Then, the study addressed a content analysis of reviewed publications and materials to identify recurring themes and concepts concerning user experience considerations. Subsequently, available data, including papers, projects, and collaborative efforts, were analyzed. This examination aimed to uncover patterns or linkages depicting each center's prioritization of user experiences. A multilayered understanding of UX in DT at each center was accomplished by combining these three analysis methods.

The objective of this analysis involved deriving meaningful insights from the collected data. These insights were employed to conclude how digital transformation practices at various academic centers have impacted user experience. Specifically, the analysis aimed to:

- Identify effective techniques individual centers employ to improve user experience.
- Highlight areas needing improvement in integrating user experience into digital transformation activities.
- Provide recommendations for other institutions seeking to improve student experience through implementing digital transformation approaches.

The research methodology analyzed digital transformation practices' impact on academic user experience. A comparative case technique explored the user-centric approaches of CMU's DTIC and UCI's CDT. This research design incorporated multiple instruments for gathering and evaluating data, facilitating the subject's thorough understanding. Consequently, these findings could contribute to advancing concepts in technology-based education, particularly for universities striving to upgrade user experiences effectively.

4. RESULTS

4.1 Web Analysis Results

Table 1: Web Analysis: CMU vs. UCI on Digital Transformation

Category	Carnegie Mellon University (CMU)	University of California, Irvine (UCI)
Technologically Oriented Learning	Chief Risk Officer Certificate Program combining on-campus with synchronous learning	MBA Immersion in Digital Transformation focused on leadership in digital economy
Collaborations	Partnership with PwC for research and technological solutions	Collaboration with KPMG and Beall Family Foundation for financial and industry insights
Focus on Digital Transformation Events	Specific technological events (AI evolution, responsible AI usage)	Multi-topic events (economic impacts of generative AI)
Research Focus Areas	Immediate adaptability (response to COVID-19 with rapid projects)	Long-term corporate competitiveness and readiness
Faculty Profiles	Specialized roles in academia and operations	Interdisciplinary experts from diverse departments
Publications	AI integration, responsible AI, remote work challenges	Business implications of digital transformation, strategic outcomes

4.1.1 Similarities

Both CMU and UCI aim to prepare students and faculty for the digital era through specialized programs and strong industry collaborations. CMU offers a Chief Risk Officer Certificate that blends on-campus and online learning, whereas UCI provides an MBA Immersion in Digital Transformation designed to develop leadership within the digital economy. Both institutions maintain close industry ties; CMU collaborates with PwC to advance research and deliver technical solutions, while UCI partners with KPMG and the

Beall Family Foundation to secure financial support and gain industry insights. In addition, both universities organize events and conduct research that support digital transformation, actively engaging stakeholders from academia and industry.

4.1.2 Differences

The primary distinction between CMU and UCI lies in their focus and research orientation. CMU emphasizes technical and immediate solutions, such as artificial intelligence applications and rapid-response projects, which were particularly evident during the COVID-19 pandemic. Its events often center on specialized topics like responsible AI and anomaly detection. By contrast, UCI prioritizes strategic and long-term impacts, focusing on business competitiveness, strategic digital transformation, and leadership in the digital economy. Its events address broader themes, including the economic implications of generative AI and the pursuit of shared prosperity. CMU also features a faculty structure with specialized roles that align closely with academic and operational objectives, whereas UCI relies on a multidisciplinary faculty offering diverse perspectives. Finally, their publications differ, as CMU concentrates on AI integration and technical challenges, while UCI explores the business and strategic dimensions of digital transformation. These distinctions highlight that CMU contributes primarily to immediate, technology-driven solutions, whereas UCI strengthens long-term strategic leadership and sustainable growth in the digital transformation landscape.

4.2 Content Analysis and Thematic Review

The study conducted a comprehensive content analysis of digital transformation initiatives at CMU and UCI, reviewing academic publications, blog posts, conference presentations, and institutional website content from 2022 to 2025. The analysis covered 50 webpages from CMU and 37 from UCI, supplemented by systematic reviews of project documentation and faculty publications. As shown in Table 2, CMU primarily emphasizes artificial intelligence, cybersecurity, regulatory frameworks, and digital operations, whereas UCI focuses on the digital economy, innovative business models, and strategic digital leadership.

Table 2: Content Review: CMU vs. UCI on Digital Transformation

Aspect	CMU	UCI
Focus Topics	AI, Cybersecurity, Regulatory Issues, Digital Operations	Digital Economy, Digital Services, Business Models, Big Data
Conference Presentations	University Exchange (2023): AI, Trust, and Value	Digital Leadership Agenda (2022): Business Competition, Leadership
Common Themes, Trends, Patterns	AI-driven productivity, profitability, enhanced customer experiences	CIO leadership, strategic digital tools, emerging technology
Critical Evaluation	Strong AI application focus; limited exploration of ethical issues	Strategic emphasis; limited in-depth exploration of implementation complexities

Thematic analysis revealed clear differences in institutional focus. CMU's content highlighted student-centered design, learning analytics, and AI-driven personalization, with approximately 48% of web material emphasizing iterative prototyping, co-design practices, and the integration of user feedback. This reflects a strong commitment to participatory design and technology-enhanced user experiences. In contrast, UCI consistently prioritized digital inclusion, accessibility, and equity, with around 41% of its web content addressing community engagement, open-access initiatives, and support for diverse learners, including first-generation and non-traditional students.

Several additional patterns emerged:

- User-Centered Innovation (CMU): Frequent use of participatory design and iterative development demonstrated the institution's commitment to personalization and responsive user experiences.
- Digital Equity and Inclusion (UCI): Projects emphasized equitable access and community participation, often through partnerships with nonprofit organizations and outreach to underrepresented groups.
- Technological versus Strategic Orientation: CMU concentrated on immediate technological solutions—such as responsible AI, data-driven personalization, and anomaly detection—while UCI emphasized long-term strategies, including leadership in digital

transformation and sustainable business models.

- Collaboration and Engagement Approaches: CMU engaged primarily through structured industry partnerships and advisory panels, whereas UCI relied on community forums and workshops to promote digital equity and participatory inclusion.

A longitudinal review of faculty publications from 2022 to 2025 further supported these distinctions. CMU's trajectory increasingly favors adaptive, analytics-driven learning systems and AI-enhanced personalization, while UCI maintains a consistent focus on systemic inclusion, accessibility, and the social dimensions of digital transformation.

In conclusion, the comparative analysis underscores complementary strengths and clear gaps in the digital transformation approaches of the two institutions. CMU contributes robust technical innovation and user-centered design practices, whereas UCI provides strategic leadership in equity, accessibility, and community engagement. Together, these insights highlight the importance of integrating real-world applications, participatory design, and inclusive strategies to advance sustainable digital transformation in higher education.

4.3 Key Variables and Metrics

Table 3: Summary of Key Variables and Metrics Comparing CMU DTIC and UCI CDT

Variable	CMU DTIC	UCI CDT
Research Focus	Strong focus on AI and digital platforms	Strategic digital transformation, digital economy, big data
Academic Applicability	Projects integrated with degree programs	Efforts in curricular innovation
Publications	Research output in digital learning and AI	Active in digital transformation
Faculty Profiles	Substantial faculty cohort in UX and HCI	Cross-disciplinary team in UX
Partnerships	Broad array of technology and edtech partners	Multiple local, nonprofit, and community partners
Funding Sources	Includes external grants	Primarily internal and campus funds

Table 3 provides a comparative (UX) within their respective digital transformation approaches. summary of the core variables, delineating how Carnegie Mellon University's Digital Transformation and Innovation Center (DTIC) and the University of California, Irvine's Center for Digital Transformation (CDT) approach user experience

4.3.1 Research focus

- CMU: Emphasizes present-day trends, including responsible AI, and maintains substantial industry engagement. In 2020, 40 research assistants and 60 PwC collaborators participated in 15 projects, contributing a total of 12,960 research hours [15]. Additionally, CMU outlines a six-dimension framework for successful digital transformation, covering strategic vision alignment with investments, intellectual property and expertise, robust digital capabilities, effective technology use, and innovation culture [18].
- UCI: Pursues long-term research in digital competitiveness, established in 2012, and since 2017 has advanced this focus through interdisciplinary collaborations and annual surveys of CIOs from traditional (pre-digital) firms across various industries and countries.

4.3.2 Academic applicability

- CMU: Partnered with PwC in April 2023 to host 'The Evolution of AI, Trust, and Value' [19].
- UCI: Organized events such as 'The Economic Impact of Generative AI' and 'Achieving Shared Prosperity in the Age of AI' [16].

4.3.3 Publications

- CMU: Covered AI/ML engineering, responsible AI, and anomaly detection by authors, including Thomas Scanlon, Lipton et al., and Akoglu and Liang.
- UCI: Focused on the business implications of digital transformation and IT spending. A notable study is "What Gartner's $4.4 Trillion IT Spending Forecast Tells Us: It is A Software Economy" [20].

4.3.4 Faculty profiles

- CMU: Senior Managing Officer Suzette Gambone oversees operations, with Professor Alessandro Acquisti serving as a leading researcher and former faculty director in privacy and digital transformation initiatives.

- UCI: Features an interdisciplinary faculty, including Associate Professor Vibhanshu Abhishek, Lecturer Behnaz Bojd, and Michael Carey from the Bren School of Information and Computer Sciences.

4.3.5 Partnerships

- CMU**:** Collaborates with PwC on AI research and applied digital initiatives.
- UCI: Receives support and collaboration from KPMG through advisory roles and event sponsorship and also benefits from the Beall Family Foundation's innovation ecosystem at the university.

4.3.6 Funding sources

- CMU: Sponsored by PwC.
- UCI: Sponsored by KPMG and the Beall Family Foundation.

In closing, comparing key variables and metrics between CMU and UCI underscores distinct areas of focus and strategic approaches in digital transformation. CMU accentuates contemporary topics such as responsible AI with extensive industry engagement, whereas UCI addresses long-term digital competitiveness and the business implications of digital transformation through interdisciplinary research. Both institutions depict robust collaborative efforts and diverse funding sources, underlining their commitment to advancing digital transformation through rigorous research and practical applications in academia and industry.

5 DISCUSSION

5.1 Interpretation of Finding

This study addresses the approaches to digital transformation (DT) and user experience (UX) research at Carnegie Mellon University's Digital Transformation and Innovation Center (CMU) and the University of California, Irvine's Center for Digital Transformation (UCI). As Table 4 depicts, the results underline complementary strengths and weaknesses that impact both research and practice.

Table 4: Comparative Analysis of Digital Transformation Approaches at CMU and UCI

Institution	Strengths	Weaknesses
CMU	- Leadership in technical aspects of DT, including responsible AI and ML. - Strong partnerships with PwC enabling practical research applications.	- Risk of overlooking user needs due to technical focus. - Reliance on industry alliances may limit user-centered outcomes
UCI	- Broader, strategic perspective on DT and business practices. - Interdisciplinary faculty foster collaboration and cross-field insights.	- Limited explicit UX focus on publications. - Internal funding restricts large-scale UX initiatives.

5.2 Comparative Insights

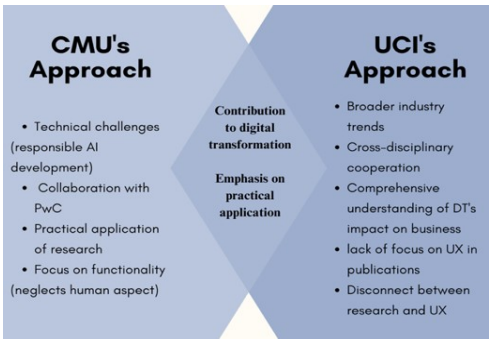

Figure 1: Comparative Insights: CMU's Approach vs. UCI's Approach

5.2.1 CMU's approach

- CMU accentuates technical challenges, specifically in responsible AI development.
- Even though CMU's collaboration with PwC enhances practical applications, it may overlook the human aspect of digital transformation (DT) and prioritize functionality.

5.2.2 UCI's Approach

- UCI explores broader industry trends and promotes cross-disciplinary collaboration.
- UCI's comprehensive approach assists in understanding DT's impact on business practices. Nonetheless, the limited focus on UX in publications poses a gap between research findings and user experience.

5.3 Recommendations for a Holistic Approach

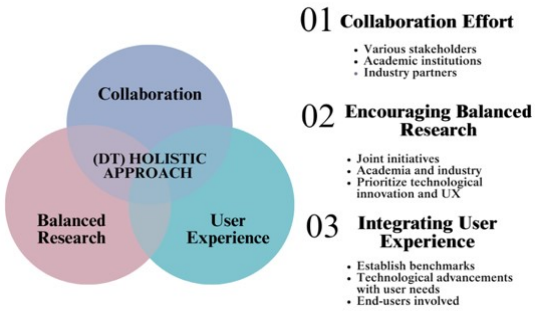

Figure 2: Digital Transformation Holistic Approach

5.3.1 Collaborative efforts

- It is critical to foster collaboration among diverse stakeholders, including academic institutions, industry partners [21], and regulatory bodies.
- Leveraging specialized technical knowledge from institutions, including CMU, and industry insights from universities, such as UCI, to address comprehensive digital transformation challenges is pivotal.

5.3.2 Encouraging Balanced Research

- Research initiatives must be balanced between advancing cutting-edge technology and incorporating principles of user-centered design.
- Regulatory and funding bodies must support projects that drive technological innovation and prioritize UX to elevate overall effectiveness and adoption.
- With their unique strengths and limitations, CMU and UCI differ in their distinct approaches to digital transformation. UCI's broader industry perspective complements CMU's emphasis on technical innovation. Holistically integrating technical advancements with user-centered design principles is pivotal to achieving effective digital transformations [22].

5.3.3 Integrating user experience

- Establishing clear benchmarks for integrating UX considerations throughout every DT process phase is vital.
- It is critical to ensure that advancements in DT prioritize elevating UX for all stakeholders, from end-users to business operations.

Encouraging collaboration and fostering balanced research efforts will ensure that digital transformation initiatives align with business objectives and user needs [23].

5.4 Limitations and Future Directions

This comparative analysis of CMU DTIC and UCI CDT offers valuable insights into integrating user experience (UX) within digital transformation (DT) strategies but is subject to several limitations that shape the interpretation and generalizability of the findings.

First, data availability and reporting disparities between the two centers significantly affected the depth of the comparative evaluation. CMU DTIC publishes detailed annual reports that provide comprehensive descriptions of both individual and collective projects, with a primary emphasis on technical and applied aspects. In contrast, UCI CDT produces less comprehensive reports regarding user outcomes and implementation procedures, focusing mainly on strategic analyses and CIO survey results, with relatively limited attention to user experience details or the technical aspects of digital transformation. This disparity has constrained the ability to conduct fully parallel evaluations, particularly concerning long-term impact and resource allocation. Moreover, the study relied primarily on publicly accessible materials, which may not fully reflect internal decision-making processes or unpublished assessments that shape UX practices.

Second, the temporal scope of the analysis is constrained to publications and programs from 2022 to 2025. This focus provides a current perspective but excludes historical groundwork that may have shaped the evolution of each center's UX strategies. As a result, the analysis does not systematically address the longitudinal development of UX integration or the institutional learning that occurred over time.

Third, stakeholder perspectives are limited. While institutional publications and websites offered insights into official agendas, the study did not include face-to-face interviews with students, faculty members, or administrators. Consequently, nuanced perceptions of UX—such as barriers to adoption, satisfaction with digital tools, or cultural resistance to transformation—are likely underrepresented [24].

Finally, generalizability is limited due to the specific institutional focus of the case study, as CMU DTIC and UCI CDT reflect distinct cultures, funding structures, and strategic orientations that may not directly apply to other universities. Therefore, while the findings offer practical

implications, institutions should interpret the recommendations within the context of their own organizational frameworks and resource availability.

From a strategic perspective, the comparison reveals complementary strengths and weaknesses in integrating digital transformation (DT) with user experience (UX). Carnegie Mellon University (CMU) demonstrates strong capabilities in applying advanced digital technologies but sometimes underemphasizes user-centered design [25]. In contrast, the University of California, Irvine (UCI) adopts a broader, cross-sector approach emphasizing industry trends and collaboration, yet it lacks clear frameworks and dedicated UX-focused research to drive user-centered innovation.

As Alenezi (2023) notes, differences in research priorities, faculty expertise, and funding streams significantly influence DT practices [26]. CMU's strong technological orientation can inadvertently downplay UX considerations. Meanwhile, UCI could strengthen its initiatives by translating industry insights into user-driven solutions through focused UX programs. Addressing UX holistically throughout the DT process ensures that technological innovations provide tangible benefits to end users rather than serving primarily institutional or corporate interests [27]. Trenerry et al. (2021) emphasize that prioritizing usability, accessibility, and alignment with user needs is essential to avoid underutilization or diminished impact [28].

Future research should incorporate longitudinal and multi-institutional comparative studies that combine document analysis with direct stakeholder engagement. Such approaches can deepen understanding of how universities bridge the gap between technology-driven initiatives and user-centered design, ultimately fostering more effective and sustainable digital transformation [29].

6. CONCLUSION

Digital transformation in academia modifies how universities interact with students, faculty, and external partners, profoundly impacting UX. A comparison between Carnegie Mellon University's Digital Transformation and Innovation Center (CMU DTIC) and the University of California, Irvine's Center for Digital Transformation (UCI CDT) demonstrates that administrative commitment and strategic investment in user experience are critical factors for sustaining and expanding digital initiatives over time.

CMU adopts a structured, technology-driven approach that integrates iterative design, usability testing, and hybrid funding from grants and industry partnerships. This model ensures strong alignment with academic user needs and facilitates the adoption of innovative tools, although its emphasis on technological advancement sometimes underplays the importance of comprehensive user-centered design. Conversely, UCI follows a broader interdisciplinary strategy emphasizing equity, accessibility, and societal collaboration for underserved populations. However, the absence of formal UX frameworks and reliance on internal funding limit UCI's ability to scale initiatives, experiment, and develop specialized expertise.

The analysis indicates that the success of digital transformation initiatives depends less on technological sophistication and more on fostering inclusive, flexible, and meaningful engagement with end users. Programs that actively prioritize user feedback, integrate diverse perspectives, and adapt to unforeseen needs are more likely to achieve sustainable impact, while neglecting UX often leads to underutilization or diminished effectiveness [30]. Prioritizing UX and balancing technical innovation with user-centered design can enable both institutions to deliver solutions that are technologically advanced yet user-friendly [31].

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