

Digital Transformation in Higher Education: Optimizing Human Resource Management through Adaptive Leadership

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ABSTRACT

University leadership itself is being transformed by digital transformation, shifting away from a top-down, individual approach to power and decision-making toward collaborative approaches that rely more on data than intuition. However, despite this trend higher education institutions still struggle to comprehend this structural shift and incorporate it into their Human Resource (HR) management respectively. The objective of this research is to highlight the role of ontological dimensions in top university management for improving HR management in a digital environment. The present study employed a mixed-method approach with triangulation design. Qualitative data were carried out through in-depth interviews of top-level management at Universitas Catur Insan Cendekia (UCIC) Cirebon to explore leadership concepts, and quantitative samples consisted of 237 entries of Lecturer Evaluation by Students (EDOM). Tools used were semi-structured interview guidelines and the EDOM questionnaire dataset. Qualitative data were analysed using Braun and Clark's thematic analysis, while quantitative data were described with simple descriptive statistics. Findings The findings illustrate that ontological aspects help boost leadership effectiveness through practices of "Digital Agility" and identification acts towards technology as core organizational entity. The average HR performance score is 4.49 (1=low, 5=high), which empirically confirms the efficacy of Quality 4.0 principles in practice. Hence it is concluded; the modern university leadership must adopt a paradigm shift from intuitive based approaches towards without linked data for assuring sustainable quality. We argue our findings hold valuable insights for university leaders seeking to renegotiate the governance of HR in response to technological upheaval.

Keywords: University leadership, digital transformation, human resource management, mixed-method, digital agility.

ABSTRAK

Kepemimpinan universitas sendiri sedang ditransformasikan oleh transformasi digital, beralih dari pendekatan individual yang top-down ke kekuasaan dan pengambilan keputusan menuju pendekatan kolaboratif yang lebih mengandalkan data daripada intuisi. Namun, terlepas dari tren ini, perguruan tinggi masih berjuang untuk memahami perubahan struktural ini dan memasukkannya ke dalam manajemen Sumber Daya Manusia (SDM) masing-masing. Tujuan dari penelitian ini adalah untuk menyoroti peran dimensi ontologis dalam manajemen universitas papan atas untuk meningkatkan manajemen SDM dalam lingkungan digital.

Penelitian ini menggunakan pendekatan metode campuran dengan desain triangulasi. Data kualitatif dilakukan melalui wawancara mendalam terhadap manajemen tingkat atas di Universitas Catur Insan Cendekia (UCIC) Cirebon untuk menggali konsep kepemimpinan, dan sampel kuantitatif terdiri dari 237 entri Lecturer Evaluation by Students (EDOM). Alat yang digunakan adalah pedoman wawancara semi terstruktur dan dataset kuesioner EDOM. Data kualitatif dianalisis menggunakan analisis tematik Braun dan Clark, sedangkan data kuantitatif dideskripsikan dengan statistik deskriptif sederhana. Temuan ini menggambarkan bahwa aspek ontologis membantu meningkatkan efektivitas kepemimpinan melalui praktik "Kelincahan Digital" dan tindakan identifikasi terhadap teknologi sebagai entitas organisasi inti. Skor kinerja SDM rata-rata adalah 4,49 (1=rendah, 5=tinggi), yang secara empiris menegaskan kemandirian prinsip Kualitas 4.0 dalam praktiknya. Oleh karena itu disimpulkan; kepemimpinan universitas modern harus mengadopsi perubahan paradigma dari pendekatan berbasis intuitif menuju tanpa data terkait untuk memastikan kualitas yang berkelanjutan. Kami berpendapat bahwa temuan kami memberikan wawasan berharga bagi para pemimpin universitas yang ingin menegosiasikan kembali tata kelola SDM sebagai tanggapan atas pergolakan teknologi.

Kata kunci: *Kepemimpinan universitas, transformasi digital, manajemen sumber daya manusia, metode campuran, agilitas digital.*

A. INTRODUCTION

The digital transformation of higher education pressures institutions to move from simply adopting technology-based solutions to redrawing their Human Resource (HR) management and organizational culture (Susanto et al., 2024; Winanda & Veri, 2025). This paradigm shift requires university leaders who are adept at management and those who can leverage digital resources and tools for the purpose of strategic alignment (Hamdani, 2024). Thus, traditional HR functions (e.g. recruitment, career development and performance evaluation) are becoming less adequate to address the complexities of today's academic ecosystem (Alwy, 2022; Avetisyan & Gevorgyan, 2024). This was why the typical hierarchical top-down approach towards leadership often did not suffice in addressing the required agility within contemporary universities (Habeeb & Eyüboğlu, 2024). This new historical context requires a paradigm shift in governance from technical managerial skills to the re-definition leadership ontology. This lens sees leadership not as a manifestation of traditional, top-down authority but rather as an active series of complex, data-driven ecosystems responsive to digital disruptions endemic to the ubiquitous business world (Hashim et al., 2022; Khurniawan et al., 2024). Digital transformation is the new model for human resource lifecycle management in relations to hiring, managing and developing employees in an era driven by technology (Mujahidah & Saputra, 2025; Winanda & Veri, 2025). especially artificial intelligence/fake expertise/big data/cloud computing. This is in accordance with increasing expectations towards faster and easier data and information access in public institutions, enabling the realization of

communication channels which motivate employees alongside improving workflow as well as results.

Universities in the digital age must equip their human resources (HR) with additional competences on data analysis and critical thinking to maximize technological utilization and address any new challenges physicians face due to this problem, some of which are discussed in UNIFI 2023 | Journal of Health Development (Fajriyati & Wardiwiyo, 2025; Haidar & Susanti, 2025; Rohayati, 2024). Where (Aprillianti et al., 2025; Winanda & Veri, 2025) , HR management digitalization can not only provide efficiency and productivity in operations but also offers the agility of decision-making, upskilling of workers as well as job satisfaction.

Such skills are important because HR must also be able to adapt quickly to technological advances and changes, as well as on data analysis and critical thinking in a fully digital environment (Fajriyani & Sriyono, 2023). In the domain of the university, this capability is increasingly needed related to its role as an educational channel and a center for dynamic research which needs adaptive and inclusive stewardship that allows sustainable professionalism growing within academia (Wahyudi, 2024). I.e., this points out to the need for new ways of working and help for the new competence of HR (Arum, 2023; Hamdani, 2024; Khuzaini et al., 2024) on adopting a digital technology to upgrade HR functions that constitutes a competitive edge.

And while earlier research has addressed these topics the operational impact of digital technologies as well as how it affects HR competencies (Fajriyani & Sriyono, 2023) and recruitment efficiency (Winanda & Veri, 2025) the gap in literature is significant. Previous studies have been predisposed to view leadership primarily as an enabler of technology adoption. Yet little work has studied the ontological shift this fundamental change in leadership itself did to render necessary control of this digital ecosystem. In contrast to previous studies, which have analyzed adaptive formats in isolation from core context / technique interaction elements, this contribution extends the literature by proposes an ontology of universities that expresses governing toward generating a system with generalizable and holistic data-based management techniques (as distinct from metrics-driven technical manager roles).

Therefore, it is not only relevant but crucial to survey this ontology and its sub-stacks in order to understand the proverbial principles that structure HR management in the digital age. This study explores digital leadership in the academic environment of university leaders to enhance performance and adapt HCM-friendly quality for maximizing data-driven assessments (Nirmala, 2025). In order to stay relevant, university HR also needs to have operational digital capabilities (at least adequate) and necessary to face challenges in the future (Soleha et al., 2025). which this study also reviewed from the perspective of adaptive leadership strategies. Leadership research is typically focused on praxis (what leaders do), but this case study hints that more often than not, transformation failures are ontologically based: when the phenomenon of technology and data transforms an organization's essence no new definition emerges for what that means for leadership.

This study aims to fill the existing gap by examining how ontological aspects in top-level university leadership can lend stability and bolster HR management in the age of digital transformation. Thereby, it examines how the ontological shift from individual-collective; analog-digital; intuition-data has adapted itself to provide a background for adaptive HR governance. Shift case study of this paper referencing UIC Cirebon.

B. RESEARCH METHOD

It utilised a post-positivist design, integrating quantitative and qualitative data in descriptions of the perceptions of university leadership ontology to help verify and enhance the robustness of that understanding. This research stems from the description of practices that occur at Universitas Catur Insan Cendekia (UCIC) Cirebon as a means for researchers to study shifting HR management practices. The data gathering process occurred in two distinct phases. The first step we used a qualitative method through systematic literature review (SLR) on the top 2022-2025 cited articles regarding ontological positions of Quality 4.0 foundations and leadership. During this stage, we utilized document analysis and participant observation to further cull important themes around this transition of authority away from individual leaders to decentralized digital entities. Second, to empirically validate the qualitative findings, quantitative secondary data were systematically drawn from the Lecturer Evaluation by Students (EDOM). The quantitative data set is out of 237 evaluation entries of Evaluation Program in the Informatics Management Study Program Even Semester Academic Year 2024-2025. The EDOM tool include of 14 KPIs (Key Performance Indicators) from the administrative compliance to pedagogical interaction, based on Likert scale from 1-5. Within it, alongside the composite numerical scores, an open-ended section is included for students to evaluate qualitatively that seeks to obtain more contextual insight into the numeric ratings.

The qualitative data underwent all steps of coding and thematization to identify trends in changes of being (ontological) and adaptability in leading as concerns the data type for analysis. However, the quantitative data processing proceeded with a rigorous validation process with SPSS software. Tested for validity and reliability of the instrument, before conducting descriptive analysis (Setyaedhi, 2024). Data Validity. Test item validity using the Pearson Product Moment correlation, stating that all items were valid because r -count is greater than r -table (r -count > r -table). Reliability was determined by using Cronbach's Alpha and so > 0.60 defined the threshold for a reasonable level of internal consistent. After that, descriptive statistics were conducted to determine mean scores and performance distributions. The corresponding triangulation of results means conclusions relating to HR performance can be embedded within theoretical paradigms or can have an empirical underpinning based on verifiable data.

C. RESULTS AND DISCUSSION

Result

- 1.1 Qualitative Findings: Ontological Shifts in Leadership** Employing thematic analysis of interviews with top level management and theoretical pleading, this research identifies five ontological transitions shaping the construction of contemporary university leadership in a digital society: **1. Transition from Individual Authority to Collective Process:** Leadership is now understood as a distributed, shared process rather than an individualistic possession of one person. In the opening chapter of Lifelike Sanders discusses the digital matrix you find all around that requires an expansive network of leaders, a collective of sorts, much like what organizational complexity demands from leadership today.
- 2. Technology as an Ontological Entity:** Technology also does not function merely as a supporting tool, but instead as a field that covers leadership. An active force for new relation of life and engagement between leaders and their team."
- 3. Shift from Intuition-Based to Linked-Data Decision Making:** The strategic HR management sector aims to move from intuition-based decision-making toward well-defined, scientifically derived actions computed with precision. Leaders, therefore able to enhance their instincts with data connectivity, accelerate the decision making cycle through rigorous rationalization.
- 4. Digital Agility as a Core Essence:** As a leader, your new core competence has transitioned from 'capability' to 'digital agility', which means that you can swiftly and adaptively use tech-enablement applications for self-development and organizing your organizations (given the right software architecture).
- 5. Adoption of Quality 4.0 Frameworks:** In the current scenario quality implies transitioning from static compliance to dynamic process driven by data. Therefore, Quality 4.0 is a solution for enabling organizations to undergo this transformative transition, and the combination of AI and big data underpins it as a route towards achieving this goal.
- 1.2. Quantitative Validation: Lecturer Performance (EDOM)** To verify these ontological transitions, quantitative data were drawn from 237 student evaluation entries. Overall results indicate very good HR performance with an overall score of 4.49 (out of a maximum attainable score of 5.00). '(Syllabus Delivery)' in particular was the highest scoring indicator with a technical compliance of (4.58). The interaction aspect had the lowest score: 'Providing Examples' (4.38)

Discussion

Context Open, Digital Leadership & HR Governance in General In general, the findings of this study support a larger academic discourse on higher education digitalization whereby technology adoption requires not just adjustment but cultural and philosophical adaption as well. A detailed literature review shows digital leaderships, which is no longer merely a functional role but rather the determining factor for institutional stability in a dynamic global market (Brunner et al., 2023; Chatterjee, 2023; Suryadi et al., 2023).

Moreover, the ontological shifting identified in this study aligns with wider global trends where leadership is understood and theorized through post-humanist or techno-centric lenses that acknowledge the agency of non/human actors as central to organizational governance.

Further empirical proof towards this abstract transformation is manifest by the widespread dependency of universities on robust technical infrastructures, specifically with integrated Human Resource Information System (HRIS), functioning as a pillar for data-driven decisions (Al-Alawi et al., 2023; Gull et al., 2024; Nirmala, 2025; Yulianah, 2024). As a consequence of sessional and non-sessional evaluation knowledge in sustainable sectors have become universal through validation across the world with digitalized performance evaluation mechanisms as similar to EDOM system that is discussed further on in this paper. These digital systems are critical to maintaining accountability and transparency, as well as supporting continuous quality improvement in modern academic environments (Abnoulgid & Alyoubi, 2025; Huy, 2024; Saaq et al., 2024).

Taking the Findings Interpretations Forward: Leadership Agility and Quality 4.0Q The qualitative identification of "Digital Agility" (Finding 4) is empirically validated by the high quantitative score in Syllabus Delivery (4.58). This correlation indicates that the ontological blitzkrieg has been successfully assimilated into the lecturer's standard operating procedure. This is consistent with Akbari et al. (2025), but rather that technology is an agent of change in its own right, one that alters behavior and not just a tool to aid existing processes.

The implementation of Quality 4.0 frameworks effectively ensures technical standards and operational excellence. Human-Centricity: The Grind of a Digital Ontology Very commendable overall performance; however, the gap in 'Providing Examples' score (4.38) lists a major *einpunkt*. Qualitative findings from student comments in the open-ended portion of the EDOM survey strongly reinforce this quantitative outcome. Some students, for instance, directly called out the need for applications in-class: *"Selama perkuliahan mungkin kadang-kadang menggunakan contoh-contoh praktis agar mahasiswa lebih mengerti misalnya menggunakan metode demonstrasi"* (Translation: "During the lecture maybe sometimes use practical examples for students to understand better for example using the demonstration method"). Such visceral feedback reminds us that while digital agility may assure an organization's adherence to governance, it can never replicate the nuanced and interactive teaching artistry needed to translate complex theories into palatable human examples. Ontologically, this implies that transitioning from technocentric to human centric leadership is still a challenge (Alkhayyal & Bajaba, 2023). Although the fourth principle of a data-driven culture is realized (Finding 3 p), intuition and "the human touch" in digital teaching demand stronger leadership action. This indicates that university leadership has been successful to some extent in leveraging collective and data-informed strategies, but that more needs to be done to cultivate the interactive dimensions of learning.

Table 1. Average EDOM Scores for Informatics Management Study Program (n=237)

Code	Assessment Indicator	Mean Score
P1	Punctuality of Lectures	4.54
P2	Utilization of Teaching Aids/Technology	4.52
P3	Consistency of Rules	4.50
P4	Syllabus Delivery (RPS)	4.58
P5	Material Alignment with Syllabus	4.55
P6	Classroom Management	4.39
P7	Comprehensibility of Material	4.41
P8	Mastery of Subject Matter	4.50
P9	Providing Examples / Case Studies	4.38
P10	Interaction & Q/A Session	4.47
P11	Lecturer Articulation	4.46
P12	Exam Material Alignment	4.54
P13	Objective Assessment	4.52
P14	Opportunity for Grade Confirmation	4.51
AVG	Overall Average	4.49

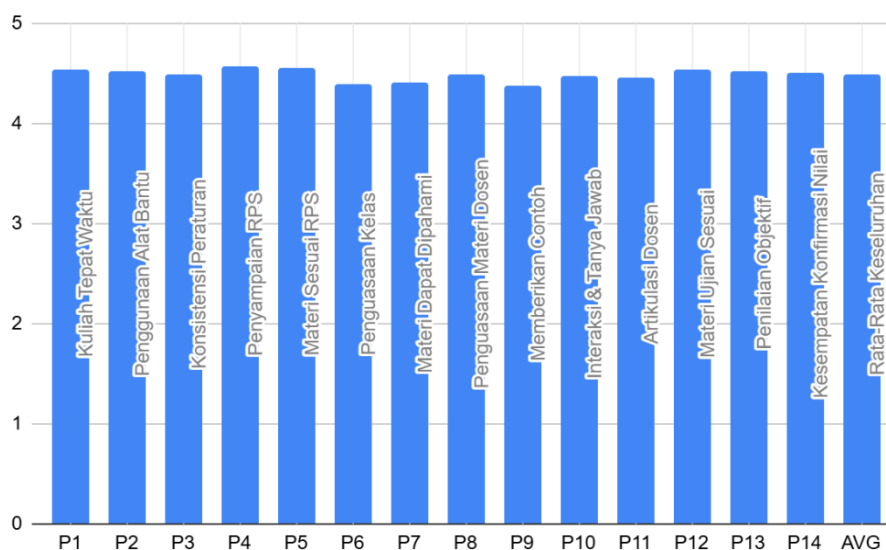


Figure 1. Average EDOM Scores for Informatics Management Study Program, Even Semester 2024-2025

Source: Data processed from SPSS 22

The result of this EDOM analysis indicates a finding consisting of two aspects: 1. Overall HR performance in MI Study Program is very high (average 4.49 from 5.00) and it can be concluded that Quality system 4.0 has been run well. The best score (4.58) was by the P4 Indicator (Syllabus Delivery). That score is reflective of strong academic administrative compliance. Second, this data provides actionable insights for HR leaders. Indicators P9

(Incorporating concrete examples that are useful for students) and P6 (Subject matter mastery presented in classrooms) scored the lowest overall scores respectively (4.38 and 4.39). This data is a sign for the leaders of study programs to improve teaching methods where lectures should be more interactive and based on case studies in real life with the technopreneur vision even though still high.

Cross-validate external data: empirical validation of the agile leadership ontology and integration with digital governance. Then, several core study programs focusing on technology and management have successfully achieved "Very Good" (Baik Sekali) accreditation (Susanto et al., 2024) among them S1 Information Systems, S1 Management, D3 Informatics Management.

D. CONCLUSION

Drawing on case studies from two distinct universities in the USA and China, we argue that higher education institutions at all levels need to broaden their leadership ontology to achieve a systemic digital transformation beyond technology adoption towards a new cultural phenomenon. Qualitatively this study identifies the five most important fundamental ontological shifts (1) Individual Authority vs Collective Process (2) Tool Ontology versus Technological Ontologist rule(s), (3) Intuitive decision-making vs Linked-Data DecisionMing (4) Digital Capability vs Digital Agility and finally the fifth is a dilemma of Compliance as static or Quality 4.0 practical dynamic system frameworks.

On a quantitative side, these ontological constructs become empirically validated (High lecturer performance score: Mean 4.49): either in Syllabus Delivery (4.58) showing this is possible for our materialized Digital Agility Internalization Yet still all conclusions have to bridge one more gap At least: low score enable 'Providing Examples' (4.38.) but as much the technical part of exercise seems to be well performed important but immature • contextual aspects show in need of further intervention in human-to-human focused perspective. Thus, the managerial implication, to achieve sustainable quality, universities must support high-tech governance with high-touch pedagogy.

Limitations and Future Research This research set a case study on UCIC Cirebon because EDOM (perceived of student data) cannot measure strategic perspective which was also captured in the lecturer or even staff. Future studies may also compare different levels of universities in terms of digital maturity. Additionally, it encourages the use of SEM to explore the relationship between 'Digital Agility' and 'Organizational Resilience', as well as investigating how algorithmic leadership can be performed ethically.

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retrospective case study evaluation for quality improvement.

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