

ARTIFICIAL INTELLIGENCE (AI): HOW CAN AI INFLUENCE THE CULTURAL INNOVATION PROCESS THROUGH PRODUCTS AND SERVICES?

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ABSTRACT

Purpose -This paper explores how Artificial Intelligence (AI) can influence cultural innovation processes through the introduction of products and services that induce behavioral change.

Design/methodology/approach - The study adopts a descriptive literature review methodology, combining academic sources with institutional and industry evidence, to analyze AI-induced behavior change within a cultural innovation framework.

Findings - The analysis shows that even at its current limited-memory stage, AI contributes to cultural innovation by reshaping consumer behavior, organizational routines, institutional norms, epistemic authority, and aesthetic valuation.

Originality - The paper positions AI-induced behavioral change as a form of cultural innovation, operationalized through four distinct cultural innovation process types.

Practical implications - The framework can assist managers, policymakers, and designers in anticipating cultural effects of AI-enabled products and services.

Social implications - AI-driven cultural innovation may contribute to the emergence of new subcultures, norms, and social expectations, raising important societal and ethical considerations.

KEY WORDS

Artificial Intelligence; Cultural Innovation Process; Behavioral Change; Value Creation; Human–AI Interaction

1 Introduction

This is a theoretical paper expressing my viewpoint and aiming at opening a discussion about the potential future influence of Artificial Intelligence in the creation of new behaviors through the introduction of

products (goods or services), resulting directly or indirectly from AI actions, in the consumption market, which will induce changes in consumers and societal cultures or sub-cultures, thereby producing cultural innovation.

Apart from the literature review on Artificial Intelligence (Turing, 1950) and cultural innovation processes (Fernandes, 2014), to frame and provide a reasoning and understanding of its content, the article points out some existing examples of AI application in the production of products (goods or services) that already induced new human behavior, therefore, changes in culture (Russell and Norvig, 2022).

AI is still in its early development stage, identified as the “limited memory” stage of AI (Hintze, 2016), and its action scope limitations are already enormous. Despite this fact, we can already find some indications of new behavior in the consumers and societal realm that are synonymous with cultural changes, with special interest in the arts field.

This study identifies examples of AI applications in the creation or production of new products (goods or services) that contribute to consumer behavior changes and societal interactions and relationships (Fernandes, *ibid.*).

Despite the fact that this paper is only based on a limited analysis of existing academic, professional, and other literature, it does not diminish the importance and effect of cultural changes that are created by the current stage of development of AI in products (goods or services), nor does it restrain one to try to foresee what AI might bring in terms of cultural innovation in the medium-to long-term future. This is quite evident, as indicated in this study.

The paper is composed of four distinct parts: (i) a brief description of the methodology used to conduct the research related to the main subjects of the paper; (ii) a literature review focusing on the prevailing scientific and public understanding of Artificial Intelligence (AI), together with a revisitation of a theoretical model previously developed by the author that leads to the concept of cultural innovation of products; (iii) an interpretation of relevant facts that indicate the existence of a correlation between AI and the cultural innovation of products; and (iv) a tentative assessment of the current and future effects of AI on the process of cultural innovation of products.

2 Research Methodology

A transparent and rigorous methodology is fundamental to academic research. This section outlines the research approach employed in this study, which is based on a comprehensive literature review.

The study was designed to answer the following research question: *How do AI-based technologies induce behavioral adaptation and cultural change through new patterns of use, cultural norms, learning behaviors, and art and creativity?* To address this question, a descriptive literature review methodology was adopted (Paré et al., 2015), following a structured four-phase process: (i) defining the scope of the relevant literature; (ii) searching for literature using identified keywords; (iii) analyzing and selecting content; and (iv) interpreting the selected information.

The search was conducted using Google Scholar and other open-source databases to identify peer-reviewed academic articles and conference papers. In addition, Google was used to collect media sources and public social-media news related to industrial and societal events associated with AI and cultural innovation induced by products. The search employed keywords such as *artificial intelligence, behavioral adaptation, technology adoption, behavior change, culture, cultural value, cultural innovation, social norms, arts and creativity, and human–AI interaction*. The primary focus of the search was on artificial intelligence (AI) and the cultural innovation of products.

An initial phase of the literature search was conducted in 2022 for purposes other than this paper. A final search, including a revisitation of selected initial findings, was conducted by the end of 2025.

3 Literature Review

3.1 Artificial Intelligence

Can machines think? (Turing, *ibid*). This long-time question is still current, and the subsequent “Turing test” has not yet been overcome. In the seminal work “As We May Think” (Bush, 1945), the author proposed a system that amplifies people’s own knowledge and understanding. Five years later, Turing (*Op. cit.*) wrote a paper on the subject of machines being able to simulate human beings and their ability to do intelligent things, such as play chess.

The term artificial intelligence (AI) was first coined by John McCarthy in 1956 when he held the first academic conference on the subject (Moor, 2006; Smith et. al., 2006). Artificial Intelligence is now understood as a method of making a computer, a computer-controlled robot, or a software that intelligently thinks like the human mind. AI is accomplished by studying the patterns of the human brain and analyzing cognitive processes.

Russell and Norvig (*Op. cit.*) explored four different approaches that have historically defined the field of AI: (i) thinking of humanly mimicking thought based on the human mind; (ii) thinking rationally—mimicking thought based on logical reasoning; (iii) acting in a manner that mimics human behavior; and (iv) acting rationally in a manner that is meant to achieve a particular goal.

The first two ideas are related to processes and reasoning, whereas the others deal with behavior. Russell and Norvig (*ibid.*) focus particularly on rational agents that act to achieve the best outcome, noting that “all the skills needed for the Turing Test also allow an agent to act rationally.” (Harris, 2022).

Hintze (2016) stated that AI can be divided into four categories based on the type and complexity of the tasks that a system can perform. For example, automated spam filtering belongs to the most basic class of AI, whereas the far-off potential for machines that can perceive people’s thoughts and emotions is part of an entirely different AI subset. The four categories are as follows:

a) Reactive machines that can perceive and react to the world in front of it as they perform limited tasks. A reactive machine follows the most basic AI principles and, as its name implies, is capable of using only its intelligence to perceive and react to the world in front of it. A reactive machine cannot store memory, and as a result, cannot rely on past experiences to inform decision-making in real time. Perceiving the world directly means that reactive machines are designed to complete only a limited number of specialized duties. Intentionally narrowing a reactive machine’s worldview is not a cost-cutting measure; instead, it means that this type of AI will be more trustworthy and reliable — it will react in the same way to the same stimuli every time.

b) Limited memory is related to machines that can store past data and predictions to inform predictions of what may come next. Limited memory AI is created when a team continuously trains a model to analyze and utilize new data or when an AI environment is built so that models can be automatically trained and renewed. The model must be able to receive human or environmental feedback that must be stored as data, and these steps must be repeated as a cycle.

There are several models that utilize limited memory AI: (i) reinforcement learning, which learns to make better predictions through repeated trial and error, and (ii) recurrent neural networks (RNN), which use sequential data to obtain information from prior inputs to influence the current input and output. These are commonly used for ordinal or temporal problems, such as language translation, natural language processing, speech recognition, and image captioning; and (iii) evolutionary generative adversarial networks (E-GAN), which evolve over time, growing to explore slightly modified paths based on previous experiences with every new decision. This model is constantly pursuing a better path and utilizes simulations and statistics, or chance, to predict outcomes throughout its evolutionary mutation cycle; and (iv) transformers, which are networks of nodes that learn how to perform a certain task by training on existing data. Instead of having to group elements together, transformers can run processes such that every element in the input data pays attention to every other element. Researchers refer to this as “self-attention,” meaning that as soon as it starts training, a transformer can see traces of the entire dataset.

c) Theory of mind: AI will be able to make decisions based on its perceptions of how others feel and make decisions, as we have not yet achieved the technological and scientific capabilities necessary to reach the next level of AI. The concept is based on the psychological premise of understanding that other living things have thoughts and emotions that affect one's own behavior. In terms of AI machines, this would mean that AI could comprehend how humans, animals, and other machines feel and make decisions through self-reflection and determination and then utilize that information to make decisions on their own.

d) Self-awareness AI can operate with human-level consciousness and understand its own existence. Once the theory of mind can be established, sometimes well into the future of AI, the final step will be for AI to become self-aware. This type of AI possesses human-level consciousness and understands its own existence in the world, as well as the presence and emotional state of others. It would be able to understand what others may need based not just on what they communicate to them, but how they communicate it. Self-awareness in AI relies on human researchers understanding the premise of consciousness and learning how to replicate it so that it can be built into machines.

According to Devexpert Blog, that reflex a crowd understanding of the subject, the current state-of-the-art AI is still in the second stage, that is, in limited-memory AI machines. Despite this early stage of AI development, what exists so far has provoked many changes in the way we live. This is discussed later in this paper.

3.2 From Value to Cultural Innovation

Before we try to understand cultural innovation, we must revisit what is at its genesis: the value of things. Value is the relation between benefits and sacrifice. When one wants to acquire something in order to obtain some kind of benefit from that, some sort of sacrifice has to be involved to accomplish the same acquisition.

Products have value. This can be of different types – use value, or value as utility, economic value, or value as exchange, cultural value, or value as meaning and sign, and perception value, or value as experience (Jensen, 2005).

To operationalize that multifaceted understanding of value, a visual and holistic framework is indispensable. Such a model allows strategists and innovators to map the entire value creation journey, from an abstract concept to a tangible, culturally significant market offering. The Holistic Value Construct Model (Fernandes, 2012) provides this essential map and represents the first step toward resolving the value paradox I have identified.

The model is structured along two primary axes, creating four distinct but interconnected quadrants:

- Vertical Axis (Value Materialization): Ranging from Simple (e.g., distribution, consumption) to Complex (e.g., R&D, conceptualization), this axis represents the complexity of the process used to create value.
- Horizontal Axis (Value Form): Ranging from Tangible (e.g., utility, price) to Intangible (e.g., ideas, meaning), this axis defines the nature of the value itself.

These axes define four archetypal domains where value is created and resides:

- Complex-Intangible Quadrant (R&D/Creation-Conceptualization): This is the genesis of all value. It is the realm of pure ideas, scientific discoveries, and abstract concepts where value is potential and intangible.
- Complex-Tangible Quadrant (Technology/Production): This quadrant represents the pathway of technological production. Here, intangible concepts are transformed into functional products through scientific knowledge, engineering, and manufacturing.
- Simple-Intangible Quadrant (Culture/Construction): This quadrant represents the pathway of cultural construction. Here, products are imbued with meaning, emotion, and symbolism through branding, storytelling, and social adoption, shaping attitudes and behaviors.

- **Simple-Tangible Quadrant (Distribution/Utilization):** This is the commercial and economic sphere where the value creation journey culminates. Here, exchange value is realized and use value is experienced by the end-user.

The model's application is clearly illustrated through two distinct examples. A coffee machine primarily follows the technological path: an idea conceived in the *Complex-Intangible* quadrant is engineered in the *Complex-Tangible* quadrant to produce a functional appliance that is ultimately sold and used in the *Simple-Tangible* quadrant. Conversely, Shakespeare's *Romeo and Juliet* primarily follows the cultural path: a creative concept (*Complex-Intangible*) was transcribed into a written play and performed - a process of cultural construction that created immense emotional and symbolic meaning (*Simple-Intangible*). While it has tangible forms like books and tickets that are exchanged (*Simple-Tangible*), its most profound value is intangible and cultural.

While this model maps the static *domains* of value, it is the dynamic force of innovation that dictates the pathways between them - a dual force of technological production and cultural construction that we will now deconstruct.

A monolithic view of innovation as solely R&D-driven is insufficient for today's competitive landscape. I argue that successful firms must master two distinct yet interconnected innovation pathways that correspond directly to the production and construction processes identified in the Holistic Value Construct. The Technological Innovation Path is the engine that drives an idea from the *Complex-Intangible* quadrant through the *Complex-Tangible* production process, while the Cultural Innovation Path is the force that shapes its meaning in the *Simple-Intangible* quadrant.

The Technological Innovation Path

Technological innovation concerns the application of knowledge to create tangible outcomes. The Technological Innovation Construct Model (Fernandes, 2014) maps this domain using two axes: the Creation Process (from Procedural to Loosen) and the Value Curve outcome (from a Modified curve to a New one).

This framework yields four archetypes:

- **Planned/Structured:** This R&D-based innovation follows well-defined procedures to achieve predictable results or improvements. A prime example is the development of hybrid cars. Also, the first drones, products made by 3D printing technology, communication satellites, first computer and programming languages are clear examples of this type of technological innovation. This archetype often underpins Upgrading Innovation strategies focused on incremental differentiation.
- **Targeted/Objective-Driven:** This innovation responds to specific market needs with a focus on design and user experience. Cirque du Soleil exemplifies this by re-imagining the circus for a sophisticated audience. But, design furniture, restricted personal and collective equipment, jewelry and other artistic artifacts, conceived to satisfy aesthetic and functional needs of specific market niches, are examples of this type of technological innovation. It is frequently associated with Value-Added Innovation strategies that layer intangible value onto a product.
- **Adopted/Adapted:** Based on imitation and applying existing knowledge in new ways, this approach often leads to minor changes, such as through cost-reduction processes. Newly modified household appliances, sports equipment, utilitarian furniture, all improved to facilitate use or follow use trends are day to day examples of this innovation. This archetype is the engine for Turnaround Innovation strategies that leverage commoditization.
- **Serendipitous/Stochastic:** Resulting from accidental discoveries within a loose, experimental process, this innovation can create entirely new markets. Famous examples include Velcro, penicillin, Post-It Notes and the microwave oven. This archetype is a common origin for Breakthrough Innovation strategies that establish entirely new value curves.

The Cultural Innovation Path

Cultural innovation involves creating or changing collective behaviors and meanings. Fernandes (2014), drawing on Schwartz's (1996) value system, proposes four archetypes of cultural innovation, named

with neologisms to emphasize their unique drivers. The Cultural Innovation Construct Process Model maps this domain using axes of Cultural Collective Values (Conservation to Open to change) and Cultural Individual Values (Self-enhancement to Self-transcendence).

- Neowel: The first archetype, Neowel, describes cultural shifts fundamentally driven by the adoption of new technologies. These technologies create new habits and social norms, as exemplified by the behaviors created by smartphones and social media.
- Beutel: This cultural change is driven by the adoption of new aesthetics. It emerges from creative fields and introduces new styles that become culturally significant, such as the societal impact of new fashion like the miniskirt or new music genres like jazz.
- Moral: This innovation is driven by the adoption of new codes, rules, and laws that shape collective behavior. Public health campaigns against “drink n’ drive” or mandates for vaccination have successfully created new, widely accepted social norms.
- Gnosil: This cultural change is driven by the adoption of new knowledge, often related to science or health, which inspires new lifestyles. The popularization of activities like jogging with an iPod or adopting a raw food diet based on health information are examples.

Understanding these dual paths of innovation is critical, but true strategic mastery comes from synthesizing them to navigate the fundamental tensions in the modern marketplace.

4. Discussion - Impact of AI on Cultural Innovation Processes

This study aimed to identify potential areas of uncertainty provoked by the development and implementation of AI in our technological and societal systems.

For this purpose, I will identify some examples of AI developments and how they relate to the cultural innovation processes of products (goods and services) and events, as both of these are pathways to induce cultural change.

The following innovation examples, in which developments were based on AI, might have a direct or indirect impact, larger or smaller, on consumer preferences, choices, and confidence in products (goods or services) or events.

a) In the realm of the Neowel cultural innovation process type – new technologies, we may find typical examples such as air-traffic control (Ortner et.al, 2022), managed by AI, predicting air traffic and potential harming events in aviation, medical diagnosis, where AI can be used to detect the progress of certain diseases, as in Parkinson’s patients (Zewe, 2022) or, AI techniques that can be used successfully to study and analyze stock market activity and perform automatic trading (Chopra & Sharma, 2021). This technological advancement allows for an increase in the efficiency of previous systems, which will bring value to society.

For the common consumer, AI is most felt in areas such as customer services, where a virtual assistant is a commercial direct interlocuter or a helper for surveillance of older people (Chacur, 2021); however, autonomous car driving capabilities that can substitute the driver are many particular dangers and difficult driving situations (Díaz & Soriguera, 2018).

All these innovations, brought about by AI, might have eased users and consumers’ utilization of products and created more confidence in the use of such products (goods or services) and, consequently, in AI. Added value to consumers and society is mainly at the use value and cultural value levels as well as at the perception value level.

A further (post-2022) wave of “new technologies” is the migration from narrow AI tools to generative and large multimodal models embedded into operational workflows, which in turn creates new types of service encounters and socio-technical routines. For example, telecom operators have publicly described using generative AI to predict why customers are calling and route them to the best agent, effectively creating a new “AI-mediated triage” layer in customer service (Mukherjee, 2024).

In robotics, the emergence of vision-language-action models (e.g., RT-2) demonstrates a different “new technology” case: models pretrained on web-scale data can transfer semantic reasoning into physical task

execution, creating new human expectations about what “general-purpose” robots can do (Brohan *et al.*, 2023; Chebotar and Yu, 2023).

In medical screening (beyond single-disease progression monitoring), population-based evidence has shown AI-assisted mammography can reduce radiologist workload while improving screening performance, which creates new institutional routines (e.g., redefining “second reader” roles and accountability in screening pathways) (Lauritzen *et al.*, 2024).

Finally, the World Health Organization’s 2024 guidelines on ethics and governance of large multimodal models for health signals that these models are becoming a distinct class of health-related technology, thereby creating new adoption pathways (and new uncertainty surfaces) compared to earlier clinical decision-support systems (WHO, 18 Jan 2024).

b) Regarding Moral cultural innovation process type – new codes, new rules, and laws—we might identify examples of AI learning and create new languages (Zewe, 2022), through the creation of new codes and rules for language that can be comprehended and adopted by humans, inducing cultural changes.

The same occurs with the use of AI as a tool for independent and fairer judgments, as a benefit to society, avoiding human prejudice, bias, and errors that human judges may incur (Hao & Stray, 2019). This kind of AI solution, apart from substituting human actions and decisions, might create greater confidence in consumers, users, and society in the digital solution as opposed to the existing human system, with clear benefits at the level of use and cultural levels.

Since 2022, generative AI has begun to appear not only as an object of regulation, but also as an instrument used in drafting and operationalizing rules. A concrete example is the reported use of ChatGPT by a U.S. state lawmaker to help draft definitional language in a bipartisan Arizona law regulating election deepfakes (e.g., defining “digital impersonation”), demonstrating AI-assisted creation of legal “codes” in the literal sense (Leingang 2024).

At the level of political practice and institutional signaling, a member of the U.S. Congress delivered what was reported as the first AI-generated speech on the House floor (Leblanc, 2023), illustrating how AI can generate new rhetorical artifacts that become precedent-setting “micro-events” in legislative culture.

On the formal governance side, the EU Artificial Intelligence Act (Regulation (EU) 2024/1689), entering into force on August 1, 2024, creates a major new codified framework for AI across the EU, with risk-based obligations that are likely to shape organizational norms and consumer expectations (EU). Complementing statutory rules, widely adopted governance “codes” have also emerged. NIST’s AI Risk Management Framework (AI RMF 1.0) provides voluntary guidance that many organizations treat as quasi-standard in practice (NIST, 2023).

In addition, ISO/IEC 42001:2023—the first AI management system standard—codifies organizational requirements for managing AI systems, creating a new compliance and assurance pathway that can function culturally like other ISO-driven norms (ISO, 2023).

Finally, parliamentary and democratic institutions explicitly document AI use cases (including chatbots to help interpret bills and amendments), which institutionalize new procedural norms around how citizens and lawmakers interact with legal texts (Inter-Parliamentary Union, 2023).

c) In the area of the Gnosil cultural innovation process type – new knowledge—AI is yet too far away from the point where it will be able to create new knowledge, by itself, which will affect human behavior. However, recent experiments on the production of scientific articles by computers (Conner-Simons, 2015), which have been able to trick conferences and journal reviewers, show how a machine can use existing data and information to create new knowledge. In the future, AI may produce new knowledge, and the cultural impact on consumers and society will be out of the current previsions.

However, since 2022, several high-profile results suggest that AI can already contribute to “new knowledge” in the narrow but meaningful sense of discovering novel solutions in mathematics, computer

science, and materials science—outputs that are not merely rephrasings of existing text. For instance, DeepMind’s AlphaTensor discovered new matrix multiplication algorithms that improved on long-standing baselines for specific matrix sizes, representing algorithmic novelty in a core mathematical operation (Fawzi *et al.*, 2022).

Similarly, AlphaDev discovered faster low-level sorting routines “from scratch” and these were integrated into a widely used standard library (LLVM libc++), showing AI-originated micro-innovations becoming part of global software infrastructure and thereby affecting downstream technological cultures (Mankowitz *et al.*, 2023; Mankowitz & Michi, 2023).

In scientific discovery, the GNoME system predicted large numbers of previously unknown stable crystal structures, an explicit claim to accelerate material knowledge generation, thus creating new candidate materials for batteries, semiconductors, and other technologies (Merchant *et al.*, 2023; Merchant & Cubuk, 2023; Biron, 2023).

In biomedicine, deep learning has also been reported to enable the discovery of novel structural classes of antibiotics, pointing toward the AI-assisted expansion of chemical and therapeutic knowledge (Wong *et al.*, 2024).

Taken together, these cases strengthen the argument that while broad autonomous “scientific reasoning” remains limited, AI is already generating discrete, testable, and in some cases deployable increments of new technical knowledge that can propagate into culture through products, standards, and scientific institutions (Mankowitz, Op sit.).

d) Finally, in the realm of the Beutel cultural innovation process type – new aesthetics—AI is creating new waves of outputs that are generating new discussions on the value that can be given to the new outputs.

In the far year of 1957, Lejaren Hiller and Leonard Isaacson presented the first musical composition constructed by an AI system, named the Illiac Suite (Hiller and Isaacson, 1959). Departing from the first experiment, the number of pieces of music constructed or assisted by AI since then that we can find on the Internet is astonishing. One can spend days listening to different AI playlists.

Apart from music, the participation of AI in the arts has been well documented and characterized (Romero *et al.*, 2020). Nevertheless, one of the most controversial outputs of AI in the field of arts is the development of complex images (Gordon, 2022) and prize-winning paintings generated with the help of AI (Roose, 2022) which might change the way we see and value art. We are not yet at the stage where AI can create new art by itself, as a result of its own imagination, inspiration, creativity and creation of new artistic methods, even this might seem very remote or impossible to many. However, the utilization of AI by artists to create new pieces of art, mainly in the music and painting fields, is generating new artistic waves, and a consequent discussion on its value: use, cultural, and economic. This will be considered in the next section.

In the last few years, generative AI has expanded “new aesthetics” beyond static images into exhibitions, cinema, and synthetic performance, creating new cultural events and new disputes about authenticity, consent, and artistic labor. In the museum context, Refik Anadol’s large-scale generative installation, unsupervised at MoMA (first shown in 2022 and extended due to popularity), illustrates how AI can produce continuously evolving, data-driven aesthetics that function as mass-attendance cultural events, not merely individual artworks (Christie’s, 2025).

In film and media production, AI-specific festivals and competitions have emerged as new events that curate and legitimize AI-generated aesthetics (e.g., Runway’s AI Film Festival winners announced in 2023), which institutionalizes new norms for what counts as cinematographic craft when generation tools are part of the pipeline (Deikova, 2023).

Text-to-video generation adds another aesthetic frontier by enabling “synthetic cinematography” from prompts, which is frequently discussed in relation to how moving-image creation may shift from camera-centered to model-centered workflows, with immediate implications for cultural production costs and stylistic experimentation (Associated Press, 2024).

In music, the viral 2023 “Heart on My Sleeve” track (AI-generated imitation of Drake/The Weeknd vocals) became a widely cited cultural flashpoint: it created a new aesthetic category—high-fidelity “fake collaborations”—and triggered responses from platforms and institutions regarding eligibility, rights, and the boundaries of acceptable artistic borrowing (Axios, 2023).

These post-2022 examples show that AI not only assists artists but also creates new aesthetic genres (synthetic voice and synthetic video), new cultural events (AI film festivals and museum-scale generative installations), and new valuation disputes (eligibility, provenance, training-data legitimacy), all of which directly map onto beutel-type cultural innovation.

5. Conclusions

AI is still in its early stages of development. The Limited Memory stage, where AI currently stands, has not been fully explored, and many potential developments and applications of AI at this stage are far from being accomplished. Even though we can already perceive that society is investing strongly in the development of AI to progress to new stages, the overall societal and cultural impact is still unfolding. Thus far, despite the fact that the impact of current AI development is not yet fully or uniformly felt by consumers and society, its applications are of great relevance, creating or generating new value in all four aspects identified in the literature: use, economic, cultural, and perception value (Jensen, Op sit.).

Most AI applications are currently concentrated in the fields of medicine, aviation, security, customer services, the arts, music, and language. As discussed in this paper, many of these applications induce cultural change, which is synonymous with cultural innovation. Cultural innovation, in turn, leads to the emergence of new subcultures or, in some cases, entirely new ones. These processes are not limited to the introduction of new technologies or products but extend to changes in norms, expectations, decision-making patterns, and forms of interaction between humans and technological systems.

Beyond the concrete examples previously presented, recent literature suggests that AI is likely to influence behavior changes across different time horizons. In the short term, AI-driven behavior change is expected to occur mainly through assistance, automation of microdecisions, and reduction of cognitive and transactional friction (Hermann & Puntoni, 2024). As AI increasingly mediates information search, comparison, recommendation, and customer interaction, individuals are likely to adapt their behaviors by delegating routine cognitive tasks to the algorithmic systems. This delegation may result in faster decision-making and increased convenience but also in greater reliance on AI-generated outputs and reduced critical scrutiny (Brynjolsson, Li & Raymond, 2023; OECD, 2025). In organizational contexts, AI-assisted work is already modifying learning curves, performance standards, and perceptions of expertise, thereby reshaping professional behavior and work-related norms (WHO, Op sit.).

In the medium term, the literature anticipates that AI will influence behavior more deeply by reshaping social and institutional norms. The availability of AI tools in education and training is expected to alter how individuals study, write, solve problems, and demonstrate competence, leading to new conventions regarding acceptable AI assistance and new forms of assessment (Unesco, 2023/2025). In consumer and social environments, increasingly adaptive AI systems are likely to influence habits, preferences, and choices through personalized recommendation systems and dynamic choice architectures (NIST). These developments may subtly redefine the notions of autonomy, informed choice, and responsibility. Simultaneously, the normalization of AI-mediated social interaction, including conversational agents and virtual companions, may affect emotional expression, social rehearsal, and interpersonal expectations, particularly among younger or more vulnerable populations (De Freitas *et al.*, 2025; Pentina, *et al.*, 2023).

In the long term, AI-induced behavioral changes are expected to manifest at a structural and cultural level. As AI-generated and synthetic content becomes pervasive, individuals and institutions are likely to adopt new behaviors related to trust and verification, shifting from default assumptions of authenticity toward systematic validation practices (Le Poidevin, 2025). Furthermore, as AI systems become embedded in governance, healthcare, finance, and legal decision-making processes, behavioral changes may arise from the redefinition of roles, accountability, and authority. Humans may increasingly act as supervisors, validators, or challengers of machine-generated outputs rather than as sole decision makers, leading to transformations in professional identities and societal expectations of expertise (OECD, Op sit.; NIST, Op sit.).

As Triandis (1996) points out, culture can be divided into objective culture (e.g., roads, buildings, and tools) and subjective culture (e.g., beliefs, attitudes, norms, values, and role definitions), manifested by consistent elements among those who share a language, historic period, and geographic location. The globalization of information, technology, products (goods and services), commerce, and art is progressively lowering barriers to two of the three fundamental pillars of culture: shared language and geographic location. The remaining pillar - the historic period - is currently characterized by postmodern philosophical perspectives and global access to goods and services. Within this environment, AI operates not only as a technological driver but also as a catalyst for cultural convergence and differentiation.

Taken together, the technological, moral, epistemic, and aesthetic dimensions of AI-driven innovation discussed in this paper suggest that AI will play a central role in the formation of new subcultures and possibly new cultures on a global scale. These cultural transformations will likely emerge less from isolated technological breakthroughs and more from sustained interactions between AI systems, institutional frameworks, market incentives, and social norms. Consequently, the study of AI as a driver of cultural innovation and behavioral change represents an open and fertile field for future research across multiple disciplines of science and knowledge.

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