# Navigating the Archiving Landscape— Current and Future Concerns

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***With the obsolescence of magnetic media and exciting developments in digitisation and AI, the archiving landscape is at the cusp of a new world. Dr Phang Lai Tee from the National Archives of Singapore offers a glimpse into the future, and raises important questions for those in the cultural sector to ponder.***

The national archives of every independent country serves as the custodian of government archives, and often holds the documentary heritage of the nation, playing a pivotal role in preserving and providing long-term access to a diverse range of content.

The National Archives of Singapore (NAS), established in 1968 following Singapore's independence in 1965, fulfils this crucial role by safeguarding records of national and historical significance to Singapore. Its extensive archival collections, from both public agencies and private sources[1], serve as the corporate memory of the Singapore government and the social memory of its people. This repository of primary sources and memories also enables present and future generations of Singaporeans to delve into the nation's cultural and arts policies, discover the rich content and experiences related to its diverse cultures, and gain a deeper appreciation of our shared heritage and the journey towards nationhood.

# Cultural Heritage at Risk?

UNESCO has long recognised the importance of audiovisual archives in telling stories about people's lives and cultures worldwide. Since 2007, it has celebrated the World Day for Audiovisual Heritage on the 27th of October each year, aiming to raise awareness about the need for preservation and to acknowledge the value of audiovisual documents.

A substantial portion of our knowledge of the linguistic and cultural diversity of humanity is rooted in audiovisual content recorded on magnetic tapes over the past six decades. The Magnetic Tape Alert Project[2], an initiative of UNESCO's Information for All Programme and International Association of Sound and Audiovisual Archives, seeks to alert stakeholders, including memory institutions, to the imminent threat of losing access to their cultural and linguistic heritage trapped in obsolete magnetic media, and to the urgency to digitise them, preferably by 2025. A 2020 survey revealed that, while many professional memory institutions, such as archives, libraries and museums, have either digitised or planned to digitise their audiovisual holdings in time, a significant portion of audio and video recordings kept in small academic or cultural institutions, as well as in private hands, remain in their original state. The survey finding serves as a cautionary signal for arts and cultural groups in Singapore to consider the documentary legacies they will leave for the future.

Government agencies working together can help close the gap. Since 2020, the National Library Board (NLB) has been collaborating with the National Arts Council (NAC) to enhance the national collection of Singapore arts content, and to make the materials

available via the Singapore Online Arts Repository (SOAR)[3]. The collaboration provides an avenue for Singapore's performing, visual and literary arts heritage to be preserved for posterity and research.

## Impact of New and Evolving Technologies

### Preservation of Lost Stories

As technology continues to advance, virtual reality (VR) and augmented reality (AR) have been used to improve accessibility to intangible cultural heritage and inaccessible physical historic sites in recent years. For example, Missions Connect, an award-winning VR project by Curtin University, shares Western Australia's Stolen Generations history from the perspective of the survivors in an immersive and interactive way. It transforms former mission sites into healing spaces for Stolen Generations survivors. Floor plans of lost buildings were digitally reconstructed based on recollections from survivors and photographic documentation of the 1950s and 60s.

The innovative use of VR in this project offers an alternative and unique platform to substitute physical historic sites where access is limited due to administrative and political challenges, rapid deterioration and loss of significant buildings on the former sites, geographical isolation, or ill health restricting travel by survivors. When heritage conservation of the sites is not feasible, the preservation of the VR-modelled content and stories collected from the survivors becomes ever more important. Given the complexities in preserving VR metadata and elements, how will such projects preserve such VR content and experiences sustainably? Will the stories of the Stolen Generations be preserved with another archival organisation beyond the lifetime of the project?

### Digital Music and Art Creation

Since 2023, generative Artificial Intelligence (Gen AI) writing tools and AI image generators have gained prominence in the mainstream. The availability of AI music generators is on the rise too. Locally, researchers from the Singapore University of Technology (SUTD) have developed a music-domain-knowledge-inspired AI model that generates music from text prompts. Globally, YouTube has released for testing "Dream Track", an AI tool that lets users input a brief prompt, select a participating artist, and create a track of up to 30 seconds for use. Meanwhile, MIT (Massachusetts Institute of Technology) Media Lab's Cognitive Audio project is developing a system that will allow the generation of constantly evolving compositions, based on the soundscapes surrounding us that we may not even notice.

The proliferation of creative AI tools is poised to revolutionalise the creation of music and art, similar to the way AI is revolutionalising creative writing. While artists, musicians and content creators worldwide grapple with the impact of AI and ponder how to navigate a creative future with AI, archivists have to keep pace with changing culture and technologies to capture and preserve significant works for the nation.

### Opportunities and Challenges of AI for Archives

AI is also an important topic for professionals managing the preservation and long-term access

to archives and documentary heritage. Various professional bodies and archival associations have dedicated conferences and publications to this topic. For instance, the Association of Moving Image Archivists, International Federation of Television Archives and Oral History Association, devoted an entire conference or session to AI in 2023/2024. UNESCO's Memory of the World Sub-Committee on Education and Research, in collaboration with the InterPARES (International Research on the Preservation of Authentic Records in Electronic Systems) Trust AI, also recently published a special issue on "Artificial Intelligence and Documentary Heritage".

Evolving AI capabilities bring exciting possibilities to the field of documentary and cultural heritage, but also raise disconcerting concerns about their impact and unintended consequences. AI technologies, such as speech-to-text transcription, face and object recognition, and text extraction, offer enormous opportunities for enhancing access, search and metadata enrichment in archival materials. Use of AI in repetitive and time-consuming basic archival tasks, such as automating checksum validation of digital files before preservation, generating file lists, and renaming files, has also been explored, and potentially increases productivity in digital preservation processes. The discussion in the field now focuses on how the archives can integrate human cataloguing and AI metadata generation to facilitate the search and discovery of archival content.

However, the pervasive use of AI raises concerns about record trustworthiness, data privacy, potential misappropriation of intellectual property and the potential misuse of AI-generated content. There are various studies investigating the current and potential use of AI in records and archival work, with some focusing their attention on the challenges to trustworthiness of records, archives and documentary heritage arising from rapid adoption of AI. There is a growing concern about AI, particularly large language models (LLM), disclosing personal information extracted from a wide range of sources, including online public archives released by archival institutions. Online accessible oral histories, for example, are a rich source of personal information that could be exploited by ill-intentioned persons to circumvent security questions. How do oral history and archives professionals mitigate such potential misuse? How do we find a balance in our role to both serve users and protect collections?

A new paradigm propelled by AI presents archivists with new considerations about their evolving roles. Will the role of archivists be expanded to include the stewardship of documents, records and data that must be retained as evidence of responsible and accountable AI? Do archivists have the responsibility of supporting archives users in the responsible and ethical use of AI and algorithms? Do archivists have an obligation to support the authentication of archival content, and how could this be done sustainably?

The rapid adoption of AI applications across various sectors has also underscored a knowledge gap in archives professionals—the lack of understanding about AI's uses and its capabilities. Hence, attaining AI literacy becomes crucial to demystifying AI and harnessing its potential responsibly. Archivists need to be equipped with a basic knowledge of AI to ensure that they can effectively collaborate in AI projects, communicate with technical teams, and make informed decisions about the use of AI in their work.

While AI poses significant challenges to the preservation of archives and documentary heritage, similar to the digital preservation of authentic records, there is optimism that these challenges

can be addressed with the same grounding in foundational archival knowledge, combined with collaborative thinking and interdisciplinary effort.

## Moving Ahead—What it Means for Singapore

In 2014, the NAS started the mass digitisation of its at-risk audiovisual collection on magnetic media, and has to date saved over 170,000 broadcast archives, government audiovisual archives and private donations from content loss due to obsolescence. Where rights permit, these digitised files are accessible via the NAS Archive Reading Room or the Archives Online portal. Specific to Singapore's rich arts and cultural heritage, over 60 artists and 20 arts organisations have been reached by NAC and NLB, and over 10,000 items have been collected since 2020. Work is ongoing to progressively process them for public access. These include interesting material from the artists' personal archives, not usually seen during exhibitions or performances.

The use of Gen AI is part of NLB's ongoing experiments with new technologies to push the frontiers of learning and discovery under LAB25 (Library and Archives Blueprint 2025). Examples of prototypes developed include StoryGen, which presents young readers with an immersive storytelling experience, and ChatBook, which offers patrons an interactive, multi-modal experience to discover and deepen their understanding of Singapore history and the contributions of one of Singapore's founding leaders.[4] These innovations and experiments will help to reshape the future of libraries and archives. □

## About the Author

Dr Phang Lai Tee is the Senior Principal Archivist and Senior Deputy Director of the National Archives of Singapore, an institution of the National Library Board. She chairs the Preservation Sub-Committee of the UNESCO Memory of the World International Advisory Committee, which is responsible for providing advice on matters relating to the selection, preservation and accessibility of documentary heritage in all its forms and its supporting technologies. She plays a key role in the optimal preservation and digitisation of Singapore's 20th century audiovisual heritage to facilitate current and future accessibility.

**Notes**

1. The NAS collects and preserves over 60 years of TV and radio archives produced by Singapore's national broadcaster Mediacorp Pte Ltd and its predecessors. Its Oral History Centre also collects first-hand accounts of Singapore artists and performers under thematic projects such as Performing Arts in Singapore, Singapore Film Industry and Visual Arts.

2. The urgency to digitise documentary heritage stored on obsolete magnetic media was highlighted in the Magnetic Tape Alert Project. See https://www.iasa-web.org/magnetic-tape-alert-project for information on the project and its latest survey report.

3. See: https://www.nlb.gov.sg/main/partner-us/Donate-to-our-Collections/highlights/The-Singapore-Online-Arts-Repository-SOAR for more information on SOAR.

4. In July 2024, as part of the launch of "The Lion's Roar: The Authorised Biography of S. Rajaratnam, Volume Two" by Ms Irene Ng, NLB created a ChatBook featuring the late Mr S. Rajaratnam.

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