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A Comparative Analysis of Adoption Patterns and Human-AI Collaboration in Asia-Pacific Digital Art:
AI-Generated Content Impact on Creative Industries

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ABSTRACT

The integration of artificial intelligence (AI) into creative industries is rapidly transforming how content is produced, distributed, and interpreted. This study uses a sociotechnical lens to investigate the adoption and diffusion of AI-generated content (AIGC) across media, gaming, and marketing sectors in the Asia-Pacific region. Grounded in sociotechnical systems and innovation diffusion theories, its research employs a quantitative methodology using secondary data sources to analyze patterns of technological integration, regulatory influence, and creative workflow evolution. Findings indicate that the uneven adoption of AI across sectors is shaped not only by a sector's technological capabilities but also by its institutional readiness, national policy frameworks, and cultural attitudes toward automation. The study highlights the importance of human-centered design, ethical considerations, and platform dynamics in facilitating the sustainable and equitable implementation of AI tools.

KEYWORDS

Artificial Intelligence, Creative Industries, AI-Generated Content, Sociotechnical Systems Theory, Innovation Diffusion, Digital Transformation, Asia-Pacific

INTRODUCTION

The creative industries are undergoing a profound transformation as artificial intelligence (AI) technologies increasingly mediate processes of content creation, distribution, and evaluation (Cao et al., 2025; Anantrasirichai & Bull, 2022). AI-generated content (AIGC) tools—ranging from generative design platforms to automated video editors—are reshaping artistic workflows, redefining authorship, and introducing new forms of human-machine collaboration (Xu & Gao, 2024; Dellermann et al., 2019). In this dynamic ecosystem, AI is no longer a peripheral tool but a central actor that influences both aesthetic outcomes and organizational practices (Walker et al., 2008; Carayon, 2006).

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However, the adoption of AI in creative domains does not follow a uniform trajectory. Prior studies suggest that diffusion processes are mediated by technological, institutional, and cultural variables, such as infrastructure, digital literacy, and regulatory regimes (Zhu & Kraemer, 2024; Berry & Berry, 2018). For instance, national policies on copyright, innovation funding, and platform governance critically shape how creative professionals engage with AI systems (Ibanet, 2023). Moreover, the diffusion of AI tools in sectors such as media, gaming, and design reflects not just technological readiness but also evolving attitudes toward automation and authorship (Robertson, 1967).

From a theoretical perspective, sociotechnical systems theory (STS) offers a valuable lens for understanding the complex interplay between AI systems and human actors in creative settings. This framework examines how technological tools and social structures mutually shape one another, rather than treating technology as a standalone force (Trist & Bamforth, 1951; Cooper & Foster, 1971; Mumford, 2006). In practical terms, STS emphasizes that successful AI implementation requires more than technical capability—it demands careful attention to how creative professionals experience these tools, how organizational workflows adapt, and how artistic identity evolves alongside automation. When AI systems are introduced without considering these human dimensions, organizations often encounter resistance, diminished job satisfaction, and creative tension (Selbst et al., 2019; Kudina & Van de Poel, 2024). Similarly, innovation diffusion theory offers insights into the temporal and relational dynamics that inform technology adoption, including perceived usefulness, compatibility with existing practices, and the influence of early adopters within professional networks (Rogers, 2003; Zhu et al., 2006).

Yet, despite growing interest in AIGC, empirical studies capturing regional variations in adoption patterns remain limited, especially in Asia-Pacific creative sectors. Existing research often overlooks the sociotechnical mechanisms (the dynamic interplay between technology design, organizational culture, and human adaptation) and policy-driven factors that shape AI diffusion across diverse creative ecosystems (Sturm et al., 2021). For instance, a Japanese animation studio may adopt AI rendering tools to accelerate production timelines while simultaneously negotiating concerns about artistic authenticity and employment stability—a tension shaped by both technological capabilities and cultural values surrounding craftsmanship. This study addresses that gap through a multilayered analysis of secondary data, integrating theoretical insights from STS and diffusion models to examine how AI transforms creative labor, decision-making, and innovation structures across media, gaming, and marketing sectors in the Asia-Pacific region.

RQ1. How do AI adoption patterns and content generation volumes vary across different creative industry sectors (media, gaming, and marketing) in Asia-Pacific markets, and what factors contribute to the gaming industry's emergence as the leader in AI integration with 60.4% adoption rates and 44.5 terabytes of annual AIGC?

RQ2. What is the relationship between regulatory frameworks and human-AI collaboration rates in creative industries, and how do varying levels of regulatory oversight (strict, moderate, and lenient) influence both consumer trust levels and collaborative working arrangements between creative professionals and AI systems?

RQ3. How have temporal patterns of AI tool preferences and human-AI collaboration evolved across Asia-Pacific creative industries from 2020 to 2025, and what implications do these trends hold for sustainable integration models that balance technological advancement with workforce preservation in digital art and design sectors?

These research questions collectively address the intersection of technological innovation, regulatory policy, and human-centered design principles that characterize the contemporary landscape of AI-assisted creative production in Asia-Pacific markets, providing essential insight into the future trajectory of digital art and design industries.