

## Editorial

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# Moving into 2025

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It is 2025 and the world is still experiencing dynamic global changes and challenges, which sometimes could be described even as dramatic, from natural disasters, political instabilities, and economic uncertainties to continuing wars and armed clashes throughout the world. On top of all that we are witnessing the accelerating influence of new technologies on life, education, and business, such as blockchain, machine learning, and artificial intelligence. These technologies, historically speaking, are in their infant years, but they already are having tremendous impact on the global markets, jobs, and the way many people are conducting their professional tasks. What the future will bring in that respect is both exciting and frightening, to a degree that zealous supporters of technology and tech-sceptics can both agree that the only thing which is certain is the uncertainty of tomorrow. Recent devastating fires in Los Angeles show the fragility of human development and susceptibleness to nature in a world that is seemingly technologically savvy. This, on the one hand, emphasizes the need for better care and preservation of natural and human heritage, and on the other that technology alone is not the answer. It is valuable to point out that in 2025 Europeana, the EU digitalization and digital preservation key infrastructure, will organize its annual conference which “takes place against a challenging global context.” This global context includes wars, climate changes, and geopolitical instability that threaten lives, peace, and security, as well as AI driven innovation that “poses challenges for society.” Moving into 2025, as a year of challenges, should also emphasize digital cultural heritage and its preservation as a “harbour and greenhouse of values like freedom, solidarity and democracy.”<sup>1</sup>

The first issue of *Preservation, Digital Technology & Culture* (PDT&C) in 2025 partly reflects the above-mentioned about preservation in the twenty-first century: it is a mix of approaches that include new technological developments in combination with traditional materials and methodologies,

applied within the new themes and domains that provide preservation, protection, and reuse of cultural heritage data. Preservation of culture and heritage in that respect shows significant adaptability to global changes, but also fragility if not matched with long-term strategies, resources, and capacities of all stakeholders involved or interested in the preservation processes. In that respect this issue presents a collection of seven articles provided by scholars and researchers from all over the world. These articles tackle the issues in preservation of old documents and archival material, preservation of photo documentation, oral history metadata, design aspects of online museums, usage of social media for preservation and promotion of heritage sites and of mobile phone applications in the transmission of intangible cultural heritage, and application of interaction design in cultural heritage tourism.

Our first article in this issue is “New Contributions to Iron Gall Ink Inspection Protocols Using Open Source Surface Analysis and Digital Imaging” by Ania Rodríguez-Maciél and Elisa Díaz-González (both University of La Laguna, Tenerife, Spain). This study explores new methods for analyzing iron gall ink degradation in historical documents using open-source software tools, specifically Fiji’s ImageJ and its DStretch plug-in. The research, conducted on sixteenth-century documents from the Provincial Historical Archive of Santa Cruz de Tenerife, demonstrates how these digital tools can enhance traditional inspection protocols by providing quantitative analysis of paper degradation and ink corrosion. The methodology enables precise measurement of support losses and ink halos, while the DStretch plug-in proves effective in recovering illegible texts in severely degraded documents. The study reveals significant deterioration in the examined Ancient Regime documents, with varying patterns of paper loss and ink corrosion. The findings emphasize the importance of regular inspections and demonstrate how digital analysis tools can complement established conservation protocols. This approach offers valuable quantitative data for prioritizing conservation efforts and provides archivists and conservators with new tools for documenting and analyzing historical document degradation.

“Passing Down Local Memories: Generativity and Photo Donations in Preservation Institutions” is our second contribution, by Ryo Shiozaki (Seigakuin University, Ageo

<sup>1</sup> *Europeana Call for Papers – Europeana PRO*, <https://pro.europeana.eu/page/conference-call-for-proposals>, accessed online February 9, 2025.

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Saitama, Japan). This article explores the intergenerational aspects of digital preservation through the lens of generativity, focusing on individuals' willingness to donate personal photographs to preservation institutions. While digital preservation inherently spans generations, discussions about intergenerational justice in this field remain limited. The research examines Erikson's concept of generativity and its influence on photo donation decisions, alongside other factors. The findings reveal that shared and loss experiences are the strongest predictors of willingness to donate photographs, with generativity also playing a significant, though lesser, role. A notable minority of photograph owners consistently rejected donation requests, regardless of content, while some individuals possessed no photographs at all. The study suggests that preservation institutions might benefit from targeting individuals with high generativity traits for donations. These findings establish the relevance of intergenerational perspectives in digital preservation and lay the groundwork for future theoretical research on intergenerational justice within this domain.

Anthony Cocciolo (Pratt Institute, New York, United States) is the author of our third contribution, "Oral History Metadata and AI: A Study from an LGBTQ + Archival Context." This study evaluates the effectiveness of ChatGPT-4 in generating descriptive metadata for LGBTQ + oral histories, comparing AI-generated descriptions with human-created ones. The research involved 14 library and archival science professionals assessing Dublin Core descriptions generated for oral history transcripts from three U.S. repositories. Results showed that participants preferred AI-generated descriptions 51.2 % of the time, compared to 26.2 % for human-created descriptions, with 21.4 % remaining undecided. Notably, the AI produced culturally appropriate content 80.4 % of the time, slightly surpassing human performance at 75.6 %. Participants particularly valued the AI's attention to detail, keyword inclusion, and sensitivity to gender identity and pronouns, marking significant improvement from earlier AI models in handling LGBTQ + content. While the study recommends ChatGPT-4 for generating descriptive metadata for LGBTQ + oral histories, it emphasizes the importance of human review before public release to address potential biases or inaccuracies.

Olga Volodymyrivna Yezhova (Kyiv National University of Technologies and Design, Kyiv, Ukraine), Jingjie Zhao (Xijing University, Xi'an, China; Kyiv National University of Technologies and Design, Kyiv, Ukraine), and Kalina Pashkevych (Kyiv National University of Technologies and Design, Kyiv, Ukraine) are the authors of the fourth article in this issue, "Exploring Design Aspects of Online Museums: From Cultural Heritage to Art, Science and Fashion." This systematic review examines the design landscape of online

museums through analysis of 148 publications from 2019 to 2023 in the Web of Science database. Following PRISMA 2020 guidelines, the research identifies five distinct research clusters in online museum design: visitor behavior, accessibility, authenticity, immersive technologies, and technology adoption. The analysis reveals crucial design aspects affecting user engagement, cultural heritage preservation, virtual reality implementation, and tourism integration. The study spans various museum types, including historical, cultural, artistic, scientific, natural history, fashion, and children's museums. Each cluster addresses specific aspects of the online museum experience, from COVID-19's impact on cultural institutions to the role of augmented reality in education. The findings highlight the intersection of digital technologies with museum curation, emphasizing user experience, accessibility, and technological innovation. This comprehensive review provides valuable insights for researchers, designers, and museum professionals developing virtual cultural experiences.

Anirban Baitalik (Midnapore City College, Midnapore, India) contributed the next article, "Can Social Media Pave the Way for the Preservation and Promotion of Heritage Sites?" The focus of this study is the role of social media platforms in preserving and promoting heritage sites, focusing on Bishnupur in West Bengal, India. Through analysis of engagement metrics (likes, shares, and comments) through Facebook, Instagram, and YouTube, the research investigates how online audiences interact with cultural heritage content. The study is grounded in two theoretical foundations: the understanding of heritage sites as dynamic cultural entities requiring active preservation, and the transformative impact of digital technologies on tourism and cultural engagement. The findings emphasize the importance of platform-specific content strategies and highlight the spontaneous formation of online heritage enthusiast communities. The research reveals how social media can address challenges such as overcrowding, preservation issues, and sustainability, particularly in the context of post-pandemic tourism. The study provides practical insights for developing region-specific strategies that align with Sustainable Development Goals while promoting cultural heritage and economic growth through tourism.

The potential of mobile phone applications in the transmission of intangible cultural heritage is the main investigation of our penultimate article "Exploring the Potential of Mobile Phone Applications in the Transmission of Intangible Cultural Heritage Among the Younger Generation," by Huang Yidan, Jinchi Yip, and Vickram Theavar (all Taylor's University, Subang Jaya, Malaysia). The article examines the effectiveness of mobile

phone applications in preserving and transmitting intangible cultural heritage (ICH) to younger generations in China, with a specific focus on folding fan craftsmanship. The research employs qualitative methods, including focus groups and semi-structured interviews, to evaluate how mobile apps can engage university students in ICH learning. The study reveals that apps serve as effective self-learning tools, offering advantages over traditional apprenticeship models by breaking down barriers of time, space, and accessibility. Through modules focusing on appreciation, craft experience, and historical learning, the apps successfully stimulated students' interest in cultural heritage and sustainable development. The research demonstrates how digital technology can enhance cultural identity and pride among youth while providing educators with innovative teaching resources. The findings suggest that personalized learning through mobile applications offers a promising approach to ICH preservation, enabling students to engage with traditional culture through familiar digital platforms while addressing challenges in traditional transmission methods.

Our last article in this issue is "The Application of Interaction Design in Cultural Heritage Tourism: A Systematic Literature Review," by Wang Zhe (Faculty of Design and Architecture, Universiti Putra Malaysia, Malaysia; Department of Design Arts, Taiyuan Institute of Technology, Taiyuan City, China), Hassan Alli (Faculty of Design and Architecture, Universiti Putra Malaysia, Malaysia), and Irwan Syah Md Yusoff (Faculty of Human Ecology, Universiti Putra Malaysia, Malaysia). This systematic literature review examines the

intersection of interaction design and cultural heritage tourism through analysis of 168 papers published between 2001 and 2023. Using CiteSpace software for visual and quantitative analysis, the study identifies key research trends and collaborative patterns. The findings highlight five prominent authors with high centrality, with China, Italy, and Spain emerging as leading contributors. The analysis reveals five high-frequency keywords: experience, augmented reality, satisfaction, virtual reality, and behavior. The research clusters primarily focus on cultural consumption, market-oriented reform, cross-cultural studies, and host-guest interaction. While the findings demonstrate how interaction design enhances cultural heritage tourism through technological innovation and user experience, they also expose gaps in understanding human-digital interactions and interdisciplinary perspectives. The study suggests that future research should prioritize regions rich in cultural heritage while strengthening international academic collaborations to advance innovative approaches in cultural heritage tourism development.

This first issue of PDT&C in 2025 closes with the list of the journal's peer reviewers in 2023 and 2024, listed alphabetically. As an international peer-reviewed research journal of high scholarly standing, PDT&C relies on the expertise and time of numerous academics and practitioners who serve as peer reviewers. This list includes only those peer reviewers in 2023 and 2024 who agreed to have their names published. PDT&C is grateful to all peer reviewers and appreciates their contributions. Publishing this list is a token of our appreciation.