Editorial Note
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Editorial Note of Special Issue on "Cultural Science and Technology"

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The proliferation of digital technologies—including platforms, big data analytics, algorithms, virtual reality (VR), augmented reality (AR), the metaverse, and artificial intelligence (AI)—has been extensively incorporated within the arts and cultural sectors. The 2019 "Digital Environment" report by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) underscores the pivotal role of the cultural technology industry as a dynamo for the digital economy, contributing in excess of USD 200 billion globally to digital technology sales. The exigencies of the Covid-19 pandemic from 2020 to 2023 have catalyzed the development of novel cultural technologies, driven by the heightened demand for online museums, exhibitions, and cultural performances. Concurrently, enterprises have harnessed big data to precisely target potential consumers, thereby exerting substantial influence on the cultural ecosystem and its modes of dissemination.

In light of these developments, the academic community has concentrated on several critical issues within the domain of cultural technology. Primary considerations include: the capacity of cultural technologies to cultivate a more vibrant and economically significant cultural industry, transcending temporal and spatial constraints to augment the cultural experience; the role of these technologies in enhancing cultural access, public engagement, and the fortification of the cultural public sphere, thereby nurturing cultural diversity and equity; and the equitable distribution of economic gains derived from cultural technologies, coupled with the impact on the autonomy and working conditions of cultural workers, and the implications for consumers—both positive and negative.

Addressing these considerations, this special issue on "Cultural Science and Technology" amalgamates insights from diverse cultural and artistic domains: the emergent impacts of contemporary cultural technologies on the evolution of the cultural and artistic sectors; the introduction of challenges by cultural technologies across the

production, mediation, and consumption phases of arts and culture, and the adaptations of governmental policies and governance models in response to the novel challenges posed by cultural technologies and the cultural arts sector.

This issue is composed of three academic research papers, two case reports, one art critique, and two forum notes discussing cultural policies, which collectively address the ramifications for the industry, the production and dissemination of culture, and the governance of cultural technologies. The first research paper by **TANG Shih-che** deliberates on the integration of AI into news production processes such as data retrieval, analysis, and data-driven journalism since 2018. Following the introduction of sophisticated language models like ChatGPT in late 2022, these technologies now automate complex linguistic tasks, thereby reshaping the news production landscape through AI-generated news, reports, and summaries that emulate human writing styles; data analysis and insights extracted from voluminous datasets; and newsroom automation encompassing fact-checking, translation, and content recommendation to enhance audience engagement through personalized news delivery.

WEN Chia-Wei's paper explores the application of non-fungible tokens (NFTs) as innovative marketing tools within art expos, facilitating the identification of original digital artworks and augmenting interactivity and innovation. This study examines the experiences and perspectives of participants in the "ART TAIPEI 2021" expo, illustrating how online virtual spaces, virtual galleries, and digital currencies enable attendees to interact repeatedly with exhibits and exchange NFT certificates for physical artworks, thereby expanding the galleries' sales channels.

Leo Barton focuses on the preservation of video games as cultural artifacts and digital media, underscoring the imperative for national policies that enhance public awareness, accessibility, and research into video games, alongside legislative measures to improve their preservation.

In the case report authored by **KO Hui-Ching**, the integration of information and communication technologies within the cultural sector is scrutinized as a significant national concern. The study juxtaposes policy frameworks from various nations, including the United Kingdom, the United States, South Korea, and Australia, underscoring their concerted efforts to foster the development and transformation of cultural industries. It addresses critical challenges such as transnational platform monopolies, the prevalence of digital divides, and the threats posed to cultural diversity. Drawing on international policies from UNESCO, this case study offers a rigorous comparative analysis and provides nuanced insights into Taiwan's *Legal Guidelines of Cultural Technology Policies*. Another case report by **CHAN Hua-Tzu** elucidates the extensive application of cultural technologies such as artificial intelligence (AI), augmented reality (AR), virtual reality (VR), and mobile applications in museums to enhance accessibility and audience participation. This study delves into the "AccessKit" at the Hirshhorn Museum, an innovative solution where personal mobile devices scan QR codes to initiate guided tours. This technology employs headphones or external speakers to amplify audio for hearing-impaired visitors, significantly enriching their

art appreciation experience. Moreover, the system leverages AI to generate multilingual subtitles, thereby dismantling language barriers and advancing cultural equity.

In the art critique, **WU Chieh-Hsiang** engages with the ramifications of generative AI on the production of art, probing its impact within the context of art history. This analysis contemplates the artistic comparison between traditional photography and AI-generated images, delineating key standards that define photography as a valid artistic tool and medium. Furthermore, it questions whether these established standards are applicable to AI-generated art. WU's commentary critically examines how these technological artworks influence collective human memory and posits that humanity might soon navigate a realm characterized by an intricate blend of real, altered, and AI-generated images, fundamentally altering our experience of the past and anticipation of the future.

In addition to the aforementioned articles and commentary, the issue encompasses a brief essay by **LIU Jerry C. Y.**, accompanied by forum notes from two thematic forums. These forums, orchestrated by the Taiwan Association of Cultural Policy Studies and the Foundation for Future in Taiwan, concentrate on themes of "Session A: Cultural Governance and Cultural Sustainability" by **LEE Pei-Yu**, and "Session C: Cultural Technology and Cultural Communication Sustainability: What is the Next Step for the "Legal Guidelines of Cultural Technology Policies'?" by **LIU Yu-Liang**.

The special issue encompasses academic research papers, case reports, an art critique, and forum notes that expand upon these themes, aiming to foster wider discussions and reflections on cultural governance and technology policies. Through this scholarly discourse, the issue aspires to elucidate the expansive roles and impacts of cultural technologies in enhancing, mediating, and governing the cultural and artistic industries, as discussed within the documented analyses.