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Conference Abstract

Scaling AI Across the UK Culture and Heritage Sector: The NHM-DCMS AI Pilot Programme

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Abstract

From November 2024 to March 2025, the Natural History Museum, London (NHM), supported by the UK Department for Culture, Media and Sport (DCMS), led a national programme to explore a new model for deploying artificial intelligence (AI) across the UK cultural and heritage sector. Inspired by the Museum's in-house AI Lab Programme (Poon 2024), which has successfully applied AI to research, collections management, and public engagement within the NHM (e.g., Poon and Leong 2024, Salili-James 2024, He et al. 2024, Zhang et al. 2025a, Gallois et al. 2025), this national initiative extended that model to a broader institutional landscape. The programme examined how AI can support biodiversity research, collections management, accessibility, and public engagement, while addressing the practical realities of AI adoption, scalability, and long-term sustainability.

In partnership with the Zoological Society of London, Lyme Regis Museum, National Museums Liverpool, the Royal Agricultural University, and the Royal Botanic Garden Edinburgh, the programme delivered five AI pilot projects. Each project developed an AI-driven solution to a critical challenge: automated species classification of illegally traded snake goods (Leong et al. 2025a); automatic data extraction from index cards (Leong et al. 2025a); AI-generated alt-text for digital collections (van Schalkwyk et al. 2025); a

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conversational chatbot trained on herbarium data (Zhang et al. 2025b); and a herbarium digitisation quality-control tool (Zhang et al. 2025a), respectively.

These pilots demonstrated how AI can deliver both operational efficiencies and public benefit. Automated transcription and text extraction have streamlined digitisation efforts, reducing the time and resources required for archival documentation. AI-driven image processing has enhanced the quality control mechanisms for digitisation, ensuring higher standards in digital preservation. Computer Vision models have provided new capabilities in species classification and object identification, offering valuable insights for conservation and research. Additionally, AI-powered accessibility tools, such as automated alt-text generation and chatbot interaction, have improved inclusivity by making collections more accessible to diverse audiences.

By engaging partners of different scales, locations, disciplines, and specialisations, the programme provided a rare opportunity to test AI in diverse institutional environments. This diversity enabled robust evaluation of prototypes and fostered knowledge exchange, skills development, and capacity building across the sector. Crucially, the collaborative model demonstrated the importance of co-design: tools developed in close dialogue with institutional priorities were more readily embedded in existing practices and had clearer pathways to sustainable integration.

Beyond technical outcomes, the programme highlighted sector-wide considerations for responsible AI adoption. These included: the need for consistent data standards to support model training and interoperability; designing systems that augment, rather than replace, professional expertise; ensuring infrastructure and training are in place to support long-term use; and transitioning from short-term pilots to sustainable, maintainable solutions. Collectively, the five projects suggest how the sector might progress from isolated experimentation to a coordinated ecosystem of digital innovation. Although the pilots are at proof-of-concept stage, the projects have already demonstrated measurable improvements in workflows, data quality, and accessibility. They provide a framework that other organisations can adapt, offering practical entry points into AI adoption. At the same time, the work underscores the importance of continued investment in digital transformation to ensure that heritage institutions can keep pace with rapid technological change.

In summary, the NHM-DCMS AI Pilot Programme has shown that AI can be responsibly deployed in culture and heritage when solutions are co-created with institutional partners, tailored to local contexts, and designed with flexibility for future use. While still early in development, the programme has established a strong foundation for future work, charting a path towards AI applications that improve efficiency, inclusivity, and engagement across museums, galleries, and research collections in the UK and beyond.

Keywords

institutional AI integration, collaboration model, AI-driven digitisation, interdisciplinary collaboration, research innovation

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The authors have declared that no competing interests exist.

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