LEADERSHIP 4.0 IN DIGITAL TRANSFORMATION OF THE MANUFACTURING SECTOR: A COMPARATIVE MULTI-CASE STUDY OF PT UNILEVER INDONESIA TBK AND PT INDOFOOD CBP

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Abstract

Digital transformation in the manufacturing sector requires a new form of leadership capable of integrating technology, people, and organizational processes in adaptive and synergistic ways. This study aims to analyze the patterns of Leadership 4.0 applied within the digital transformation processes of two major FMCG manufacturing companies in Indonesia, PT Unilever Indonesia Tbk and PT Indofood CBP. The research employs a qualitative approach using a comparative multi-case study design based on publicly available documentary sources, including annual reports, sustainability reports, official corporate publications, and credible business media articles. Data were collected through systematic document analysis and examined using content analysis, pattern matching, and cross-case synthesis to identify convergent and divergent characteristics of digital leadership practices across both cases. The findings show that Unilever adopts a Leadership 4.0 approach characterized by innovation-driven initiatives, sustainability integration, and structured digital capability development for employees. In contrast, Indofood applies a more efficiency-oriented leadership approach, focusing on operational stability, supply chain digitalization, and gradual implementation of digital technologies to enhance productivity. The comparative analysis reveals that differences in organizational culture, digital vision, and technology maturity significantly influence the forms and depth of Leadership 4.0 implementation within each company. This study contributes to the growing body of literature on digital leadership in the Indonesian manufacturing sector while providing practical insights for FMCG organizations navigating the complexities of digital transformation.

Keywords : *digital leadership, industry 4.0, leadership 4.0, manufacturing, digital transformation*

1. INTRODUCTION

The rapid acceleration of digital transformation has fundamentally reshaped the global manufacturing sector, demanding a new generation of leaders capable of navigating technological disruption, workforce transitions, and increasingly complex value chains. Industry 4.0, driven by automation, cyber-physical systems, robotics, IoT, and data-centric decision making, requires leadership that is adaptive, digitally literate, and capable of integrating human and technological systems. Recent studies confirm that successful Industry 4.0 implementation is closely tied to leadership behavior, organizational culture, and digital readiness. For instance, Alam et al. (2024) show that digital transformation efforts at PT PAL Indonesia significantly improved productivity but faced cultural resistance, infrastructure limitations, and openness-to-change issues—indicating that technological investment alone is insufficient without supportive leadership and culture.

In the Indonesian manufacturing context, leadership remains a decisive factor in determining whether digital transformation strengthens competitiveness or becomes trapped by structural inertia. Research by Purba (2021) highlights that leadership style is the strongest determinant of

employee engagement during digital transformation, surpassing the effects of e-learning and e-task systems. Meanwhile, Hulu et al. (2025) emphasize that Industry 4.0 talent management requires a shift toward digital, adaptive, and learning-oriented workforce capabilities—an outcome only possible when leadership commitment and clear digital vision are present. Studies of digital leadership in Indonesian organizations further reveal that resistance to change, limited digital skills, and insufficient technological infrastructure continue to obstruct transformation (Bekti et al., 2024; Intan et al., 2024). These findings collectively indicate that Leadership 4.0 is emerging as a strategic lever for digital transformation, but empirical evidence in the Indonesian manufacturing sector remains fragmented and underdeveloped.

Research focusing on Indonesia's FMCG manufacturing companies remains scarce, despite their essential role in national economic resilience. Indofood and Unilever—two of the largest FMCG manufacturers—have been discussed in various studies, yet predominantly from isolated perspectives. Zidayatullah et al. (2025) examine leadership and job satisfaction at Indofood, while Hendriawanto et al. (2025) explore how transformational leadership shapes inclusive culture in one of Indofood's regional divisions. Related analyses of marketing strategy transformation (Ardiansyah et al., 2024) and net profit margins (Nasyiratunnisa et al., 2024) also highlight Indofood's operational strengths but do not address how leadership navigates digital transformation. For Unilever, studies tend to focus on sustainability, CSR, or financial resilience (Supratno et al., 2025; Puspita et al., 2025), leaving a gap in understanding its digital leadership practices.

At the broader theoretical level, global scholarship affirms that leadership is central to shaping digital transformation outcomes. Fachrunnisa et al. (2020) show that agile leadership and strategic flexibility are crucial for digital success in ASEAN SMEs. Gatell et al. (2024) argue that Industry 4.0 and circular economy principles require new hybrid forms of leadership that integrate digital, sustainable, and customer-centric mindsets—an evolution reflected in the emerging concept of *digital green lean leadership*. Rossini et al. (2021) similarly find that lean leadership patterns strongly influence whether digital transformation becomes sustaining or disruptive. These international insights underscore the need for empirical studies that contextualize Leadership 4.0 within Indonesia's manufacturing reality.

Despite growing interest, several research gaps persist. First, empirical evidence on Leadership 4.0 in Indonesian large-scale manufacturing is limited, particularly in the FMCG sector. Second, no comparative studies systematically examine how leadership behaviors differ between major Indonesian FMCG manufacturers with varying digital maturity, cultural orientations, and strategic priorities. Third, there is a lack of research integrating digital leadership with sustainability, supply chain digitalization, and hybrid work ecosystems—domains increasingly relevant to companies like Unilever and Indofood. Finally, existing studies tend to isolate leadership, technology, or culture rather than analyzing them interactively within a multi-case framework.

Given these gaps, this study aims to analyze and compare the implementation of Leadership 4.0 in the digital transformation processes of PT Unilever Indonesia Tbk and PT Indofood CBP. Although both operate in the same FMCG manufacturing industry, they represent distinct patterns of digital maturity: Unilever is known for innovation-driven, sustainability-integrated digital leadership, whereas Indofood tends to emphasize efficiency-driven and operationally focused digital adoption. By employing a qualitative *comparative multi-case study* based on documentary data, this research seeks to uncover how differences in leadership orientation, organizational culture, and technological readiness shape the digital transformation trajectories of the two companies.

This study contributes to theory by contextualizing Leadership 4.0 within Indonesian manufacturing, responding to calls for empirically grounded leadership models suitable for emerging markets. Practically, the findings offer insights for manufacturing leaders aiming to enhance digital capability, strengthen organizational readiness, and align technology initiatives with strategic goals in the FMCG sector.

Leadership 4.0 emerges as a contemporary leadership paradigm shaped by the disruptive forces of Industry 4.0. Schwab (2016), who popularized the fourth industrial revolution, emphasizes that digital transformation demands leaders capable of integrating socio-technical systems, data-driven processes, and continuous innovation. In this context, Leadership 4.0 blends classical leadership theories with digital-era competencies, requiring agility, digital literacy, virtual communication, and the ability to orchestrate hybrid human–machine environments. Early conceptualizations by Avolio, Kahai, and Dodge (2000) describe how digital technologies transform the relational dynamics between leaders and followers, while their subsequent work (Avolio et al., 2014) highlights the evolving role of leaders in managing distributed teams, cultivating innovation, and sustaining digital empowerment. Northouse (2021) reinforces this view by arguing that contemporary leadership now hinges on relational transparency, adaptability, and the ability to provide meaning in technologically turbulent environments. The paradigm also draws from transformational leadership theory (Bass & Avolio, 1994), where leaders articulate compelling visions, mobilize change, and foster individual development—traits increasingly exercised through digital platforms and algorithmic insights.

Digital transformation in manufacturing introduces additional complexities that strengthen the importance of leadership. According to Brynjolfsson and McAfee (2014), digital transformation represents a structural shift in which value creation is increasingly dependent on automation, intelligent systems, and data-centric processes. Kane et al. (2015) argue that successful digital transformation hinges not on technology alone but on strategic digital capability, organizational agility, and leadership commitment. Within Indonesia, empirical studies indicate variations in digital readiness across manufacturing sectors. Alam et al. (2024), for example, demonstrate that Industry 4.0 implementation at PT PAL Indonesia enhances productivity and financial performance while simultaneously facing challenges related to cultural resistance, openness to change, and technological infrastructure gaps. These findings align with Gatell et al. (2024), who propose the concept of digital green lean leadership—a leadership model that integrates lean principles, digital technologies, and sustainability imperatives. Rossini et al. (2021) further show that digital transformation trajectories in manufacturing tend to follow either sustaining or disruptive patterns, shaped by leadership behavior, cultural flexibility, and digital maturity.

Hybrid-digital leadership therefore becomes essential, as it fuses digital competence with human-centered leadership capabilities. Avolio et al. (2014) highlight that effective digital leaders must be skilled in virtual communication, digital coordination, data interpretation, and collaborative innovation. Kotter's (2012) perspective on change leadership also applies strongly here, as leaders must accelerate adaptability, remove hierarchical barriers, and mobilize rapid digital adoption. Kane et al. (2015) contend that digital leadership is less about mastering technology and more about cultivating strategic agility and digital mindset. Supporting this, Fachrunnisa et al. (2020) demonstrate that agile leadership significantly enhances digital transformation outcomes in ASEAN SMEs, while Intan et al. (2024) identify digital skill deficiencies, innovation gaps, and leadership capability limitations in Indonesian companies undergoing digitalization. These studies collectively reveal that hybrid-digital leadership is multidimensional, requiring leaders to integrate emotional intelligence, digital literacy, adaptability, and continuous learning.

Organizational culture plays a central role in shaping digital transformation outcomes. Schein and Schein (2017) argue that leaders and culture are fundamentally interdependent: leaders create and reinforce cultural assumptions, while culture shapes how organizations interpret environmental changes. Transformational leadership has been shown to support adaptive and inclusive cultures that enhance digital readiness (Bass & Avolio, 1994). Empirically, Hendriawanto et al. (2025) demonstrate that transformational leadership at Indofood significantly strengthens inclusive organizational culture—an important foundation for digital transformation. Conversely, Alam et al. (2024) show that cultural resistance remains a significant barrier to Industry 4.0 in Indonesian state-owned manufacturing, reflecting that even advanced technologies can fail without cultural alignment. These insights reinforce that digital transformation is not merely technological but also profoundly cultural.

Given these dynamics, a comparative multi-case methodology becomes particularly relevant for understanding how Leadership 4.0 manifests differently across organizations. Yin (2018) emphasizes that multi-case studies allow replication logic, enabling researchers to test whether similar leadership patterns emerge across varied contexts. Eisenhardt (1989) notes that comparative analysis supports theory building by identifying cross-case similarities and differences, strengthening conceptual insight. This approach is especially suitable for Unilever and Indofood, two FMCG manufacturing firms with different strategic orientations, leadership tendencies, and digital maturity levels. Their contrasting profiles provide a rich empirical basis for examining how contextual conditions shape leadership behavior, digital capability development, and transformation trajectories.

Overall, existing theoretical and empirical literature highlights the growing importance of Leadership 4.0 in digital transformation, but also reveals significant gaps—particularly regarding large-scale Indonesian manufacturing firms. Research remains fragmented, often focusing on isolated variables such as leadership style, employee engagement, or technological adoption without integrating these into a holistic, contextualized analysis. Few studies offer comparative insights into how different organizations within the same industry operationalize digital leadership, nor do they examine how cultural, technological, and strategic factors interact to shape transformation outcomes. This literature gap underscores the need for a multi-case comparative analysis of Unilever and Indofood to illuminate how Leadership 4.0 manifests within Indonesia's FMCG manufacturing sector.

2. RESEARCH METHOD

This study employs a qualitative research design using a comparative multi-case study approach to explore how Leadership 4.0 is implemented within the digital transformation processes of PT Unilever Indonesia Tbk and PT Indofood CBP. The multi-case configuration is appropriate because it enables deeper theoretical replication through the identification of convergent and divergent leadership patterns across comparable organizational settings, aligning with the principles of case-study methodology articulated by Yin (2018) and Eisenhardt (1989). An interpretivist qualitative orientation guides the research process, emphasizing contextual meaning-making rather than numerical generalization, which is consistent with Miles, Huberman, and Saldaña's (2014) view that leadership phenomena must be examined within the lived reality of organizational environments.

Case selection followed purposive criteria, focusing on two of Indonesia's largest FMCG manufacturers that exhibit significant digital transformation initiatives, publicly accessible documentation, and contrasting leadership orientations. Unilever represents an innovation-driven and sustainability-integrated model of digital transformation, whereas Indofood reflects a more efficiency-oriented and operationally focused trajectory. These contrasting characteristics

provide a strong foundation for cross-case analytical insight. Data for this study rely solely on secondary sources, including annual reports, sustainability reports, CEO/Director leadership statements, official corporate publications, and credible business media articles from Kompas, Bisnis.com, Kontan, and The Jakarta Post. Academic literature on Leadership 4.0, digital leadership, Industry 4.0, and organizational culture—along with institutional reports from WEF, OECD, UNCTAD, McKinsey, and Deloitte—were incorporated to strengthen theoretical grounding and contextual interpretation.

Data collection was conducted through systematic document analysis following Bowen's (2009) approach, which involves evaluating the authenticity, relevance, and credibility of each document. The analytic process proceeded in three stages. First, qualitative content analysis was applied to extract key themes relating to leadership behavior, digital initiatives, talent development, and cultural readiness within each company, following the principles outlined by Schreier (2012). Second, pattern matching was employed by comparing empirical observations with theoretical constructs derived from Leadership 4.0 (Schwab, 2016; Avolio et al., 2014), digital leadership (Kane et al., 2015), agile leadership (Fachrunnisa et al., 2020), and lean-digital leadership (Gatell et al., 2024). Third, cross-case synthesis was conducted to contrast findings between Unilever and Indofood, allowing replication logic to reveal similarities, differences, and contextual drivers of leadership orientation.

To enhance methodological rigor, the study applied source triangulation by comparing data from corporate documents, media reports, and academic sources, as well as theoretical triangulation using multiple leadership and digital transformation frameworks. An audit trail documenting data sources, coding decisions, and interpretive steps ensured transparency and traceability in accordance with Lincoln and Guba's (1985) guidelines for credibility and dependability in qualitative research. Ethical considerations were upheld by using only publicly available documents, ensuring that no confidential information was accessed or disclosed. This methodological approach provides a robust foundation for interpreting how Leadership 4.0 manifests within Indonesia's FMCG manufacturing sector and how contextual factors shape digital transformation trajectories in both companies.

Cross-case comparison is conducted by analyzing six core dimensions of Leadership 4.0 that emerge from theoretical synthesis and empirical literature: digital vision, technology integration, talent development, leadership behavior, organizational culture readiness, and sustainability-driven innovation. These dimensions represent critical indicators of digital leadership maturity in manufacturing firms. The following matrix summarizes the similarities and differences between PT Unilever Indonesia Tbk and PT Indofood CBP based on documentary evidence and theoretical constructs.

Table 1, Cross Case Analysis Matrix

No	Dimension	Unilever Indonesia	Indofood CBP	Interpretation
1	Digital Vision & Strategic Orientation	Strong, innovation-driven, sustainability-integrated. CEO statements emphasize digital-first mindset, data intelligence, and long-term organizational transformation. Digital vision embedded in ESG strategy.	Efficiency-oriented, focused on operational stability, cost optimization, and gradual digital upgrading. Digitalization framed as productivity enabler rather than strategic reinvention.	Unilever adopts transformative digital vision; Indofood adopts pragmatic digital adoption. Leadership orientation drives depth of transformation.

2	Technology Integration & Industry 4.0 Adoption	Implements end-to-end digital systems: SAP S/4HANA, digital twin pilots, IoT sensors, automated quality control, predictive analytics, smart manufacturing ecosystem.	Mid-level adoption: warehouse automation, robotics in packaging, digital supply chain tracking, basic IoT and production monitoring, less integrated systems compared to Unilever.	Unilever demonstrates higher digital maturity and integration; Indofood focuses on selective operational technologies.
3	Talent Development & Digital Capability Building	Strong focus on digital upskilling: Future Leaders League, Digital Upskill 4.0, hybrid-learning ecosystem, sustainability-based leadership programs. Emphasis on continuous learning culture.	Focus on operational training, technical skill upgrading, and skill-standardization for production teams. Limited evidence of advanced digital talent development programs at leadership level.	Difference reflects contrasting human capital strategy: transformational vs. operational.
4	Leadership Behavior (Leadership 4.0 Competencies)	Exhibits agile, transformational, collaborative leadership style. Leadership encourages innovation, cross-functional digital teams, and hybrid collaboration.	Leadership behavior tends to be hierarchical, stability-driven, and efficiency-focused. Innovation encouraged but primarily within operational constraints.	Unilever aligns with hybrid-digital leadership theory; Indofood aligns with efficiency-based digital leadership.
5	Organizational Culture Readiness & Change Orientation	Culture supports openness, innovation, inclusivity, and sustainability. Digital transformation linked to organizational values and employee empowerment.	Culture emphasizes discipline, process control, efficiency, and consistency. Resistance to change appears stronger based on multiple media insights.	Culture significantly shapes transformation pace; supports Schein's theory of culture-leadership interdependence.
6	Sustainability-Driven Innovation	Strong ESG integration: zero-waste manufacturing, circular economy, digitalized sustainability metrics. Sustainable innovation embedded in leadership narrative.	Sustainability practices exist but less digitally integrated; environmental initiatives more compliance-oriented than innovation-driven.	Unilever positions sustainability as strategic anchor; Indofood treats it as operational responsibility.

The cross-case matrix reveals clear divergences in how Leadership 4.0 manifests within the two FMCG manufacturing firms. Unilever demonstrates a more advanced and holistic adoption of digital transformation aligned with a sustainability-oriented leadership philosophy, consistent with literature emphasizing innovation-driven digital leadership (Avolio et al., 2014; Kane et al., 2015; Gatell et al., 2024). Indofood, in contrast, operationalizes digital transformation primarily through efficiency-driven technological investments, reflecting patterns described in studies of

Indonesian manufacturing firms with incremental Industry 4.0 adoption (Purba, 2021; Intan et al., 2024; Rossini et al., 2021).

The matrix also highlights that Unilever's leadership actively cultivates a digital learning culture, whereas Indofood's leadership focuses more strongly on operational optimization. This aligns with Schein's (2017) argument that cultural readiness is a decisive factor in transformation outcomes. The comparison further supports Eisenhardt's (1989) notion that cross-case variation provides theoretical insight: leadership orientation—transformational vs. operational—emerges as a pivotal determinant of digital maturity, technological integration, and sustainability-driven practices.

3. FINDINGS

The analysis of the documentary data reveals distinct patterns of Leadership 4.0 within PT Unilever Indonesia Tbk and PT Indofood CBP, reflecting their differing strategic orientations, digital maturity, and organizational cultures. Although both firms operate within Indonesia's FMCG manufacturing sector and face similar pressures to modernize through Industry 4.0, the findings suggest that the implementation of Leadership 4.0 is shaped more by internal leadership philosophy, cultural context, and strategic priorities than by industry characteristics alone. The following narrative presents the findings for each case, followed by a synthesis of cross-case similarities and differences.

3.1.Case 1: PT Unilever Indonesia Tbk

The findings indicate that Unilever exhibits a strong and coherent adoption of Leadership 4.0. Leadership statements in annual and sustainability reports consistently emphasize digital innovation, long-term transformation, and sustainability-based value creation. Senior leaders articulate a digital-first orientation that integrates data analytics, automation, and digital ecosystems into strategic decision-making and operational execution. This aligns with the transformative leadership attributes described by Bass and Avolio (1994), where leaders articulate bold visions and mobilize organizational change through empowerment and innovation.

Unilever demonstrates advanced technology integration across its manufacturing operations. Evidence from corporate documents shows the implementation of SAP S/4HANA, digital twin pilots, IoT-enabled quality control, and predictive analytics embedded throughout the value chain. These technologies support smart manufacturing capabilities consistent with Industry 4.0 frameworks described by Schwab (2016) and Kane et al. (2015). Digitalization is not treated merely as a technical upgrade but as an enabler of strategic competitiveness, reducing waste, accelerating decision-making, and strengthening operational transparency.

A core finding is Unilever's emphasis on digital talent development. The company operates multiple leadership and capability-building programs, such as the Unilever Future Leaders Program (UFLP), Digital Upskill 4.0, and hybrid-learning ecosystems. These initiatives reflect the organizational learning orientation highlighted by Hulu et al. (2025), who argue that Industry 4.0 talent strategies must blend digital skills with adaptive, human-centric capabilities. Unilever positions digital capability as a cultural norm, embedded in everyday practice, which reinforces Kane et al.'s (2015) argument that digital transformation begins with people rather than technology.

Unilever's sustainability orientation is also strongly integrated with its digital leadership practices. Corporate documents show a commitment to zero-waste manufacturing, circular economy practices, and digital measurement of sustainability metrics. This aligns with Gatell et al.'s (2024) concept of *digital green lean leadership*, suggesting that Unilever's leaders incorporate sustainability as a strategic anchor for digital transformation. Overall, the findings

portray Unilever as exhibiting a mature form of Leadership 4.0 driven by innovation, sustainability, and cultural openness to change.

3.2.Case 2: PT Indofood CBP

In contrast, Indofood demonstrates a more incremental and efficiency-oriented approach to Leadership 4.0. Documentary evidence suggests that leadership frames digital transformation primarily as a means of enhancing productivity, stabilizing supply chain operations, and maintaining cost efficiency. Strategic communication from Indofood's leadership tends to emphasize operational excellence and risk mitigation rather than transformative reinvention. This reflects a leadership orientation that aligns with traditional hierarchical management rather than the hybrid-digital leadership model described by Avolio et al. (2014).

Indofood's technological adoption focuses heavily on selective implementation within core operational areas. The company invests in warehouse automation, packaging robotics, IoT-enabled monitoring, and inventory management technologies. However, unlike Unilever's integrated digital architecture, Indofood's digital systems operate more as discrete solutions rather than a unified smart manufacturing ecosystem. This pattern is consistent with Rossini et al. (2021), who note that many manufacturing firms in emerging markets follow a sustaining rather than disruptive transformation path due to cultural, structural, and capability constraints.

The findings also reveal that Indofood's digital talent development efforts are comparatively limited. Training initiatives documented in corporate publications indicate an emphasis on operational and technical skill enhancement rather than leadership-level digital capability building. This aligns with Purba's (2021) observation that leadership capability gaps remain a major barrier to digital engagement in Indonesian manufacturing firms. Similarly, Intan et al. (2024) identify courage and digital skill acquisition as the lowest-scoring digital leadership competencies in many Indonesian organizations, a pattern reflected in Indofood's incremental digital development.

Cultural analysis indicates that Indofood maintains a disciplined, process-oriented culture that prioritizes stability and consistency. While such a culture supports operational excellence, it also creates resistance to change, a phenomenon widely noted in local manufacturing literature and consistent with Alam et al. (2024). Indofood's sustainability practices are present but tend to reflect compliance-driven initiatives rather than innovation-driven leadership, differing significantly from Unilever's approach.

3.3.Cross-Case Findings Synthesis

The comparative analysis reveals that although both companies adopt Industry 4.0 technologies, their leadership behaviors and strategic orientations produce significantly different digital transformation trajectories. Unilever exhibits a transformative, innovation-driven, and sustainability-integrated Leadership 4.0 model. Indofood, on the other hand, presents a pragmatic, efficiency-oriented approach focused primarily on operational enhancement.

The cases illustrate Schein's (2017) argument that leadership and culture are deeply intertwined: Unilever's culture of openness and innovation amplifies leadership-driven digital initiatives, whereas Indofood's hierarchical, efficiency-focused culture reinforces incremental adoption and risk-averse transformation patterns. From a theoretical standpoint, these findings validate Avolio et al.'s (2014) hybrid-digital leadership model, indicating that digital transformation requires both technological expertise and human-centric leadership capabilities. They also reflect Eisenhardt's (1989) notion that cross-case variation yields meaningful insights: leadership orientation emerges as the key explanatory factor behind the depth, speed, and integration of digital transformation.

In sum, the findings highlight that Leadership 4.0 is not uniformly manifested across organizations within the same industry. Instead, it varies based on strategic vision, cultural readiness, digital capability development, and sustainability orientation—dimensions that differentiate Unilever's advanced digital leadership maturity from Indofood's incremental, operationally focused model.

3.4.Disccussion and Implications

The findings of this comparative multi-case study demonstrate that Leadership 4.0 manifests differently across organizations despite similarities in industry context, market demands, and technological pressures. The contrast between Unilever and Indofood reveals that digital transformation is neither a purely technological phenomenon nor a uniform managerial approach. Instead, it reflects a complex interplay of leadership vision, cultural readiness, and organizational capability—echoing the view of Schwab (2016) and Brynjolfsson & McAfee (2014) that Industry 4.0 success depends on socio-technical integration rather than technology adoption alone. This study reinforces that leadership behavior fundamentally shapes the trajectory of digital transformation, validating theoretical insights from Avolio et al. (2014) and Kane et al. (2015), who emphasize the centrality of human-focused leadership in digital-era organizations.

A key discussion point arising from the findings is the divergence between Unilever's transformative digital leadership and Indofood's efficiency-driven orientation. Unilever's digital transformation reflects a high degree of alignment with transformational leadership principles (Bass & Avolio, 1994), characterized by visionary direction, empowerment, and a strong emphasis on developing digital capabilities across the workforce. This is consistent with Hulu et al. (2025), who argue that leadership commitment is a prerequisite for Industry 4.0 talent development. Unilever's integration of sustainability into its digital strategy further supports Gatell et al.'s (2024) proposition of digital green lean leadership, where digital and sustainability agendas reinforce one another. Indofood, on the other hand, exemplifies a more incremental transformation path, consistent with Rossini et al. (2021), who describe sustaining digital transformation patterns in firms that prioritize operational stability over transformative reinvention.

Another central insight relates to organizational culture. The study's findings corroborate Schein and Schein's (2017) argument that culture functions both as an enabler and inhibitor of change. Unilever's culture of openness, innovation, and learning aligns with a leadership philosophy that encourages experimentation and cross-functional collaboration—key drivers of digital transformation success identified in Purba (2021) and Bekti et al. (2024). Indofood's more hierarchical and control-oriented culture, while effective for operational consistency, appears to restrict the speed and depth of digital adoption. This cultural constraint echoes the barriers documented by Alam et al. (2024), where resistance and limited openness emerged as significant challenges in Indonesian manufacturing digital initiatives.

Furthermore, this study highlights the importance of digital talent development as a strategic differentiator. Unilever's investment in digital leadership programs, continuous learning platforms, and hybrid-work adaptation underscores Kane et al.'s (2015) assertion that digital transformation begins with building people capability rather than deploying new technologies. Indofood's limited digital leadership development efforts suggest a capability gap that slows transformation momentum, consistent with the competency deficiencies noted by Intan et al. (2024).

From a theoretical perspective, the cross-case variance supports Eisenhardt's (1989) argument that comparative case analysis provides strong grounding for theory development. Leadership orientation—transformational versus operational—emerges as the pivotal factor

shaping Industry 4.0 adoption patterns. The study also expands the theoretical understanding of Leadership 4.0 by illustrating how sustainability, digital learning culture, and hybrid work readiness intersect with leadership behavior to determine transformation outcomes.

The implications of these findings extend across multiple levels. For practitioners within the FMCG manufacturing sector, this study highlights that digital transformation cannot be approached merely as a series of technology investments. Firms must prioritize leadership capability building, cultivate digital-ready culture, and embed strategic clarity into transformation initiatives. Organizations seeking to accelerate Industry 4.0 adoption should consider adopting leadership development frameworks similar to Unilever's, which integrate digital, adaptive, and sustainability-oriented competencies. Indofood and similar firms may benefit from strengthening digital talent pipelines, reducing hierarchical rigidity, and adopting cross-functional collaboration structures to enhance agility.

At a policy level, the findings suggest that Indonesia's manufacturing transformation agenda would benefit from leadership capability-building programs that target digital literacy, change management, and cross-disciplinary leadership skills, aligning with national strategies such as Making Indonesia 4.0. For scholars, the study underscores the need for further empirical research that examines contextual variations in Leadership 4.0 implementation, particularly through mixed-method or longitudinal approaches.

Overall, this discussion affirms that Leadership 4.0 is a contextual leadership paradigm whose success relies heavily on cultural readiness, strategic orientation, and human capability development. Companies that seek to thrive in the digital manufacturing era must therefore articulate a leadership model that integrates technological competence with transformative, people-centric leadership behaviors.

4. CONCLUSION

This study examined how Leadership 4.0 is enacted within the digital transformation initiatives of two major FMCG manufacturers in Indonesia, PT Unilever Indonesia Tbk and PT Indofood CBP. Through a qualitative comparative multi-case study supported by documentary evidence, the research reveals that digital transformation outcomes are driven not merely by technological investments but by leadership orientation, cultural readiness, and human capability development. Although both firms operate in the same industry and face similar market and technological pressures, their pathways toward digitalization differ substantially, affirming that Leadership 4.0 is inherently contextual and shaped by organizational identity and strategic priorities.

The findings indicate that Unilever demonstrates a mature form of Leadership 4.0 characterized by innovation-driven digital vision, integrated technological ecosystems, continuous capability development, and sustainability-oriented strategic leadership. In contrast, Indofood exhibits a more incremental, efficiency-based approach where technological adoption serves operational enhancement rather than transformative reinvention. This divergence reinforces theoretical assertions by Schwab (2016), Kane et al. (2015), and Avolio et al. (2014) that effective digital transformation depends on agile, people-centered leadership capable of aligning technology with vision, culture, and long-term strategy.

The study also confirms Schein's (2017) argument that leadership and culture shape each other reciprocally. Unilever's culture of openness, learning, and collaborative innovation amplifies its leadership intent, enabling deeper adoption of Industry 4.0 practices. Indofood's process-oriented, hierarchical culture supports operational stability but limits the pace and depth of digital transformation. These cultural dynamics underscore that Leadership 4.0 requires not

only technological competence but also the capacity to cultivate psychological safety, experimentation, and continuous learning.

From a theoretical standpoint, this study contributes to the evolving literature on Leadership 4.0 by demonstrating how leadership behaviors differ across organizations with similar industrial structures but different cultural and strategic orientations. The insights from this multi-case analysis expand the conceptualization of Leadership 4.0 by highlighting its intersection with sustainability, digital capability building, and hybrid work practices. The findings affirm Eisenhardt's (1989) view that comparative cases offer fertile ground for theory elaboration, especially when analyzing complex socio-technical phenomena such as digital transformation.

Practically, this research emphasizes that organizations seeking to accelerate Industry 4.0 adoption must prioritize leadership capability building, invest in digital talent development, and integrate cultural transformation into digital strategies. FMCG manufacturers in Indonesia and similar emerging markets may benefit from adopting leadership models that combine digital literacy, transformational behaviors, and strategic flexibility. Policymakers may also draw from these findings to strengthen national initiatives focused on leadership development and digital readiness within the manufacturing sector.

While the study offers rich insights, it is limited by its reliance on secondary data, which restricts the depth of internal organizational perspectives. Future research may incorporate interviews, longitudinal designs, or mixed-method approaches to deepen the understanding of Leadership 4.0 in various industrial contexts. Despite these limitations, the study provides a robust empirical foundation for understanding how leadership shapes digital transformation outcomes, highlighting that Leadership 4.0 is most effective when it unites technological ambition with human-centered, culturally aligned leadership practices.

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