

HUMAN-CENTERED BRAND DNA: A STRATEGIC FRAMEWORK FOR SUSTAINABLE DIGITAL TRANSFORMATION IN THE NEW GLOBAL ECONOMY

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ABSTRACT

Digital transformation (DX) and artificial intelligence (AI) have become critical drivers of growth. However, growing evidence suggests that many digital transformation initiatives fail because technological implementation is often prioritized over human-centered communication and organizational sensemaking processes. To address this gap, this study adopts an Integrative Literature Review (ILR) approach to develop the Human-Centered Brand DNA (HC-BDNA) framework for sustainable digital transformation. Within this framework, functioning as a dynamic genetic code, Brand DNA translates abstract cultural values into operational principles that guide organizational adaptation. As a sensemaking mechanism, it enables employees to interpret and adopt AI and digital technologies in ways that remain aligned with organizational identity and human values. The HC-BDNA framework consists of five interconnected layers: (1) Cultural and human foundations, (2) Brand DNA encoding, (3) Human-centered communication, (4) AI and digital mediation, and (5) Sustainable digital transformation outcomes. In this model, Brand DNA operates as the central intermediary layer that aligns human capabilities with technological systems, thereby reducing organizational disorientation and strengthening long-term resilience. The study argues that sustainable digital transformation is more likely to succeed when technological change is guided by human-centered values, organizational identity, and communication processes. Accordingly, the HC-BDNA framework offers strategic implications for organizations and policymakers seeking to align AI adoption, human development, and communication strategies to achieve sustainable growth in the global digital economy.

Keywords: Brand DNA, human-centered communication, digital transformation, sustainable growth, global economy.

1. INTRODUCTION

Digital transformation (DX) has emerged as a central driving force shaping the contemporary global economy. The rapid advancement of artificial intelligence (AI), big data, and digital platforms is fundamentally reconfiguring how organizations operate, interact, and create value [1], [2]. Reports from the World Economic Forum indicate that digital transformation capabilities are increasingly becoming a decisive factor in determining the competitiveness of both firms and nations in the context of global economic recovery and restructuring [3]. However, despite growing investments in digital technologies and infrastructure, the outcomes of digital transformation initiatives remain uneven and often fall short of expectations.

This paradox raises an important question: can the success of digital transformation be explained solely by financial resources or leadership capabilities? Previous studies have often emphasized the role of technological investment, managerial capabilities, or strategic leadership as determining factors [1], [2]. These explanations are still insufficient to explain why organizations with comparable resources, even those implementing the same AI technologies, achieve very different outcomes. This suggests that beyond financial and leadership factors, there exists a deeper mechanism that governs how technology is understood, implemented, and accepted within organizations.

One of the core causes of this paradox lies in the technology-centered approach adopted in digital transformation research. Most existing models focus on automation, optimization, and strategic responses to technological disruptions [1], while human factors are largely treated as a supporting variable. From a substantive perspective, DX is not only a technical transformation but also a process of sensemaking, in which individuals and organizations continuously interpret, understand, and adapt to technological changes [4]. Studies on human-machine interaction have shown that technology does not operate independently but is always shaped by social practices and human contexts [5], [6]. This indicates a critical limitation in current DX research, namely the absence of a dynamic coordination mechanism that connects technology with human meaning-making processes.

This gap becomes even more evident from a communication perspective when examining traditional organizational concepts such as culture and identity. Organizational culture is regarded as a foundation that shapes behavior and cognition [7], while organizational identity helps maintain consistency and distinctiveness [8]. However, these concepts are often abstract, stable, and difficult to change in the short term, making them insufficiently flexible to regulate dynamic interactions between humans and technology in the DX process. Therefore, there remains a lack of a mechanism that is both strategic and sufficiently flexible to serve as an intermediary between cultural foundations and technological change. In this context, the concept of Brand DNA, originally developed in the marketing field as a set of core values and brand identity [9], [10], offers a potential yet underexplored foundation. Previous studies have primarily approached Brand DNA as a static structure, associated with brand identity or market positioning. However, this approach does not fully reflect the role of Brand DNA in the context of organizations that are continuously changing under the influence of digital technologies.

This study proposes a new approach: repositioning Brand DNA as a dynamic coordinating mechanism in the digital transformation process. Rather than merely reflecting the “essence” of an organization, Brand DNA is understood as an “operational logic” that enables organizations to coordinate interactions between humans and technology. Specifically, Brand DNA functions as a sensemaking filter, allowing employees to interpret complex technological changes into meanings aligned with organizational values and strategic direction. In this way, it contributes to enhancing technology acceptance, reducing resistance, and improving workforce adaptability. This approach also creates a clear distinction from the use of the concept of organizational culture. If culture serves as a broad foundation, Brand DNA represents a coded and distilled version of that foundation, which is both strategic and directly applicable to decision-making and action. In the context of increasingly widespread artificial intelligence and digital systems, Brand DNA further serves as a guiding mechanism to ensure that technology is implemented in a human-centered direction, a principle emphasized in research on a human-centered economy.

Based on these issues, the study proposes the Human-Centered Brand DNA (HC-BDNA) theoretical framework, in which Brand DNA is viewed as a central mechanism for coordinating the integration of humans and technology in DX. This framework suggests that sustainable digital transformation is achieved not only through technological efficiency but also through the capacity for sensemaking, organizational engagement, and inclusiveness. In

particular, in a world where technology can be easily replicated [11], Brand DNA becomes a strategic differentiating factor that is unique to each organization. This study is expected to contribute to the existing literature in three main ways, including: extending DX theory by emphasizing the central role of sensemaking processes rather than focusing solely on technological factors; redefining Brand DNA from a static marketing concept into a dynamic organizational mechanism, thereby expanding the theoretical scope of the construct; and proposing the HC-BDNA framework as a new integrative model that explains how organizations can achieve sustainable digital transformation through the connection between humans and technology.

2. THEORETICAL BACKGROUND

2.1. Digital Transformation and the Technical–Human Paradox

DX is commonly defined as a process of organizational restructuring based on the integration of digital technologies to enhance performance and innovate business models [1] [2]. Most existing frameworks approach DX from a strategic and technical perspective, in which technology plays a central role, while organizations are viewed as entities that need to optimize processes, data, and customer experience. However, this approach reveals a clear theoretical tension: if DX can be standardized as a technical process, why do organizations with similar levels of technological investment produce different outcomes? Empirical evidence shows that many DX initiatives fail not due to a lack of technology, but due to employee resistance, misalignment in cognition, and breakdowns in coordination between humans and digital systems [12]. This reflects a fundamental paradox, the “technical–human paradox,” in which the success of a process designed as technical is strongly dependent on social and cognitive factors.

To address this paradox, DX needs to be reconceptualized as a socio-technical system, in which transformation outcomes are co-constructed through interactions between technology and humans, rather than being merely the product of technical optimization. Although some studies have acknowledged the role of organizational culture in DX, most still treat it as a supporting factor rather than a central operational mechanism, and therefore very few have theoretically articulated how humans shape the transformation process in real time [1].

So, what is the mechanism that coordinates the interaction between humans and technology in DX? This study argues that the answer lies at the level of meaning, consistent with organizational sensemaking approaches [4], and proposes repositioning Brand DNA as a dynamic meaning-coordinating mechanism, serving as an intermediary between cultural foundations and organizational behavior in digital environments.

2.2. Organizational Culture and Identity: Theoretical Boundaries

In efforts to explain the role of the human factor in digital transformation, two commonly cited concepts are organizational culture and organizational identity. According to Schein (2010), organizational culture reflects the system of values, beliefs, and underlying assumptions that shape collective behavior over time [7]. In contrast, organizational identity focuses on the core, enduring, and distinguishing characteristics of an organization [8]. Both concepts provide an important foundation for understanding how organizations maintain consistency and guide internal behavior.

When placed in the context of digital transformation, these very characteristics create a clear theoretical limitation. Organizational culture, due to its abstract and deeply embedded nature, is often difficult to change in the short term [7], [13]; meanwhile, organizational identity tends to be stable and inward-looking, emphasizing continuity rather than adaptation. This leads to a tension: DX requires rapid responsiveness, flexibility, and continuous

coordination between humans and technology, whereas these concepts lack mechanisms to operationalize such adaptability at the level of concrete behavior. As a result, although culture and identity help explain why organizations behave in certain ways, they do not adequately explain how these values are translated into action in real-time interaction contexts, particularly when humans work alongside AI systems and digital technologies [6]. In other words, the existing literature still lacks an intermediate mechanism capable of linking abstract value layers with concrete organizational practices. This gap suggests the need to reconfigure existing concepts toward a more condensed and flexible form. In this regard, Brand DNA can serve as a form of strategic “encoding” of culture a condensed structure with the ability to activate and coordinate behavior in dynamic digital contexts, thereby overcoming the limitations of traditional theoretical frameworks.

2.3. Repositioning Brand DNA: From Static Marketing to Dynamic Coordination

In the highly competitive and rapidly changing global economic environment, brand is increasingly regarded as a strategic asset that helps organizations build sustainable competitive advantage. Rather than serving only as a marketing tool to differentiate products or services in the market, brand also reflects the system of values, beliefs, and core identity of an organization. Therefore, recent studies on digital transformation have expanded the understanding of brand from a marketing communication perspective to an organizational identity and long-term strategic capability perspective [1], [2]. One of the key theoretical foundations in brand research is the concept of Brand DNA, which was developed from David A. Aaker’s theory of brand identity and further extended in strategic brand management [9]. Brand DNA is commonly approached as a stable identity structure that reflects the core values, personality, and long-term positioning of a brand [10]. According to this logic, Brand DNA primarily functions as a strategic reference framework that ensures consistency in brand communication and positioning over time.

From this, the study proposes repositioning Brand DNA from a descriptive tool to a dynamic mechanism of meaning coordination. Under this approach, Brand DNA does not only reflect the organization’s positioning but also shapes how the organization acts by encoding core values into guiding principles for behavior in fast and distributed decision-making situations.

This repositioning enables Brand DNA to function as an operationalization mechanism of organizational culture, serving as an intermediary between the abstract value layer (culture/identity) and concrete behavior in DX. Rather than existing as a symbolic branding structure, Brand DNA is viewed as a flexible coordination system that aligns cognition and action among humans in interaction with digital technology systems.

2.4. Sensemaking and Human-Centered Communication in DX

The context of digital transformation shows that the core challenge does not lie only in technology implementation. It lies in how people interpret and make sense of continuous technology-driven changes. According to Weick (1995), sensemaking is the process through which individuals “create” organizational reality through socially constructed interpretive frames, rather than directly responding to an objective reality [4]. Following this logic, DX is not merely a change in technical systems. It is a continuous process of restructuring the system of meaning within organizations.

The sensemaking process becomes fragmented due to three factors: the high speed of technological change, increasing levels of automation, and the involvement of AI systems in decision-making. These factors weaken the ability to maintain shared meaning frameworks, leading to “meaning disorientation” within organizations. In this state, employees are uncertain about roles, priorities, and appropriate behaviors [4]. Current DX studies largely acknowledge this issue. However, they do not provide a sufficiently clear theoretical

mechanism to explain how organizations can maintain meaning stability in continuously changing environments [1], [2].

In this context, human-centered communication is considered an important supporting mechanism for reducing cognitive noise and maintaining consistency in interpretation. However, most current approaches remain instrumental in nature, focusing on internal communication or change management, rather than providing a foundational structure capable of coordinating meaning in a systematic and sustainable way. As a result, existing mechanisms are often reactive rather than proactively shaping sensemaking processes in real time. Brand DNA can be repositioned as a structural sensemaking filter that standardizes and guides how individuals within an organization interpret signals from the digital environment. Rather than being only a branding communication tool, Brand DNA in DX can function as a meaning encoding system. It transforms abstract values into interpretive and behavioral principles that can be activated in fast and distributed decision-making contexts. Brand DNA sits at the interface between organizational culture and behavior in digital environments, enabling the alignment of sensemaking between humans and technological systems. This not only extends the role of brand beyond traditional marketing boundaries but also provides a theoretical foundation for viewing DX as a process of meaning coordination rather than technical optimization.

2.5. Comparative Analysis of DX Frameworks

DX has been widely studied in recent decades, existing theoretical frameworks still show considerable fragmentation in their approaches. Representative models such as Vial (2019), Verhoef et al. (2021), and Kane et al. (2015) have all made important contributions to shaping the understanding of DX [1], [2], [14]. However, they mainly focus on strategic, technological, or organizational maturity dimensions, rather than clarifying the mechanism of meaning coordination between humans and technology.

Specifically, Vial (2019) views DX as a technology-driven organizational process, where the focus is on changes in structure, processes, and organizational capabilities [1]. Verhoef et al. (2021) approach DX as a staged process, emphasizing the evolution of business models and customer experience [2]. Meanwhile, Kane et al. (2015) focus on digital maturity, treating organizational culture as an important supporting factor for implementing digital strategies [14].

However, a common feature of these frameworks is that they do not fully theorize the role of humans as meaning-making agents in the DX process. Organizational culture is often treated as a context or background condition, rather than a direct operational mechanism. This leads to an important gap: existing models do not explain how coordination between humans and technology is formed and sustained in real time. Based on this gap, the study proposes a complementary approach through the Human-Centered Brand DNA (HC-BDNA) framework, in which Brand DNA is repositioned as a dynamic mechanism of meaning coordination, rather than a static brand identity structure. Unlike existing models, HC-BDNA emphasizes the role of Brand DNA in translating cultural values into observable behavior, thereby supporting coordination between humans and technology in DX environments.

Table 1. Comparison of DX theoretical framework

Criteria	Vial [1]	Verhoef et al. [2]	Kane et al. [14]	HC-BDNA
Focus	Organizational processes and structure	Transformation process and business models	Digital maturity level	Humans and meaning coordination

Mechanism	Technology as an enabling trigger	Customer experience and strategy	Culture as a support for digital implementation	Brand DNA as a dynamic meaning-making mechanism
Role of culture	Indirect supporting factor	Part of transformation elements	Foundational condition for DX success	Encoded into behavioral guidance
Unit of analysis	Organization	Firms and business models	Firms and digital capabilities	Human–technology interaction

(Source: Author's compilation based on Vial [1], Verhoef et al. [2], and Kane et al. [14])

Existing DX frameworks mainly remain at the level of describing structures, processes, or enabling conditions. They do not provide a central mechanism to explain coordination between humans and technology. In contrast, HC-BDNA is proposed as an integrative framework. It positions Brand DNA as a meaning coordination mechanism. This mechanism connects cultural foundations with organizational behavior in dynamic digital environments. This forms the theoretical basis for the conceptual model developed in the next section.

3. METHODOLOGY

This study employs an Integrative Literature Review (ILR) methodology. ILR is used to synthesize, critically examine, and reconstruct interdisciplinary theoretical streams, including digital transformation, organizational culture, sensemaking, and brand management. The purpose of this approach is not only to summarize existing knowledge but also to develop a new theoretical framework of Human-Centered Brand DNA (HC-BDNA) in the context of digital transformation.

Data were collected from four major academic databases, including CNKI, Scopus, Web of Science, and Google Scholar. The keywords used include “Digital Transformation”, “Sensemaking”, “Organizational Culture”, “Brand DNA”, and “Human-centered communication”. The time frame was limited from 2015 to 2026 to ensure relevance to the evolving context of digital transformation and the development of AI. The search strategy was designed in an interdisciplinary manner to cover both technological and social science perspectives.

The selection process followed clear criteria to ensure academic rigor and reliability, including peer-reviewed journal articles, academic books, and studies focusing on DX, sensemaking, organizational culture, communication, and branding. Technical-only papers, non-theoretical industry reports, and studies without a focus on human–technology interaction were excluded.

The screening process followed the PRISMA 2020 standard to ensure transparency and traceability. In the Identification stage, 450 records were retrieved. After removing duplicates, 330 records remained. In the Screening stage, titles and abstracts were reviewed, and 250 irrelevant studies were excluded. In the Eligibility stage, 80 full-text articles were assessed, and 45 were removed due to limited theoretical grounding or an excessive focus on technical aspects. Finally, in the Included stage, 35 core studies were retained for analysis and synthesis. This process is presented using a PRISMA 2020 flow diagram to ensure transparency and replicability.

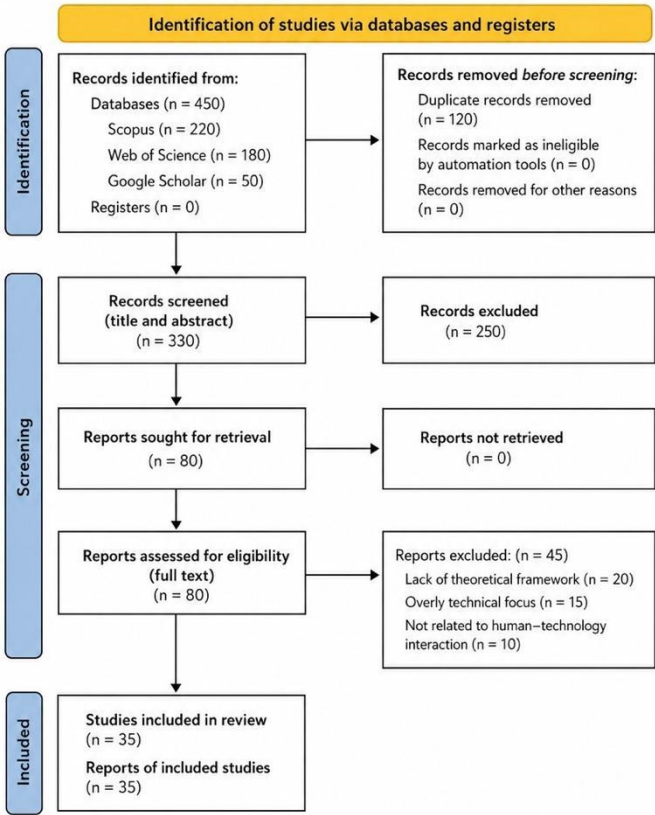


Figure 1. PRISMA 2020 flow diagram

(Source: Author's compilation based on the research selection process.)

Data were analyzed using content analysis combined with thematic synthesis. Coding was conducted to extract key concepts related to DX, sensemaking, and brand identity. These concepts were then mapped across three main theoretical streams: sensemaking, organizational culture, and Brand DNA. The results of this synthesis led to the development of the HC-BDNA model, consisting of five integrated layers, where each layer represents a level of coordination between meaning, behavior, and technology in digital transformation.

4. HUMAN-CENTERED BRAND DNA FRAMEWORK

The Human-Centered Brand DNA (HC-BDNA) framework is proposed as an interdisciplinary integrative structure across brand management, organizational communication, and sensemaking theory. It addresses the central paradox of digital transformation (DX): the tension between technological optimization and the unpredictability of human behavior [1], [2], [4].

While existing DX models primarily emphasize technological infrastructure or digital capabilities, HC-BDNA places meaning coordination mechanisms at the center as a critical intermediary layer determining transformation success. Within this framework, Brand DNA is no longer viewed as a static identity structure in traditional marketing approaches [9], [16]. Instead, it is repositioned as a dynamic mechanism of meaning coordination. This mechanism serves as an intermediary between organizational cultural foundations and digital technological systems, ensuring that all interactions in DX environments are aligned in both cognition and action.

The HC-BDNA framework is structured into five integrated layers, reflecting a progression from value foundations to sustainable transformation outcomes. Each layer does not operate independently but is connected through meaning coordination mechanisms.

Layer 1: Cultural and Human Foundations

This layer is the foundational base. It includes organizational values, beliefs, and underlying assumptions [7], as well as human capital and social capabilities. It is the deepest layer and shapes the “meaning essence” of the organization before any digital transformation takes place.

Layer 2: Brand DNA Encoding

At this layer, abstract cultural values are translated into a condensed and operational structure-Brand DNA. Brand DNA functions as a strategic encoding system. It converts foundational values into behavioral principles that can be activated in distributed decision-making contexts [9]. This is the central layer of the entire model.

Layer 3: Human-Centered Communication

This layer is responsible for disseminating and reaffirming encoded meaning. Rather than one-way communication, HC-BDNA emphasizes two-way communication processes to support cognitive alignment within organizations, especially under the rapid changes of DX.

Layer 4: AI and Digital Mediation

Within the HC-BDNA framework, AI and digital technologies are not treated as autonomous actors. They function as mediating systems that support organizational behavior. These systems are effective only when guided by Brand DNA and a pre-aligned meaning structure [1], [2].

Layer 5: Sustainable DX Outcomes

The final layer reflects the aggregated outcomes of the entire system, including organizational adaptability, resilience, long-term economic performance, and social inclusiveness. These outcomes result from the alignment of humans, technology, and meaning across the DX system.

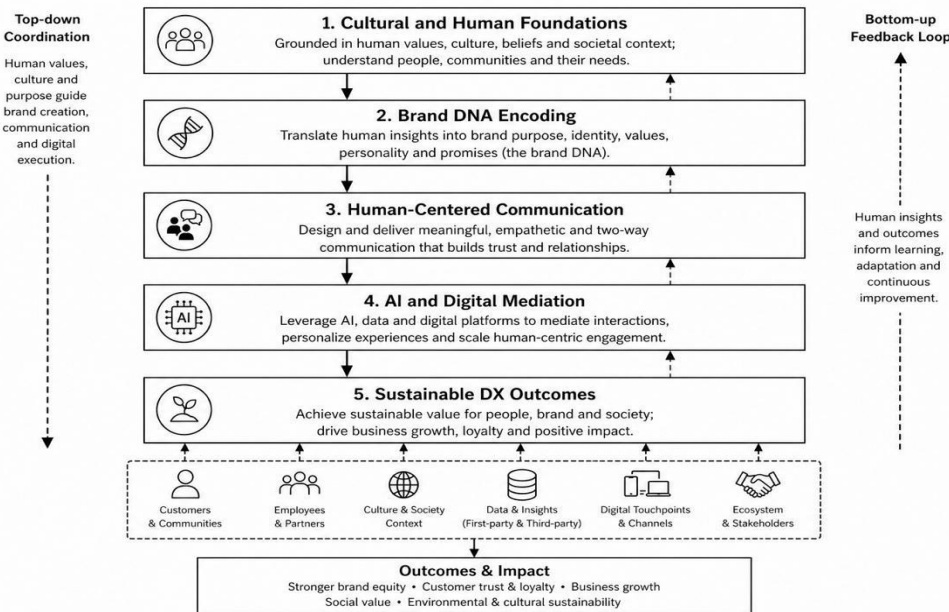


Figure 2. Human-Centered Brand DNA model

(Source: Author's elaboration.)

The operational mechanism of HC-BDNA is based on two core processes: (1) sensemaking filter and (2) meaning alignment. First, in DX environments, employees and organizational actors do not directly respond to data or AI systems. Instead, they interpret these signals through Brand DNA as a cognitive filter. Sensemaking is the process through which individuals construct meaning rather than simply reflect reality [4]. Therefore, Brand DNA functions as a guiding structure that reduces cognitive noise and translates complex technological signals into understandable and actionable meanings. Second, the meaning alignment mechanism ensures that human behaviors and AI systems are coordinated within a shared value framework. This reduces cognitive conflict, limits technological resistance, and enhances coordination among actors within the DX system [1].

The HC-BDNA framework offers a new way to understand digital transformation as a multi-layer meaning coordination process, rather than a purely technological integration process. By repositioning Brand DNA as a dynamic coordination mechanism, the model fills the gap between organizational culture, communication, and digital systems, while also providing a testable structure for future DX research.

5. RESEARCH PROPOSITIONS

Proposition 1: From Organizational Culture to Brand DNA Codification

The consistency and coherence of organizational culture have a positive effect on the effectiveness of Brand DNA codification in the context of digital transformation (DX). When values, beliefs, and underlying assumptions are widely shared within an organization, their translation into a condensed Brand DNA structure with behavioral guidance becomes more effective. Conversely, cultural fragmentation reduces the consistency of Brand DNA as a meaning coordination mechanism. Key proxies include the Organizational Culture Consistency Scale, the Brand DNA clarity index, and the inter-departmental value alignment score.

Proposition 2: Brand DNA as Sensemaking Mechanism

Brand DNA plays a mediating role in enhancing employees' sensemaking capacity regarding changes in DX. Specifically, Brand DNA translates complex technological signals into interpretable cognitive frames, thereby increasing change acceptance and behavioral orientation within organizations. Proxies is Role clarity scale, perceived organizational coherence, DX change comprehension index, employee sensemaking accuracy (survey-based scenario interpretation tests). The proposition is rejected if Brand DNA does not significantly improve understanding and acceptance of DX change when controlling for internal communication factors.

Proposition 3: From Human-Centered Communication to Employee Engagement in DX

Human-centered communication strategies, when coordinated by Brand DNA, increase employee engagement in digital transformation. This occurs through reduced cognitive uncertainty and increased message consistency within the organization. Proxies is Utrecht Work Engagement Scale (UWES), internal communication effectiveness index, perceived transparency score, DX participation rate.

Proposition 4: AI Integration Moderation Effect on Technology Acceptance

Technology acceptance in DX improves when artificial intelligence (AI) is positioned as a supporting tool guided by Brand DNA rather than a system replacing humans. Brand DNA functions as a guiding framework that reduces perceived loss of control and increases perceived usefulness of AI. Proxies is TAM-based measures (Perceived Usefulness, Perceived Ease of Use), AI trust scale, algorithmic anxiety index, human–AI collaboration acceptance score. The proposition is rejected if AI integration does not significantly affect technology acceptance when Brand DNA is controlled.

Proposition 5: From HC-BDNA Framework to Workforce Resilience

The application of the HC-BDNA framework has a positive effect on workforce resilience in highly volatile DX environments. This mechanism operates through meaning stabilization and reduced role uncertainty within organizations. Proxies is Psychological resilience scale (CD-RISC), turnover intention rate, adaptability index, job uncertainty tolerance score.

Proposition 6: From HC-BDNA Framework to Long-term Organizational Performance

The HC-BDNA framework positively influences long-term organizational performance by enhancing alignment between culture, behavior, and technology in DX. This leads to higher innovation performance and improved operational efficiency over time. Proxies is ROA/ROI growth rate, innovation output index (patents/new services), digital maturity score, organizational agility index.

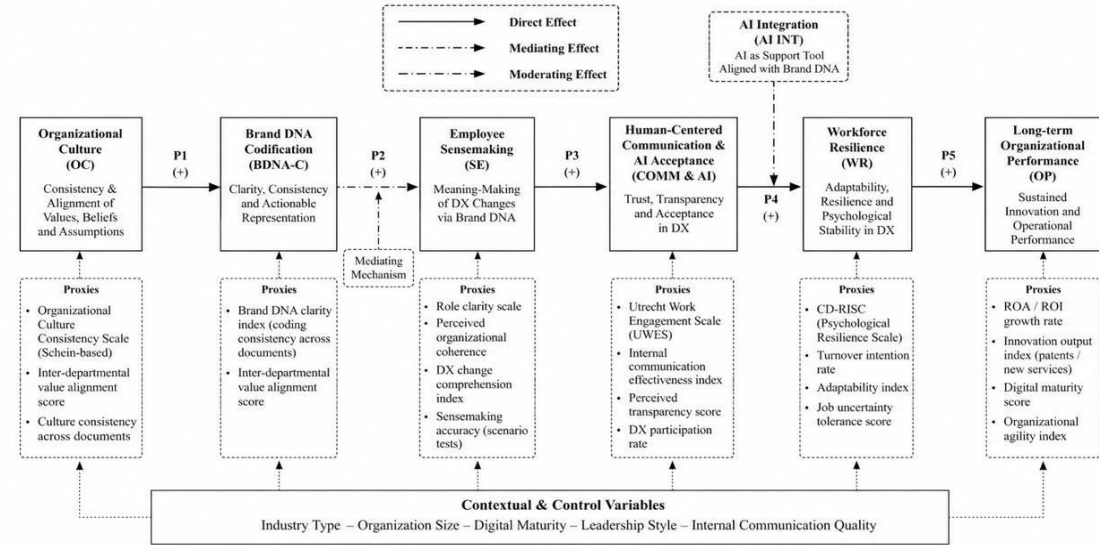


Figure 3. Conceptual Model and Research Propositions of the HC-BDNA Framework

(Source: Author's elaboration.)

The P1–P6 system forms an integrated causal chain: Organizational Culture, Brand DNA Codification, Sensemaking, Communication & AI Acceptance, Workforce Resilience, Organizational Performance. This chain ensures theoretical coherence while enabling empirical testing of each layer within the HC-BDNA model, either independently or in an integrated manner.

6. DISCUSSION

This study repositions brand identity and communication as central mechanisms in the process of digital transformation (DX). Through the Human-Centered Brand DNA model, the research shifts the focus from a “technology-driven” logic to a “culture-mediated” logic, emphasizing that the true driver of DX lies not in technology itself but in how organizations interpret and respond to it. The human and cultural foundation layer in the Human-Centered Brand DNA model functions as a coordinating mechanism, enabling organizations to selectively absorb and respond to technological impacts. This perspective aligns with sensemaking theory, which suggests that organizations actively construct meaning rather than passively react [4]. In the context of developing countries or organizations struggling to “humanize” AI, this focus

becomes particularly critical, as it provides a mechanism for implementing technology in a manner that is both sustainable and aligned with organizational values.

A key contribution of the Human-Centered Brand DNA model is its reconceptualization of Brand DNA as an integrative mechanism and the organization's "operating software." Rather than viewing AI and digital technologies as "substitute agents" for humans, the model positions them as "encoded agents" shaped by organizational culture and brand identity. Brand DNA provides a "meaning map" that enables employees to interpret and apply new technological tools in ways that align with organizational values, while ensuring that financial and technological resources are deployed efficiently and in harmony with cultural and strategic objectives. In this way, Brand DNA functions both as an integrative mechanism and a strategic filter, helping organizations maximize the value of technology without wasting resources.

The Human-Centered Brand DNA model also redefines the role of AI and digital platforms by shifting from a substitution logic to an augmentative logic. Following Lucy Suchman's perspective that technology is always shaped by social practices, AI and digital platforms in the model function as "digital mediators" that support human-centered communication rather than operating independently. Human-centered communication serves as the mechanism through which Brand DNA is internalized into organizational action, enabling employees to implement innovation and digital transformation (DX) initiatives consistently while minimizing internal resistance. Consequently, the effectiveness of AI relies not only on technical capabilities but also on its alignment with organizational value systems and the ways in which these values are communicated.

This study extends the digital transformation frameworks of Vial (2019) and Verhoef et al. (2021) by introducing a "humanized encoding" dimension that has been largely overlooked in prior research [1], [2]. The model emphasizes that culture and Brand DNA act as core coordinating mechanisms, human-centered communication internalizes values into action, and AI and digital technologies function as augmentative rather than substitutive tools. Furthermore, the model identifies critical boundary conditions—including digital readiness, leadership style, and skill diversity—that directly influence the operational effectiveness of the HC-BDNA mechanism in DX. Therefore, the study not only addresses a theoretical gap concerning the disconnection among existing research streams but also provides a novel framework for understanding and implementing sustainable digital transformation in the AI era, offering clear strategic guidance for managers on how to encode organizational identity and cultural values into digital technologies.

7. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The first limitation of this study lies in its purely conceptual nature. The paper uses an Integrative Literature Review (ILR) to develop the HC-BDNA framework. Therefore, the current findings are primarily theoretical propositions and framework construction rather than empirically validated results. Although the model is grounded in well-established theories such as Sensemaking [4], Organizational Culture [7], and Brand DNA [9], the main value of this study remains in extending the theoretical understanding of digital transformation (DX), rather than providing direct empirical evidence.

Related to this limitation, the study has not been tested using quantitative data or real-world case studies. The research propositions (P1–P6) are derived from interdisciplinary theoretical synthesis and reasoning. As a result, they do not capture the actual magnitude of relationships among variables such as Brand DNA, organizational behavior, or adaptability in digital environments. The absence of empirical validation methods such as Structural Equation Modeling (SEM) or organizational data analysis creates an important gap for future research to test the reliability and predictive validity of the HC-BDNA framework.

In addition, the validity of the model may be constrained by different boundary conditions across organizations. Specifically, leadership capability plays a critical role in translating culture into operational Brand DNA. Digital readiness may directly influence the applicability of the model in organizations with less developed technological infrastructure. Workforce skill diversity may also affect the effectiveness of meaning coordination mechanisms. These factors indicate that HC-BDNA is not universally generalizable and needs to be adapted to specific organizational contexts.

The high interdisciplinary nature of the framework, while creating significant academic value, also increases implementation complexity. This may lead to coordination challenges and the risk of conceptual overload for managers applying the model. Therefore, future research should focus on empirically testing propositions P1–P6, particularly through quantitative methods (SEM) or in-depth case studies, in order to better clarify the real-world operational mechanisms of Brand DNA in enhancing digital transformation effectiveness and organizational adaptability in the AI era.

8. CONCLUSION

This study emphasizes that digital transformation is not merely the deployment of technology, but rather an organizational–social–technological process in which people and organizational culture serve as the foundational elements. By proposing the Human-Centered Brand DNA model, the research offers an integrated strategic framework that aligns human values, brand identity, communication, and digital technologies, enabling organizations to implement digital transformation in a sustainable and highly adaptive manner. The model comprises five interconnected layers, wherein AI and digital technologies function as augmentative tools, while people and communication occupy central roles in coordinating change, facilitating learning, and driving innovation. Brand DNA acts as a strategic mechanism, translating cultural values into a coherent identity that guides communication and innovation activities, thereby maintaining consistency even when organizations implement new technologies or experiment with novel business models. The model highlights organizational communication as a core mechanism, fostering an environment that encourages participation, knowledge sharing, and reduces internal resistance. When implemented in a synchronized manner, the layers of the model collectively enhance organizational learning, enable rapid adaptation to environmental changes, and strengthen organizational resilience. From a practical perspective, this study provides guidance for managers and policymakers on balancing technology, people, and communication. Investing in a strong cultural foundation, clearly defining Brand DNA, and developing effective internal communication systems can optimize technology implementation, foster social integration, and generate tangible and sustainable economic value. Although this research is conceptual in nature, the Human-Centered Brand DNA (HC-BDNA) model opens avenues for future empirical studies, including quantitative surveys, structural equation modeling (SEM), or case studies to test the relationships among organizational culture, Brand DNA, communication, AI, and digital transformation outcomes. Considering contextual factors such as institutional environments, national culture, and industry characteristics can further extend the model's applicability and contribute to advancing theory on sustainable digital transformation globally.

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REFERENCES

- [1] G. Vial, "Understanding digital transformation: A review and a research agenda," *J. Strategic Inf. Syst.*, vol. 28, no. 2, pp. 118–144, 2019, doi: <https://doi.org/10.1016/j.jsis.2019.01.003>
- [2] P. C. Verhoef *et al.*, "Digital transformation: A multidisciplinary reflection and research agenda," *J. Bus. Res.*, vol. 122, pp. 889–901, 2021, doi: <https://doi.org/10.1016/j.jbusres.2019.09.022>
- [3] K. Schwab and S. Zahidi, *The Global Competitiveness Report 2020: How Countries Are Performing on the Road to Recovery*. Geneva, Switzerland: World Economic Forum, 2020. [Online]. Available: <https://www.weforum.org/publications/the-global-competitiveness-report-2020/in-full/>
- [4] K. E. Weick, *Sensemaking in Organizations*. Thousand Oaks, CA, USA: Sage Publications, 1995.
- [5] L. A. Suchman, *Human Machine Reconfigurations: Plans and Situated Actions*, 2nd ed. Cambridge, U.K.: Cambridge University Press, 2007, doi: <https://doi.org/10.1017/CBO9780511808418>
- [6] W. J. Orlikowski, "Sociomaterial practices: Exploring technology at work," *Organization Studies*, vol. 28, no. 9, pp. 1435–1448, 2007.
- [7] E. H. Schein, *Organizational Culture and Leadership*, vol. 2. Hoboken, NJ, USA: John Wiley & Sons, 2010.
- [8] S. Albert and D. A. Whetten, "Organizational Identity," in *Research in Organizational Behavior*, vol. 7, L. L. Cummings and M. M. Staw, Eds. Greenwich, CT, USA: JAI Press, 1985, pp. 263–295.
- [9] D. A. Aaker, *Building Strong Brands*. New York, NY, USA: Simon & Schuster, 2012.
- [10] D. B. Holt, *How Brands Become Icons: The Principles of Cultural Branding*. Boston, MA, USA: Harvard Business Press, 2004.
- [11] E. Brynjolfsson and A. McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. New York, NY, USA: W. W. Norton & Company, 2014.
- [12] L. Floridi, *The Fourth Revolution: How the Infosphere is Reshaping Human Reality*. Oxford, U.K.: Oxford University Press, 2014.
- [13] M. J. Hatch, *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, 4th ed. Oxford, U.K.: Oxford University Press, 2018.
- [14] G. C. Kane *et al.*, "Strategy, not technology, drives digital transformation," *MIT Sloan Management Review*, vol. 14, no. 1, pp. 1–25, 2015.