Introduction

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Heritage libraries, as custodians, attach great importance to the conservation and preservation of the heritage collections in their care. Ensuring that these precious collections are passed on to future generations sometimes conflicts with the need to make them accessible and presentable to current generations, whether for teaching, education, or research purposes. Digital technologies now enable libraries and museums to enhance and promote cultural and research heritage without risking their valuable and sometimes unique books, works of art, or artefacts.

The question remains how heritage institutions, such as libraries, archives, and museums, can effectively leverage digital technologies to preserve, organise, enhance, and ensure the discoverability and long-term accessibility of their valuable collections. In today's increasingly digital landscape, merely converting analogue materials to digital formats (digitisation) is insufficient. A broader 'digital transformation' is required, encompassing structured processes (digitalisation) that enable new ways of engaging with information and fostering user interaction. Institutions must develop strong strategies to promote the dissemination of their digitised heritage to diverse audiences, as access is of utmost importance.

This book aims to investigate and define effective strategies that enable heritage institutions to fully engage in digital transformation, leveraging it as a tool to preserve, enrich, and share their cultural and scientific collections. It seeks to provide professionals and researchers in the field with insights into practices, innovative methodologies, and successful case studies that demonstrate how digital tools and infrastructures can support long-term preservation, foster public engagement, and improve access for varied user communities, including both academic and general users. This volume is structured into four thematic parts, each addressing a critical aspect of managing and leveraging digital heritage: 1) preserving and digitising cultural and scientific heritage, 2) structuring and connecting heritage data, 3) promoting and showcasing heritage collections, and 4) engaging users and communities.

The first part, focused on preservation and digitisation, examines practical considerations, institutional collaborations, and the nuanced

technicalities of safeguarding cultural and scientific materials. Nicolas Di Méo's study at the University of Strasbourg (France) underscores the synergy between librarians and academics in digitising teaching materials and artefacts. Through the use of Numistral, a shared digital repository, over 850 photographs and 20,000 projection plates were digitised, exemplifying effective collaboration despite funding and temporal constraints. Annika Peurell documents a pilot initiative at Sweden's Royal Institute of Technology (KTH) aimed at digitising research heritage. The project, aligned with KTH's digitalisation agenda (2023–2027), underscores interdepartmental collaboration and the necessity for robust infrastructural and legal frameworks. It reveals the institutional challenges faced by organisations lacking entrenched digitisation traditions. Saskia van Bergen and Maartje van den Heuvel describe their project on the collection of the Dutch photographer Frank Scholten, housed in Leiden University Libraries (The Netherlands), who documented Palestinian life between 1921 and 1923, capturing biblical sites, crafts, landscapes, and ceremonies. After Scholten died in 1942, his vast collection of roughly 14,000 negatives and 13,000 prints remained unorganised. Leiden University Libraries used AI and human effort to make the collection accessible. Image recognition matched negatives with prints, while volunteers, many with ties to Palestine, helped in cataloguing and labelling. Renaud Adam, Laurence Richelle, and Stéphanie Simon outline the University of Liège Library's efforts in Belgium to increase the visibility of its digitised heritage collections through the DONum (*Dépôt d'Objets Numérisés*) project, launched in 2009. Now hosting over 13,000 items, DONum combines preservation with open access, public engagement via blogging, and academic collaboration. It also explores the integration of DONum into ULiège's Alma system and Primo discovery solution, highlighting work on metadata, user experience, and the creation of a dedicated heritage view, *Legito*, to improve discoverability. At the Physics Department Library of the Federal University of Minas Gerais (Brazil), Gislene Rodrigues da Silva explores the preservation of historical scientific instruments. The development of a descriptive metadata model that adapts VRA Core and other standards highlights the interdisciplinary expertise required in cataloguing scientific heritage by integrating technical, historical, and conservation dimensions.

The second part shifts the discourse to the structuring and interconnection of digital heritage data. Rouven Schabinger and Nikol Stepan introduce the Swiss Connectome project, which employs AI to

harmonise and link metadata across libraries, creating a knowledge graph to enhance discoverability through platforms such as swisscovery. Joris Colla presents ODIS, a historical civil society database in Flanders, Belgium. ODIS offers a hybrid model combining a digital encyclopaedia, research tool, and authority database. By transitioning to a triple-store database model and promoting multilingualism and open access, ODIS illustrates an advanced model of heritage data integration. Despoina Gkogkou's project, Μετάdata, addresses the fragmentation of translated literary texts in Greek periodicals (1870–1974). Employing Google Sheets and Looker Studio for indexing and visualisation, the initiative underscores challenges in data consistency, name transliteration, and source diversity. A notable case from the Paris Interuniversity Library of Health (BIU Santé) involves the Medica Ecosystem. Documented by Laurent Aucher and Olivier Ghuzel, this platform exemplifies sustainable digital library models integrating digitised texts, images, and biographical data. Medica's incorporation into Numerabilis at Université Paris Cité represents a forward-looking approach grounded in linked data and interdisciplinary outreach. Francesca Petricca examines Early European Books (EEB), a collaboration between ProQuest and European libraries. The project illustrates how commercial–academic partnerships can yield inclusive metadata practices and facilitate access to previously unindexed collections, with a particular focus on promoting underrepresented voices in publishing history.

The third section highlights methods of showcasing and promoting heritage collections. Eva Ausēja's contribution outlines the Digital Library of Latvia, which consolidates 3.8 million objects from over 650 partners. Its user-centric design and support for regional digital capacity-building serve as a replicable national model. Laura Moré's *Bertrana de Capçalera* project at the University of Girona Library (Spain) is an example of low-cost, high-impact digitisation. Leveraging existing digital resources and internal staff, the initiative revived interest in the journalistic works of Prudenci and Aurora Bertrana, filling scholarly gaps and fostering research. In Finland, Saga Jacksen analyses the Finna.fi service, which aggregates over 18 million records from libraries and museums. Curated pages such as 'Finna Classroom' and predefined content searches represent strategic methods for increasing engagement among educators and general users. Mimi Seyffert-Wirth's analysis of Stellenbosch University Library's SUNDigital Collections (South Africa) explores the metrics of digital heritage impact. She advocates for a triangulated assessment model, combining usage analytics, citation tracking, and

open metadata practices to ensure broader reach and scholarly relevance. Teresita Scalco's *Petit Tour* project at Università Iuav di Venezia (Italy) exemplifies participatory online exhibitions. With a platform fostering interactivity and inclusion, this initiative reflects a commitment to open heritage that leverages digital tools to democratise access to cultural narratives, especially those of marginalised groups.

The final section considers user engagement and participatory strategies. Marika Sarvilahti's work at Aalto University (Finland) addresses the gap in heritage awareness among students and faculty. Through information literacy integration and creative residencies, the university fosters interdisciplinary engagement with digital heritage resources. Mălina Duță's *Deported to Bărăgan* project illustrates the sociocultural relevance of oral history digitisation at Eugen Todoran Central University Library (Romania). The collection of interviews and archival records detailing deportations under Soviet influence demonstrates the ethical and historical imperative of preserving personal narratives through accessible digital means. In her chapter on the co-creation practices of Finna.fi in Finland, Riita Peltonen demonstrates how a human-centred design approach and collaboration with educators have led to the development of tools such as the 'Material Package Tool'. These tools enable content curation aligned with curricular needs, reflecting a user-oriented approach to digital service design. Finally, Junior Browne explores the digital revival of Caribbean cricket heritage at The University of the West Indies (Barbados). He emphasises the cultural significance of cricket and, through the CLR James Centre initiatives, illustrates the institutional, technical, and policy requisites for sustainable digital heritage in small states. The chapter underscores the potential for innovation and economic development through heritage digitisation.

The volume offers a panoramic view of contemporary digital heritage practices across diverse contexts. By uniting case studies rooted in technological innovation, collaborative ethos, and inclusive access models, it provides a blueprint for future heritage stewardship. Emphasis on open access, enriched metadata, and co-creation reflects a paradigm shift wherein cultural institutions transcend preservation and become active agents of public knowledge and memory production.

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around 20 professionals from academic, research, and national libraries across Europe, Africa, and the Americas.