Outcomes of UNESCO Policy Dialogue

Documentary heritage at risk: Policy gaps in digital preservation

Prepared by the
Preservation Sub-Committee of the
International Advisory Committee of the
UNESCO Memory of the World Programme

5 September 2021
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Introduction

The Policy Dialogue is an initiative of the UNESCO Documentary Heritage Unit, undertaken as part of the Memory of the World (MoW) Programme. The Dialogue provides a platform for discussing priorities for the preservation of documentary heritage and identifying key components of an international policy agenda for Digital Preservation to be promoted and carried out by the MoW Preservation Sub-Committee of the UNESCO MoW International Advisory Committee.

The Policy Dialogue process enables engagement, participation and discovery by the community, inviting proposals for the policy level interventions in order to guide UNESCO member states in implementing effective practices in preserving vulnerable documentary heritage. It is an open and inclusive initiative covering both the content and the technologies essential for the long-term access to the preserved digital heritage. It ensures that viewpoints and values of different cultures across international community are heard and discussed.

The first UNESCO Virtual Policy Dialogue event [1] was held on 27 October 2020 and explored the grand challenges confronting the preservation of documentary heritage, focusing on gaps in policies and policy frameworks that ought to be given attention as a high priority. It provided initial input into the Policy Dialogue on current and foreseeable political, social and environmental trends and their impact on policymaking for digital preservation.

UNESCO instruments

Digital preservation has been an ongoing concern of the Memory of the World Programme. In October 2003, UNESCO adopted the Charter on the Preservation of Digital Heritage, recognising that the world’s cultural and educational resources are increasingly produced, distributed and accessed in digital form and require targeted preservation strategies. Twelve years later, in 2015, UNESCO adopted the Recommendation Concerning the Preservation and Access to Documentary Heritage including in Digital Form [2].

These two instruments are profoundly important. They articulate the value of digital documentary heritage and assign to the MoW Programme the responsibility to increase awareness of risks and put in place international policies and activities for protecting, preserving and providing universal and permanent accessibility to that heritage. They guide the activities of the MoW Preservation Sub-Committee and its PERSIST project that originated from the 2012 MoW Conference ‘The Memory of the World in the Digital Age’ held in Vancouver, Canada [3].

Current context

In this digital age, the digital preservation of humanity’s collective memory can easily be taken for granted. The proliferation of freely available cloud-based platforms for the storage of digital content might lead to the belief that nowadays nothing is forgotten. However, the new challenges of digital preservation cannot be underestimated, nor can memory institutions become too complacent. Across the world there are a number of ‘megatrends’ that, if ignored, could jeopardise the aspirations of the Charter and the 2015 Recommendation. For example:

- **Digital obsolescence.** Short technology cycles and rapid obsolescence of digital technologies cause culturally significant digital material to become inaccessible or lost before memory institutions have had the chance to complete selection and preservation.

- **Leadership.** Blurring of traditional and non-traditional institutions as keepers of documentary heritage causes concerns. Commercial businesses are relied upon for long-term storage of significant heritage without legal and regulatory frameworks to provide assurances that such services will adhere to the principle of the universal human rights of access to information.

- **Quality.** Selection and preservation tasks are becoming increasingly challenging with an increasing spread of disinformation, an ‘infodemic’ of unreliable or false information deliberately promulgated in order to manipulate public opinion and deny individuals’ access to authentic, authoritative and unbiased information; in effect to pervert public discourse and deny people their human rights.
• **Global economy.** Digital preservation work is affected by the global and local economic conditions. The current economic downturn due to COVID-19 pandemic will leave many memory institutions underfunded at this critical time when it is essential to create a detailed and comprehensive record of the worldwide experiences and international efforts with the pandemic.

• **Disasters.** Digital preservation efforts are under constant threat of natural and man-made disasters that require urgent actions. Climate change, with rising sea levels and severe weather events, can lead to destruction of unique heritage. Armed conflicts and social unrest lead to loss of heritage through looting and illicit trafficking.

### Digital preservation challenges

Against the backdrop of these issues, the MoW Preservation Sub-Committee has identified grand challenges confronting four aspects of digital preservation, with the aim to distil a set of priorities for its work towards supporting an international Digital Preservation Policy Framework:

• **Preservation action.** Timely and quality preservation actions are of utmost importance. Effective preservation actions are particularly critical for preserving cultural identity of fragile and endangered cultures. The documentary heritage must be created, selected and preserved as an urgency to prevent permanent loss of their memory to humanity.

• **Sustainability.** Securing stable resources and establishing long-term sustainability models are key to long-term retention and accessibility of digital documentary heritage. This includes the need for pandemic disaster response to tackle the economic downturn that impacts public and private funding directed towards memory institutions.

• **Technology challenges.** Systematic management of technology obsolescence is key to preservation activities and the accessibility of the documentary heritage. Significant heritage of the 20th century is held on magnetic tape and is in immediate danger of loss. All the magnetic tape formats are now obsolete and the stored content is in urgent need of digital and physical preservation. The task is immense, and time is short.

• **Legal frameworks.** The rate of progress and adoption of technologies is rapid and relentless. At the same time, legislative changes are lagging behind. We are in urgent need of national and international leadership to support effective policy development within international, national and provincial jurisdictions. It is critical to give memory institutions the mandate to select and preserve digital documentary heritage and to uphold the universal right to access cultural heritage.
Message from Mr Xing Qu, UNESCO Deputy Director-General

I am delighted to add my voice of support to the UNESCO policy dialogue, on the topic “Documentary Heritage at Risk: Policy Gaps in Digital Preservation”.

As we take this first step, through our Virtual Policy Dialogue event held in October 2020 and now with this publication, COVID-19 is affecting every aspect of our lives – not only our health, but also our education systems, cultural life and social interactions. However, while the pandemic is rewriting our present, many useful ways of dealing with this unprecedented event can be found in the past, serving as our ‘window into the world’ – which happened to be the theme for 2020’s World Day for Audiovisual Heritage, and which coincided with the virtual policy dialogue event.

Indeed, archives hold the answers to many contemporary questions. They tell us about the social impact of previous epidemics, including the influenza outbreak that killed up to 50 million people between 1918 and 1920, for example. They explain why historians and curators specialising in this field were among the first to raise the alarm about the danger of rumours and false information, and to highlight the importance of transparency.

As this shows, there is no history – no interrogation of the past by the present – without archives. Without archives, there is no memory, justice or reconciliation.

Protecting, conserving, cataloguing and disseminating these archives is therefore a moral duty – not only for today, but also for the future. Tomorrow’s generations also have the inalienable right to access and use the records that document their past.

This is where the Memory of the World Programme comes in. This Programme was launched to safeguard the documentary heritage of humanity, by facilitating preservation, supporting universal accessibility, and enhancing public awareness of the significance of records.

One of the main ways it does this is by supporting policy measures that make it easier to protect and share assets held by archives, libraries, museums, educational bodies, and other memory institutions, all over the world.

The Policy Dialogue aims to raise awareness of these efforts. It seeks to address challenges to the long-term preservation of documentary heritage, and the risks we run in losing access to it. It builds on the statement co-issued by UNESCO with a view to “Turning the Threat of COVID-19 into an Opportunity for Greater Support to Documentary Heritage”. This statement highlighted several important issues that I would like to share with you, to guide your discussions during this policy dialogue.

First, it underlined the need for greater investment in the preservation of documentary heritage. This includes raising awareness about the relevance of memory institutions to the current crisis, a point that was echoed during UNESCO’s consultations on the impact of COVID-19 on African memory institutions. Participants spoke about the tremendous financial setbacks that archives, libraries and museums have suffered, which have affected their capacity to serve the public. They also highlighted the importance of building robust emergency preparedness plans, to be more resilient in the face of future crises.

Second, the pandemic has shown the need for universal access to documentary heritage. In this respect, UNESCO has created a dedicated webpage with ‘Resources for Documentary Heritage Professionals’, which showcases examples of how scientists, policymakers and the wider public can learn from past pandemics, as well as how memory institutions themselves are tackling the crisis.

As the pandemic continues, the documentary efforts undertaken by memory institutions will be crucial in helping future generations to understand the complexity and extent of this crisis, as well as to hold decision-makers accountable.

Third, it is critical that we implement appropriate policy interventions, nationally and institutionally. Only in this way will we ensure that natural and man-made risks threatening our documentary heritage are effectively managed. A key aspect of this is digital preservation, which extends not only to analogue documents, but also to born-digital documentary heritage assets which, as the 2012 Vancouver Declaration on the Memory of the World in the Digital Age [4] observes, are at risk of being permanently lost.
Priorities for dialogue

Preservation action: Cultural identity at risk

This section is drawn from the proceedings of the Virtual Policy Dialogue session moderated by Ms Shubha Chaudhuri, Director of the Archives and Research Centre for Ethnomusicology, New Delhi, India with a presentation by Ms Reena Tiwari, Professor of Built Environment, Curtin University, Perth, Australia and dialogue contributions by Ms Te Paea Paringatai, University of Canterbury in Christchurch, New Zealand and Mr Abdullah Al Hinai, Arab Federation for Libraries and Information. It also includes contributions from the Locknote session by Ms Helen Vincent, Head of Rare Books, Maps and Music Collections at the National Library of Scotland National Library of Scotland and Chair of the Division of Library Collections at the International Federation of Library Associations and Institutions (IFLA).

Preservation of cultural identities that are at risk of loss is a matter of urgency and highest priority. This challenge stands out among many preservation actions that critically depend on timely planning and efficient implementation, as it has been the case with digitizing invaluable audiovisual material stored on rapidly deteriorating magnetic tapes. However, while the latter is now well understood and primarily dependent on scoping and mobilizing sufficient resources, documenting and preserving cultural identities is a multi-faceted and complex problem that still requires the development of effective approaches and best practices.

Unfortunately, the urgency of preserving cultural identities is becoming commonplace, particularly affecting indigenous cultures and communities without the resources to prevent the disappearance of their culture through inevitable deterioration of physical artefacts, natural disasters, geopolitical upsets, conflicts or socio-economic developments. Documentary heritage of these identities must be selected and preserved using best possible means. Otherwise, their memory will be lost to humanity forever.

With emerging technologies such as Virtual Reality, there is a strong case to extend the scope of digital preservation to protect intangible heritage and create new documentary heritage. However, ‘virtual reality’ is not ‘reality’ and policies for digital preservation of cultural identities at risk must take careful account of moral, ethical and even legal sensitivities as well as technical standards.

An example of a serious, real-life engagement with this issue is the ‘Missions Connect: Virtual Reality and Aboriginal Heritage’ project at Australia’s Curtin University, under the direction of Ms Reena Tiwari. In the 1900s Australian States enacted removal legislations that forcibly removed Aboriginal children from their parents and placed them in State or church-run institutions or missions. While these missions are places of incarceration and reek with stories of loss, abuse and trauma, for many Survivors these are a homeland. Although now abandoned, they carry a mix of memories, emotions, and experience. The Missions Connect project, undertaken in partnership with Curtin University and Bringing Them Home Western Australia was directed by the views of the Stolen Generations Survivors and their families. The project created a Virtual Reality model as a digital record of at risk heritage sites that can serve as digital repository for storytelling and personal narratives documenting, times, place and individuals who are fading from current collective memory [12].

Missions Connect is first and foremost digital preservation of intangible heritage. It is the first immersive technological tool of its kind in Australia which is effective as a heritage repository. It captures the lived experiences of Stolen Generations Survivors at Missions. It narrates their stories within a Virtual Reality reconstruction of these places. The project identified the sensitivities associated with the application of Virtual Reality and issues of ethical and professional practices that are integral part of the selection, preservation and access of indigenous culture. To quote Ms Tiwari:
“Issues around the risk of losing, or misappropriation of cultural identity become all the more important when we are dealing with intangible heritage; when that intangible heritage belongs to our First Nations People; and when we are attempting to conserve it within a digital realm.”

Missions Connect raises questions of authenticity, ownership and trespassing in the digital heritisation of tangible and intangible cultural heritage of the First Nations People.”

From the outset of the project Ms Tiwari and the team recognised that, if not done correctly, preservation of intangible heritage in virtual reality could potentially lead to the distortion of cultural elements and their place of origin. Ms Tiwari describes the treatment of this risk:

“In order to minimise this risk, and maintain an authentic, decolonised account, it is important to have a sustainable and inclusive planning particularly in the production and management of heritage assets. In Missions Connect, the processes of producing these heritage environments were under Aboriginal control. A strength-based approach ensures the involvement of Survivors in all stages of production for an appropriate interpretation and conservation of these cultural assets, and an accurate representation of the communities’ perspectives.”

In her response to the Missions Connect project and its treatment of these issues, Ms Te Paea Paringatai emphasized the importance of recognising and enforcing the concept of the digital data sovereignty of indigenous people whose heritage is being captured through preservation actions and other means. Ms Paringatai pointed out that this issue is gaining visibility and requiring a concerted effort to support the rights of indigenous people to own, control, persist and possess data which is derived from them, and which pertains to their members, knowledge systems, customs, or their race. This principle is aligned with the UN recognition of the indigenous people’s inherent rights to self-determination and governance over their peoples, territories and resources. When traversing into the digital realm, Ms Paringatai emphasises the particular importance of effective measures to mitigate the risk of misappropriation and misuse.

By design, Missions Connect avoids misappropriation of the participants’ data. The physical and socio-cultural heritage, that is the tangible and intangible assets, are managed simultaneously. The nature of physical assets is captured in ‘information poles’, while the Survivor’s memories of an event, story or song are recorded in a ‘sound bubble’. The virtual reality environment is thus able to provide a context and hence reduces the risk of misappropriation. What the viewer gets is a decolonised perspective coming straight in the form of Survivor’s voices. Respecting the authority of indigenous communities to decide whether certain cultural practices or traditional knowledge can be shared, it was the Survivors who decided which aspect, or a building was preserved and kept accessible. Analogous to policies in the physical world, the concept of digital trespassing is fully recognised and respected when governing the heritage in the virtual reality.

The adoption of virtual reality technology as an instrument for digital preservation merits further investigation. Mr Abdullah Al Hinai responded to the presentation by pointing to the great potential of the approach to various contexts in the heritage preservation field. Generally, the non-linear, immersive aspects of virtual reality extend the possibility of its use to preserve the documentary heritage and capture intangible aspects of cultures. However, that requires carefully devised and standardised practices and policies to ensure that the true cultural significance has been appraised and the ownership and authority over the access and use of heritage is properly implemented.

During the Locknote session, Ms Helen Vincent pointed to the importance of recognizing and mitigating risks to the digital documentary heritage. That includes securing long term digital media use while engaging with policies on sustainable and responsible management of resources. Embedding requirements for local and off-line access in policy frameworks is one way of increasing the availability of digital documentary heritage and also addressing the inequality of Internet access and high-quality bandwidth around the world. Similarly, climate change and natural disasters present heightened risks around the world as they affect energy sources essential for electronic equipment and infrastructure needed to manage digital content. The policies on protection of digital document heritage are likely to include multiple installations and copies in strategic locations while optimizing resource consumption.
**Sustainability**

This section is drawn from the proceedings of the Virtual Policy Dialogue session on Sustainability issues, moderated by Mr Robert Buckley, Technical Adviser at the National Archives of the United Arab Emirates with presentations by Mr van der Hoeven, Head of Digital Preservation at the National Library of the Netherlands and Ms Marcie Hopkins, Head of International at British Library (BL), United Kingdom and dialogue contributions by Mr Gabriel Alegbeleye, Professor at the Babcock University, Nigeria; Ms Laila Hussein Moustafa, Associate Professor at the University of Illinois at Urbana-Champaign, USA; and Mr Adhie Gesit Pambudi, Mr Dhani Sugiharto and Mr Prasetyo Utomo, National Archives of the Republic of Indonesia. It also includes contributions from the Locknote session by Ms Helen Vincent, National Library of Scotland and IFLA.

As a series of managed activities, digital preservation requires skills, know-how, resources, advocates, incentives, a supporting infrastructure and an enabling environment. These elements are not always available where they are needed or uniformly distributed, either locally or globally. As a result, they may not be available in the locations or to the institutions where they are needed, posing a risk to the preservation of documentary heritage. The sustainability discussion incorporated perspectives from Asia, Africa, Europe and North America and provided a global perspective on the topic.

An early contributor to the UNESCO PERSIST initiative, Mr van der Hoeven pointed out that working together is more important than ever in achieving sustainability. Led by his experience with the Dutch Digital Heritage Network (DDHN), he proposes a paradigm shift from institutional thinking to cross-institutional collaborations through organisational networks. Looking beyond a single institution as a self-sufficient entity, one can form a multi-organisational network with a strategic capability to address the traditional challenges that individual organisations face: capacity building, financial planning, risk management, succession planning and governance, including policies for digital preservation and management commitment for the long term. In this new paradigm, each partner institution contributes by sharing knowledge and services towards mutual benefits or common goals, making digital heritage sustainable, visible and usable. The cross-institutional collaboration may require adjustments in the level of control and autonomy that partner organizations have in the areas of joint work and common interest.

The DDHN is an organisational network that comprises cultural heritage and research institutes, vendors, the creative industries and governmental bodies. It has demonstrated its effectiveness in eliminating silos and overcoming institutional limitations, enabling organisations—both small and large—to learn from one another and join forces to focus preservation on access and reuse. As such, the DDHN offers a model that other countries and regions can adopt to mobilise the power of the network to achieve common goals.

Ms Marcie Hopkins has similarly identified the importance of international partnerships that bring together funding and resources and apply them where they are needed to digitise and preserve documentary heritage. For example, the BL administers the Endangered Archives Programme, funded by the Arcadia Trust. The programme has supported more than 400 projects in 90 countries, providing equipment and training in the locations where there is at risk archival material. The digital master remains with the local partner, while the BL retains a copy that is made available online. Because of the challenges this can present in some circumstances, the BL has published a guide, available in multiple languages, entitled Remote Capture: Digitising documentary heritage in challenging locations.

The BL also supports a paper-based conservation studio at the Palestinian Museum, with funding from the UK Cultural Protection Fund and training and advice from the BL. This project facilitates exchange visits and has led to the digitisation of 3000 at risk items. A partnership with the Qatar Foundation secured funding for digitising Gulf-related collections and Arabic manuscripts at the BL and for making them accessible via a bi-lingual web portal.
The National Archives of the Republic of Indonesia (Arsip Nasional Republik Indonesia—ANRI) has also achieved sustainable success through international partnerships. The National Archives Network Information System is a portal that enables public access to collections from multiple institutions in Indonesia. This system uses AtoM archival description software, sponsored by the International Council on Archives (ICA), developed by Artefactual Systems in Canada and funded by the National Archives of the United Arab Emirates. ANRI also collaborates with the Netherlands to increase access to the archives of the Dutch East India Company. These collaborations make the respective collections visible and usable which contribute to their sustainability. Finally, ANRI is investing in capacity building and the training of employees, sending them abroad to acquire the necessary skills. For ANRI, collaborations, both internally and internationally, driven by a strong, well-articulated policy, has proven absolutely necessary for sustainability.

As illustrated, the success of international partnerships is multifaceted and is to be celebrated. However, it also highlights the considerable gaps that exist between developed and developing countries. According to Mr Gabriel Bunmi Alegbeleye, many African nations are still well behind more resourced nations in the field of digital preservation, due to the absence of national policy, lack of government support, lack of skills and capacity to undertake digitisation and preservation and poor infrastructure. Forming organisational networks and pursuing Endangered Archives Programme would be worth expanding as a practice in Africa.

Ms Laila Hussein Mostafa suggested expanding the approach to collaborations that include technology partnerships with major vendors to ensure development of products and services that meet digital preservation needs. Equally important are efforts on the development of international standards for multilingual metadata and encouraging products such as OCR packages for under-represented languages. Similarly, creating databases to serve as an international reference and resource with information on toolkits, experts, workshops and funding sources for digital preservation would further assist capacity building on a global scale.

To the extent that sustainability relies on sustainable partnerships, there are challenges: reduced funding, differences in strategic aims, diminished face-to-face connections and unpredictable digital infrastructure. Establishing partnerships, especially international ones, can be complex, due to a variety of factors, e.g. effectiveness of technology transfer, legislative compliance, ‘shared heritage’ and differences in cultural practice.

Besides securing resources, the preservation community needs to consider the alignment of digital preservation with efforts to secure global sustainability. In her comments during the Locknote session, Ms Helen Vincent pointed to the importance of environmental sustainability and the need for the preservation community to be part of the national and international conversation about climate change. Measures proposed by environmental protection programmes, including a sustainable digital footprint, have direct consequences for digital preservation, which depends on sophisticated technologies and energy sources.
Digital preservation inevitably involves technologies as a means of digitising, storing, describing, accessing, presenting, and disseminating digital artefacts. However, technologies evolve and, if not carefully managed, technology obsolescence disrupts the preservation and access to documentary heritage. Mr Schüller, a long-time advocate for the preservation of audiovisual material, pointed out that we are in the midst of a global and unprecedented crisis, racing with time to preserve audio and video recordings stored on magnetic tapes.

For more than 70 years magnetic tape has been the most widely employed recording medium [5]. Developed in 1930s, it became a dominant audiovisual recording carrier after World War II, first for radio and the phonographic industry and in 1950s for television. With the availability of affordable portable audio and video recorders, its use spread rapidly in education, academic research and cultural institutions, capturing invaluable documentation of now endangered languages, music, dance, rituals and oral history. The content stored on magnetic tapes represents unique records and original sources for subsequent scholarly works, capturing the cultural and linguistic diversity of the humankind.

Starting in 1990s, audiovisual recording moved away from magnetic tape formats to computer technology. Due to diminishing demand, manufacturing of replay equipment and spare parts ceased. For several years now, all magnetic tape formats – audio and video, analogue and digital – have been obsolete. 2025 is widely assumed the point beyond which a regular transfer of magnetic tape contents to digital repositories will cease to be viable.

Magnetic tape recordings are the main primary sources of our present knowledge of the cultural and linguistic diversity of humankind. Many are still waiting to be safeguarded. If we fail to do this in time, we would still be able to read tens of thousands of secondary publications based on these sources, but we would be unable to view or to listen to these originals.

Ultimately, audiovisual contents can only be safeguarded by lossless digital content migration, separating contents from the original obsolete analogue and digital carriers and transferring them to safe digital repositories. This strategy was discussed around 1990, standardised by the International Association of Sound and Audiovisual Archives (IASA) for audio first, adopted for video around 2000, and more recently also for film preservation [6].

Major broadcast and national archives have already digitised their magnetic tape collections, or have planned for their migration in time. But many smaller collections, typically recorded by academic and cultural institutions, are lagging behind, even sometimes unaware of the threat of obsolescence. In order to assess the scale of the problem UNESCO and IASA joined forces for the Magnetic Tape Alert Project (MTAP) to collect information through a questionnaire about the magnetic tape holdings, i.e. number of items per format, coarse description of content, etc., the state of preservation, the need for equipment and expertise, and the readiness to assist with collections held at other institutions, if possible. By Oct 2020, over 8.5 million audiovisual items have been reported, including 4.4 million audio and 4.1 million video items. The responses came from a broad spectrum of institutions, with a clear concentration (62%) on Schools, Colleges and Universities, and Libraries and Archives. Unexpectedly, the response from regions and Member States was uneven: only 76 countries, a fraction (40%) of
the 193 UNESCO member states participated in the questionnaire. The findings indicated that a greater proportion of the respondents were aware of the immediate threat to magnetic tape content. However, only small parts of their collections have been digitised due to a lack of funds, replay equipment and staff skilled in digitisation methods. Several institutions expressed their readiness to collaborate and offer expertise and assistance to other organisations. Information about the MTAP status has been published by IASA [7]. The effort is ongoing, and the UNESCO Virtual Policy Dialogue aims to encourage institutions to take part in collecting information to assess the scale of the threat to the World’s audiovisual documentary heritage.

Technology obsolescence is an ongoing process. Mr Frédéric Maire highlighted the emerging challenges of the Cinémathèque Suisse in locating readers of VHS tapes. This is indicative of the risks associated with replaying the content on storage media and the need for UNESCO leadership to facilitate cross-industry cooperation.

Ms Yolia Tortelero pointed out to the global need for understanding the benefits, risks and irreversible damages that were incurred from the use of technologies for preservation purposes, suffering the consequences of unstoppable technology obsolescence. The consequences of technology obsolescence speak for the importance of assessing and documenting risks before they turn into disasters, affecting preservation efforts, access to information and sustainability of digitisation projects. Over the past decades, there have been significant advances in improving national and international standards, tools, software and storage solutions for preserving electronic records. However, the memory institutions continue to race against time and require resources to stay up to date with technologies in order to protect, digitise, and enable access to digitised collections. Investing time to document and share successes and failures may assist in developing approaches to curb the impact of technology obsolescence through timely and collective actions.

Generally, digitisation is an essential aspect of preservation across many analogue content types and is inevitably reliant on technologies and best practices to achieve the required quality and scale. Mr Günther Cyranek and Felix Gross have been involved with KAdKA—Competence Centre Archive Digitisation in Karlsruhe, Germany. KAdKA provides affordable do-it-yourself image digitising workstations particularly suitable for use by memory institutions around the world, dealing with a variety of documentary heritage types.

Based on extensive experience in professional photography and photographic digitisation techniques, KAdKA distilled the requirements and created a portable workstation toolkit that can be locally assembled to support digitisation projects. The fastest, cheapest and most universal digitisation process is with digital cameras. The physical fundamentals of general and object photography, the common peripheral systems (lighting systems, camera stands, computers, software, etc.) and the specific camera functions (autofocus, gradation, exposure control, colour settings, contrast, etc.) can all be directly applied to the digitisation work. The camera programs are compatible with standard operating systems and can be flexibly used with standard PCs. In almost all cases, images can be controlled on-the-fly on screen and TIFF and JPG formats with different compression rates (thumbnails and RAW data) can be stored with a single shot, providing maximum quality and processing options for post-production.

Except for the devices, i.e. the cameras, lenses and computers, all the components of the KAdKA workstation are technically simple and can be realised by users with do-it-yourself experience or with involvement of local craftsmen (carpenters). Built of materials available worldwide and lightweight, the workstation can be easily assembled and disassembled and transported by a passenger car for operations in various locations. The KAdKA project fits Sustainable Development Goals SDG 16/Target 10: Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements,

SDG 17/Target 9: Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation. Strengthen the means of implementation and revitalise the global partnership for sustainable development with technology, science and capacity building.

KAdKa fosters affordable technological solutions and aims to disseminate the approach widely. Within past four years, the University Archive of the Karlsruhe Institute of Technology (KIT) has adopted KAdKa workstation and deployed students to digitise tens of thousands of documents and photos from research institutes, departments and faculties. The County Archive Rastatt digitised over 160,000 historic newspaper pages within three years and organised a successful exposition on the “History of photography in Karlsruhe 1840-1990” at Prince Max Palais, city museum of Karlsruhe. With support of the Secretariat of IFAP Program and the UNESCO Juba Office, KAdKa is providing training and a workstation to the South Sudan National Archive, Juba.
The work by PARADISEC highlights the importance of sustainable and long-term care of content following the digitisation efforts. Digital records are subject to loss and require a concerted effort to protect the invaluable cultural records. Ms Amanda Harris pointed to the technology challenges and the needs for creating infrastructure bridges between smaller institutions that serve local communities and major institutions that have resources and expertise in long term preservation. It is particularly essential to create effective and standardised technologies for capturing contextual information about the digitised content. Well designed, distributed catalogues would enable contextual information to be shared with local centres and enrich the access to digitised content.

While requirements and challenges of post-digitisation care are common, the risks vary across regions. Mr Frédéric Maire highlighted the complexity of long-term care, including the need for cost effective storage with quality control, transfer, and migration of content, while in some regions even electricity supplies present issues.
Legal frameworks

Among key aspects of digital preservation are the ability to copy and to provide access to digital content. Considering the need to protect the authorship rights, the specification of the copyright laws and access laws are key to the preservation work. As pointed out by Mr Eric Chin, the existing legal frameworks are put in place to support publishing and dissemination and are not clearly related to the digital preservation actions. Thus, there are many grey areas, making it hard for the preservation practitioners to determine whether their actions are in line with the laws. The problem is further exacerbated by rapidly changing technological landscape and information and communication practices. The experts are facing new publishing and usage scenarios for which the copyright and access laws need to be revisited and re-evaluated to provide clear guidelines. Furthermore, the preservation actions are expanding to cover a wide range of born-digital content and deal with its scale and constant updates. The latter presents particular challenges because dynamic content requires swift action and ongoing collection using computer-aided processes for content crawling, copying and dissemination.

A quick search of “Digital Dark Age” shows the concerns that archivists and librarians have about the ability to deal with ever-growing amounts of historically significant online material that needs to be preserved and is at risk of being missed and lost without trace. That includes institutional and government records, personal records, and culturally significant materials, primarily in the digital form. The relevant content types now include streams of social media. In order to document historical political events, such as USA election in 2020, it is necessary to capture Web content and Twitter accounts of protestors, government officials, and institutions in order to build a complete documentary archive. The archival record of the Donald Trump presidency, for example, would not be complete without copies of @POTUS account tweets.

Similarly, the scale and diversity of content affect the deposit and access to digital material. Many organisations are under-resourced and unable to perform their tasks. Ms Maria Soledad Abarca emphasised the importance of securing economic viability of institutions tasked with the preservation of national heritage. The ongoing crises around the Cinematica Brasilera illustrate the complexities of the economic and legal issues, including the effects of the grey legal areas.

The deposit laws play an important role in assigning responsibilities and preventing a loss of material due to negligence. For example, in instances where there are no institutional deposits of radio and television heritage, the management of audiovisual material is in the hands of private broadcasters who may not have resources nor skills in long term preservation. Legal deposit legislation would enable memory institutions to collect and preserve audiovisual material, rather than leaving this in the hands of private individuals and companies.

Finally, access licenses are essential for citizens to benefit from the preserved documentary heritage. Organisations should do their best to practise responsible stewardship and either ensure that they have appropriate statutory licences or can acquire access rights from rightsholders directly or seek partnership with collecting bodies to achieve that. Mr Eric Chin highlighted, from experience, that arriving at access agreements with content authors, owners or custodians might take time. Therefore, in the case of time-critical preservation actions, some may feel compelled to take a pragmatic approach and proceed with content collection while access negotiations are still in progress. Thus there is a need for access licences to be immediately considered and, where necessary, negotiated with rights and license holders in parallel with the collection plans.
Generally, memory institutions need to be astute in negotiating terms of collaborative projects. Mr Maximiliaan Scriwanek advocates for the custodianship of the materials, both original and digitised, to be based on the provenance of the material. This point relates to the concerns of violating cultural values of the nations who are original owners of the cultural heritage. For example, colonies of European countries have mutual heritage. Based on provenance, the archival content has been returned from Europe to the colonies. However, digitisation of archival material led to a reverse direction where digitised content is migrated to institutions in Europe that have more resources, including storage, software and electronic records databases. In many instances, the digitised archives include personal records of citizens. Since their custodians are in European jurisdiction, open access laws allow for free reuse of the records by any application maker in Europe. The violation of cultural values resonates with the concerns of digital trespassing identified in the section on Cultural Identity at risk.

Overall, preservation practitioners would benefit from clear copyright laws that explicitly address the digital preservation scenarios. That will reduce the need for interpretation and risks from violating the law. Furthermore, it is essential for copyright and access laws to take into account the scale and diversity of contemporary type of born-digital materials, especially Web and social media content. While archivists require Deeds of Gift for content donations or transfers in order to mitigate risks of violating copyright or fair use, there are still many grey areas and it is critical to arrive at effective policies that could be enacted both locally and internationally.

A number of nations have already implemented copyright and access laws to support national preservation efforts. In order to support nations who are planning to pursue similar paths, it would be useful to create a common database of relevant legislation from countries around the world. Besides assisting with defining local legislations, such a resource would streamline the preservation planning and access agreements among partners in international collaborative projects. The challenges of building such a database are largely related to the translation of laws to increase their potential usage.

Finally, institutions like the World Intellectual Property Organisation (WIPO) could serve as a vehicle for establishing international treaties to support digital preservation practices, providing de facto standards across regions and jurisdictions. International scopes of such agreements could build a common understanding and expedite collaborations.
The UNESCO 2015 recommendation and policy gaps

Policy development priorities

The UNESCO Virtual Policy Dialogue highlighted urgent issues that demand immediate attention and prioritisation on the international policy agenda for digital preservation. With reference also to the 2015 Recommendation [2], the MoW Preservation Sub-Committee has adopted the following thematic structure to outline policy gaps that have been identified during the dialogue. The identified policy gaps will be raised to IAC.

Governance and access management

Digital trespassing

Digitisation enables broad access to digital collections. However, just as physical locations of heritage sites are subject to access management, access to heritage in digital form requires policies and protocols that are aligned with ownership and custodian responsibilities. Digital trespass law, agreements and policies are critically important. This is particularly urgent as digital preservation technologies are used to preserve cultural heritage of indigenous peoples. Their human rights must be respected in all aspects, from creating and preserving digital heritage to implementing access control.

A clear policy will encourage adoption of innovative solutions to manage access based on contexts (e.g. in virtual reality set up, use dynamic access controls to determine what is appropriate to present to specific visitors) or economic models of content exhibitions (e.g. a paywall for individual viewers or licensed organisations).

Data sovereignty

Privacy, confidentiality and security of data are grand challenges of the digital era. They are tightly linked to the protection of identities and the rights to control the creation of data related to individuals and peoples. At a fundamental level, that includes Indigenous Data Sovereignty, the right of Indigenous Peoples to own, control, access and possess data that derive from their cultural identity, and which pertain to their members, knowledge systems, customs or territories.

Indigenous Data Sovereignty is supported by Indigenous Peoples’ inherent rights of self-determination and governance over their peoples, territories and resources as affirmed in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), as well as in domestic treaties. Unregulated digitisation of indigenous cultural heritage may effectively dispossess indigenous people of their cultural heritage, undermining Indigenous Data Sovereignty. Policies are required to recognise that data is a strategic resource and to provide a framework for the ethical use of data to advance collective Indigenous peoples’ wellbeing and self-determination.

Collection and protection

Institutional mandates

The responsibility for preserving the nation’s cultural heritage is entrusted to memory institutions, including libraries, archives and museums in individual countries. With global connectivity and trans-national distribution of digital heritage, the responsibility to preserve this legacy has become more important and more challenging due to the scale of information produced, published and shared in the digital form.

The key concepts of geographical place of origin, cultural context and ownership are increasingly becoming contestable in the digital world. In that light, the institutional mandate for national collecting institutions needs to be reviewed and revised to acknowledge more formally the issues of shared, borrowed, or appropriated digital heritage.

Magnetic tape collections: Global awareness and national and regional cooperation

Preservation of audiovisual material and the urgency around magnetic tape obsolescence requires global awareness and effective local actions. Strong national and regional cooperation is critical to identify and assess risks to the endangered magnetic tape collections and to coordinate audiovisual content preservation. Resources and capacity to respond to such urgent preservation needs vary. High level expertise in audiovisual preservation is available but concentrated in a few institutions. Close cooperation in sharing of this expertise is essential.

It is important to create disaster response policies that encourage formation of institutional networks with shared responsibilities to overcome key obstacles from providing expertise to sharing resources and reducing cost and effort.
Preservation actions

Scale and rapid deployment

The success of providing low-cost mobile digitisation capabilities serves as an example of possible approaches to meet the urgency and the scale of preservation actions. This suggests that there is merit in establishing an international framework that systematically covers digital preservation of content type scenarios and sets standards for cost effective, archival quality set-ups. The framework can be periodically reviewed and revised with the development of technologies and approaches.

The framework will support new approaches to be explored, validated and adopted. In collaboration with the existing association for specific content types, the community can set guidelines, allowing memory institutions to contribute training and personnel for the rapid and broad deployment of the capability. This will increase the efficiency and coordination of well targeted programmes to digitise documentary heritage at risk.

Standards and common resources

Supporting diverse local population and enabling international awareness and dissemination of digital heritage is often hampered by a lack of multi-lingual support. Starting with the preservation work, common multilingual metadata resources and standards would make a significant difference to day-to-day practices and collaborative efforts.

Having clear policies and guidelines on the preservation of multi-lingual content will strengthen adopted resolutions on access to information and encourage development of technical solutions for automated generation of multi-lingual metadata and support for multi-lingual content scanning and processing. Setting the requirements and creating common resources for multi-lingual content processing will serve as the foundations for vendors and the open-source community to provide solutions and support.

Legal and ethical frameworks

Treaties for collaboration

International collaborations among organisations and organisational networks are key to digital preservation. Thus, it is key to enable archivists and librarians to enter into partnerships on the digitisation and preservation of culturally significant material. Such efforts require clear terms of engagement and treatment of the original material and the digital content produced during the preservation process. The terms typically cover the scope, handling, relocation, ownership and rights of access.

The community would benefit from guidelines on defining legal aspects of international collaborations. Particularly useful would be standardised forms of partnership treaties in specific areas. For example, a treaty on the scope and terms of engaging with indigenous communities would provide assurance that all the activities are conducted to the adopted ethical and professional standards. Furthermore, a shared repository of international references, toolkits, templates of legal agreements, and case study reports would help create a common ground, increase the efficiency in setting up collaborations and promote a respectful co-existence of legal and cultural frameworks.

Sustainable solutions and industry partnerships

Preservation of documentary heritage is closely interlinked with authors, publishers and owners of content and with producers of digital technologies required for the collection, preservation, and long-term access to digital content.

In some cases, investments in digital preservation of significant cultural heritage are discouraged if there is a real or perceived risk of a breach of copyright. Thus, it is key to work with all the stakeholders to set clear policies and guidelines to remove such barriers. Such policies would provide memory institutions and rights holders with sufficient assurance that preservation can be undertaken in a lawful and ethical manner.

Similarly, digitised and born-digital content require digital technologies to process content files and enable interaction with the digital content. Without compatible software, digital content remains inaccessible. Due to rapid development of digital technologies and short life-cycles of software and hardware products, it is essential to put in place policies on risk-aware adoption of technologies for digital content production and long-term preservation. At the same time, it is important to work with technology producers and technology users to set policies on the life-cycle management of digital technologies and to establish a legal frameworks and licensing agreements to enable long-term use of technologies required to access and use preserved digital content.
Towards UNESCO international policy framework

Mr Fackson Banda, Chief, UNESCO Documentary Heritage Unit (MoW)

UNESCO Memory of the World Programme with its Documentary Heritage Unit and the Preservation Sub-Committee to the MoW International Advisory Committee, are committed to providing global leadership in the area of preserving documentary heritage.

For effective international efforts, it is an imperative to create a comprehensive policy framework to support activities in identifying, preserving and accessing documentary heritage and achieving cooperation across all the relevant stakeholders at the organisational, national and international levels. Through a unified agenda, well devised policies and collaborative efforts, the UNESCO Member States have the best chance to tackle challenges of digital preservation of documentary heritage.

The 2015 UNESCO Recommendation includes reporting practices where every four years Member States inform on their preservation actions by providing data about general support for documentary heritage, legislations and mandates, identification and the preservation status of the documentary heritage and capacity building. This information is part of the MoW Programme status reporting by each Member State that has such a programme linked to the ministries through either National Commissions of the UNESCO or National Committees of the MoW Programme.

As of October 2020, UNESCO has received reports from 38 Member States, with 11 from Group 1, 12 from Group 2, 4 from Group 3, 6 from Group 5, 2 from Group A, and 3 from Group B. This data provides insights into key policies and issues that span legislation, mandate and status of preservation and accessibility.

Most of the reporting States have legislated framework and formulated policies with regards to the documentary heritage. The preservation of documentary heritage is addressed in laws and regulations that relate to the documentary heritage in general. Therefore, further work is required on specific regulations, particularly copyright laws and licensing of technologies required for long term access to the documentary heritage.

Government budgets allocated to memory institutions have increased overall, with European Union driving this increase for European countries. However, the gap still exists in poorer countries and calls for solidarity and assistance by economically developed nations. Pre-COVID commitments to long-term investment in digitisation infrastructure and preservation of digital archives were well established and now need to be upheld more than ever.

Efforts in technology and development of open-source software and open access to proprietary codes, have advanced in several Member States while not yet established in others. At the same time, digital migration from analogue to digital formats poses problems for cataloguing and accessing preserved content, especially in poorer countries.

Most of the national memory institutions in reporting States are governed by the preservation and access policies and rules for selection, deselection and acquiring of materials. However, from 38 reports we cannot generalise to all the Member States.

With the challenge of the deterioration and permanent loss, most of the reporting States have identified specific parts of their collections that are at risk and prioritised them for the preservation and digitisation. They reinforced the measures for the rescue and protection of endangered documentary heritage, supporting research, adopting effective techniques and engaging in constructive and collaborative efforts to mitigate the risk to most vulnerable collections through sharing knowledge and guidance.

While few States report that they cannot support private, local and individual collections, most States see the value in doing so and committed to such efforts, particularly in countries like Canada, with enhanced digitisation of local collections. Effective discovery platforms, as adopted in the United Kingdom, are key to supporting nation’s heritage and indigenous people cultural heritage in Australia.

Many issues raised in the Virtual Policy Dialogue resonate with the reports from the UNESCO Member States. Further work of the MoW Preservation Sub-Committee will take them into account as outlining the roadmap for filling the gaps in the existing policies and practices and advising IAC on the establishment of new policies. It is important to share best practices and collective knowledge. That can be facilitated by publishing manuals on digitisation, technologies, and legal issues as well as lesson learnt from the extra-ordinary situation that COVID-19 pandemic presents.
References

[1] UNESCO Virtual Policy Dialogue on Documentary Heritage at Risk, 27 October 2020. Two-session event was streamed live on YouTube (2 hours each):

**Session 1:** English https://www.youtube.com/watch?v=7unG4nZ-Xbs

French Translation https://www.youtube.com/watch?v=x1SoCixwHKE

**Session 2:** English https://www.youtube.com/watch?v=-09-M8ey8FA

French Translation https://www.youtube.com/watch?v=m_fmxHhQIPE.

Complete Programme with video recordings of individual topic discussions:


Further reading and resources


[10] International Association of Sound and Audiovisual Archives (IASA), Technical Committee, Standards, Recommended Practices, and Strategies:


  IASA-TC 05 (2014) Handling and Storage of Audio and Video Carriers. Edited by Dietrich Schüller and Albrecht Häfner.


  All standards are available as web versions. Some standards are translated into multiple languages. Paper versions of documents are available at https://www.iasa-web.org/iasa-special-and-technical-publications.


## Abbreviations

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<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ARCMOW</td>
<td>Regional MoW Committee for Africa</td>
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<tr>
<td>ANRI</td>
<td>The National Archives of the Republic of Indonesia / Arsip Nasional Republik Indonesia</td>
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<td>BL</td>
<td>The British Library</td>
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<td>CARBICA</td>
<td>The Caribbean Branch of the ICA</td>
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<td>CCAAA</td>
<td>The Co-ordinating Council of Audio-visual Archives Associations</td>
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<td>CHEN</td>
<td>The Caribbean Heritage Emergency Network</td>
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<td>DDHN</td>
<td>The Dutch Digital Heritage Network</td>
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<td>FIAF</td>
<td>The International Federation of Film Archives</td>
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<tr>
<td>FIAT/IFTA</td>
<td>The Fédération Internationale des Archives de Télévision / The International Federation of Television Archives</td>
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<td>ICA</td>
<td>The International Council on Archives</td>
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<td>ICT4D</td>
<td>Information and Communication Technology for Development</td>
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<td>IASA</td>
<td>The International Association of Sound and Audiovisual Archives</td>
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<td>ICTM</td>
<td>The International Council of Traditional Music</td>
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<td>IFLA</td>
<td>The International Federation of Library Associations and Institutions</td>
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<td>IFLA PAC</td>
<td>IFLA Preservation and Conservation</td>
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<td>IPDC</td>
<td>UNESCO International Programme for the Development of Communication</td>
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<td>KAdKA</td>
<td>KAdKa Competence Centre Photographic Digitisation</td>
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<td>KB</td>
<td>The National Library of the Netherlands</td>
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<td>MTAP</td>
<td>The Magnetic Tape Alert Project</td>
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<td>MoW</td>
<td>UNESCO Memory of the World Programme</td>
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<td>MOWCAP</td>
<td>The Regional MoW Committee of Asia Pacific</td>
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<td>MOWLAC</td>
<td>The Regional MoW Committee of Latin America and the Caribbean</td>
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<td>MoW IAC</td>
<td>The International Advisory Committee of the MoW Programme</td>
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<td>NAA</td>
<td>The National Archives of Australia</td>
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<td>NGO</td>
<td>Non-governmental organization</td>
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<td>PARBICA</td>
<td>The Pacific Regional Branch of the ICA</td>
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<td>PARADISEC</td>
<td>The Pacific and Regional Archive for Digital Sources in Endangered Cultures</td>
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<td>PERSIST</td>
<td>Platform to Enhance the Sustainability of the Information Society Trans-globally Project of the Preservation Sub-Committee of the MoW IAC</td>
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<tr>
<td>SCEeR</td>
<td>UNESCO MoW IAC Sub-Committee on Education and Research</td>
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<td>ScCoT</td>
<td>UNESCO MoW IAC Sub-Committee on Technology</td>
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<td>UN</td>
<td>The United Nations</td>
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<tr>
<td>UNESCO</td>
<td>The United Nations Educational, Scientific and Cultural Organization</td>
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<tr>
<td>UNDRIP</td>
<td>The United Nations Declaration on the Rights of Indigenous Peoples</td>
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<td>WIPO</td>
<td>The World Intellectual Property Organisation</td>
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Elaboration on the 2015 recommendation

The 2015 Recommendation concerning the Preservation of, and Access to, Documentary Heritage Including in Digital Form (28/04/2016 [2]), sets foundations for preservation and access of documentary heritage and advocates for policy measures. Policy measures are fundamental for the success of preservation and access. Such measures have long been defined nationally through local legislations and may differ due to the different cultural and political context of a country or region. The webinar “Documentary Heritage at Risk: Policy Gaps in Digital Preservation” brought up many issues that relate to the 2015 Recommendation and invites a thoughtful reflection on where the policy gaps are and how serious they are.

Considering the traditional preservation and access strategies, it is important to learn from the experiences over the past decades of preservation activities. The digital heritage of today is created with technologies that are developing continually. This constant evolution of digital technologies presents opportunities and risks and thus must be carefully considered and evaluated. Existing strategies were less exposed to such issues and therefore the new concerns and practices are not reflected in the current policies. This is the most important gap that must be addressed. The 2015 Recommendation recognize the need to stay abreast of the ongoing developments and advises on the updates and revisions under Policy Measures.

4.6 Member States are encouraged to periodically review copyright codes and legal deposit regimes to ensure they are fully effective, with limitations and exceptions, for preserving and accessing documentary heritage in all its forms.

4.7 Where preserving and accessing documentary heritage requires the use of software or other proprietary technology not covered by copyright exceptions, Member States are invited to facilitate access to proprietary codes, keys and unlocked versions of technology on a non-profit basis.

In 2018, 6-7 November, UNESCO arranged a meeting in Paris and reported

“Representatives from a variety of backgrounds, including policy makers, legal experts, computer scientists, librarians and archivists, appealed to UNESCO’s Member States, international organisations, business leaders and civil society, to preserve, collect and share the existing software commons as part of the 2030 Agenda for Sustainable Development.” (https://en.unesco.org/news/experts-call-greater-recognition-software-source-code-heritage-sustainable-development)

“An outcome document adopted by the group of experts – titled The Paris Call for Software Source Code as Heritage for Sustainable Development – includes a report highlighting the benefits of and the threats to software source code preservation. It also includes a call for major stakeholders and communities to be mobilised into action to preserve such software source code for the present and future generations.”

Building on this momentum, it is important to identify factors that are critical for sustainable and long-term preservation of digital heritage that have not been considered in the past.

For example, the obsolescence of technology is not addressed in the 2015 Recommendation, nor are the methodologies to avoid the threat of obsolescence. Standard approaches involve migration of content from outdated preservation formats, media and platforms to modern ones and the use of virtualization and emulation to extend the use of software for as long as it is required. However, the 2015 Recommendation emphasises, in chapter 2, Preservation of Documentary Heritage, and in chapter 5, National and International Cooperation, the adherence to international standards, if available. In relation to the audiovisual archives, the long-term preservation of audiovisual content has been standardised by a series of publications from IASA and FIAT/IFTA and the community can use them as essential guides for preservation activities.

In addition, chapter 1 (paragraph 3) recommends that the Member States engage actively in the Identification of the Documentary Heritage. Indeed, in order to prevent the loss of documentary heritage in local and regional collections, it is important to encourage cooperation on national and regional levels, e.g. through national and regional surveys. NGOs, as well as UNESCO, need to strengthen their respective infrastructures and actions, working with countries and regions that have not yet taken part in projects of identifying documents at potential risks, like MTAP. Implementing national surveys modelled after MTAP, would be simple, inexpensive and effective.
Member States are encouraged to identify specific documentary heritage the survival of which is at potential or imminent risk, and draw it to the attention of competent bodies able to take appropriate preservation measures. They should support and strengthen their relevant memory institutions and, where practical and appropriate, encourage research communities and private owners to care for their own documentary heritage in the public interest. Similarly, public and private institutions should ensure professional care for the documents which they themselves create.

Moreover, UNESCO Virtual Policy Dialogue events, cooperatively arranged by the MoW IAC Preservation Sub-Committee and Audiovisual Archives Associations, would be an appropriate response to the preservation challenge and assist Member States in fulfilling paragraph 2.4 of the 2015 Recommendation.

2.4 Member States are encouraged to develop awareness-raising and capacity-building measures and policies as a key component of preservation, including promoting research as well as training for documentary heritage professionals and providing facilities for such. These should embrace curatorial best practices, current and emerging technologies, forensic skills and core competencies in relevant scholarship, science, technology and engineering, thereby raising awareness of the urgency of timely preservation action in a constantly changing environment.

Generally, the 2015 Recommendation emphasises the importance of long-term accessibility of documentary heritage and fundamental freedoms of opinion, expression and information as human rights. It recognises that, over time, considerable parts of documentary heritage have disappeared due to natural or human disasters or are becoming inaccessible through rapid technological change. However, a lack of legislation impedes memory institutions' abilities to counter the risks by preventing irreversible loss and impoverishment of that heritage.

Furthermore, there is a need for the Member States, communities and individuals to take appropriate measures for the protection, preservation, accessibility and enhancement of the value of documentary heritage. Several supportive regional action plans have aligned with this recommendation, e.g. the Abuja Action Plan for implementation (2018) by the Regional MoW Committee for Africa (ARCMOW), or the detailed PACIFIC Member States Action Plan (Suva 2017) of MOWCAP (Committee Asia Pacific) in co-operation with PARBICA (Pacific Regional Branch of the ICA).
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Mr Qu also served as a Minister at the Chinese Embassy in France where he was responsible for bilateral affairs and administration of the internal functioning of the Embassy and supervised the Permanent Delegation of the People’s Republic of China to UNESCO.

Mr David Fricker is Director-General of the National Archives of Australia (NAA), President of ICA and a Vice-Chair of the UNESCO MoW IAC. With a degree in computing studies, he first worked at the Computer Sciences Corporation and in 1993 founded Business Synetics. In 2002 he became CIO and, in 2007, the Deputy Director-General of the Australian Security Intelligence Organisation. At NAA, Mr Fricker has focussed on building public trust and ensuring that the work of public officials is captured and kept as an authentic, complete and accessible national resource that holds government to account,-upholds human rights and empowers Australia’s knowledge society. In 2015 he was made Knight of the Order of Arts and Letters (Chevalier dans l’ordre des Arts et des Lettres) by the Republic of France.

Mr Fackson Banda is Head of the UNESCO Documentary Heritage Unit within the Memory of the World (MoW) Programme. As a scholar of African political thought and media, he has published on postcolonial theory and media, technology and development, civic education and communication and community media and policy. He is winner of the 2008 MISA Press Freedom Award while he served as SAB Ltd-UNESCO Chair of Media and Democracy in the School of Journalism and Media Studies at the Rhodes University, South Africa. In a previous role, he worked as executive director of Panos Southern Africa, dedicated to the communication and sustainable development.

Mr Banda has played a prominent role in the UNESCO International Programme for the Development of Communication (IPDC).

Ms Helen Vincent is a member of the IFLA Governing Board and Chair of IFLA Cultural Heritage Programme Advisory Committee. She was Chair of IFLA Rare Books and Special Collections Section (2015-2019) and part of the working group which produced IFLA Guidelines for Setting Up a Digital Reunification Project. The guidelines draw from the growing experience with ‘digital unification’ projects that leverage technological advances to bring together collections and enable digital access to citizens and researchers wherever they may be.

Ms Vincent is Head of Rare Books, Maps and Music Collections at the National Library of Scotland where she has been working in various roles since 2002.

Mr Adam Farquhar focuses on digital transformations in library, research, and information sectors. As founding partner at Digital Lifecycle Management LLP, he works with organisations to understand and use digital preservation, machine learning, and advanced technologies. He has held senior management roles at the British Library where he founded and led its digital preservation, research data, labs, and digital scholarship departments. He directed the Endangered Archives Programme that strives to digitise and make available endangered documentary material around the world, founded DataCite and the Open Preservation Foundation. He has managed major British Library collection areas including newspapers, photographs, sound, and moving images.
Event moderators

**Ms Lai Tee Phang** is Deputy Director of the National Archives of Singapore, in charge of developing and implementing programmes for the appraisal, acquisition, preservation and provision of access to audiovisual (AV) archives and oral history interviews. She started mass digitisation of at risk AV formats in the Singapore archives in 2013 and implemented initiatives to broaden the access to digitised and born-digital AV content.

Ms Phang has been a member of the UNESCO Memory of the World (MoW) Sub-Committee on Technology (SCoT) and the UNESCO PERSIST programme on digital preservation. In 2019, SCoT was renamed as the Preservation Sub-Committee of the UNESCO MoW International Advisory Committee (IAC) and Ms Phang is now Chair of the Preservation Sub-Committee.

**Ms Natasa Milic-Frayling** is Founder and CEO of Intact Digital Ltd and Professor Emerita at the School of Computer Science, University of Nottingham. During her tenure as Principal Researcher at Microsoft Research in Cambridge, United Kingdom (1998-2015), she led Microsoft participation in two European digital preservation projects: PLANETS and SCAPE. Through Intact Digital, she works on effective and sustainable solutions for long-term use of software to ensure reliable and continued access to digital content, reproducibility of data analyses and responsible innovation in computing.

Ms Milic-Frayling has been involved with UNESCO PERSIST project since its beginning in 2012 and is currently serving as Chair of the PERSIST Technology & Research Working Group and member of the Preservation Sub-Committee as part of the UNESCO MoW International Advisory Committee (IAC).

Cultural identity at risk

**Ms Reena Tiwari** is Professor at Curtin University in Australia working on sustainable community development and heritage matters. Her work with marginalised communities in the local, national and international context has been internationally recognised and published as books and articles. Her leadership in the area of urban studies, community development and international cooperation is reflected in her ongoing research work in collaboration with the University of California, Berkeley and University International Catalunya, Spain. Ms Tiwari has a continuing involvement in the International Cooperation Program run by the European Union under the prestigious Erasmus umbrella and supported by UNESCO and UN Habitat.

**Ms Te Paea Paringatai** is a Library Manager at the University of Canterbury. She is actively involved with New Zealand and international library networks, having served in the IFLA Library Services to Multicultural Populations Section, as a Standing Committee member, and in the Indigenous Matters Section, first as Chair and then Information Coordinator. Ms Paringatai brings culturally responsive leadership and management experience, applied Māori indigenous praxis, and a current working knowledge of the library, culture, knowledge and information sector.

**Mr Abdullah bin Salim bin Saeed Al-Hinai** is the Acting Head of the Reference Department, Medical Library in Oman. He is a Member of the National e-Medical Library Project run in collaboration with the Ministry of Health, Ministry of Defense, the Royal Oman Policy, Diwan of the Royal Court and the Royal palace. He also serves as the Coordinator of the Arlibs-DigiMap: Arab Libraries & information Centers Digital Map in the Sultanate of Oman, Arab League. He has a Master’s degree in Information Studies from the Sultan Qaboos University.
Ms Shubha Chaudhuri is Associate Director General (Academic) at Archives and Research Centre for Ethnomusicology at the American Institute of Indian Studies (AIIS) where she has worked since inception in 1982 and served as Director since 1985. She has worked in audiovisual archiving, focusing on database applications, research archives and ethnomusicology covering the issues of Intellectual Property Rights and community archives. Her ethnographic fieldwork is in Western Rajasthan, Goa and Kutch regions and has been extensively published. Current projects include digitisation of legacy audio collections and ballad traditions of Manganiar and Langa musician in Western Rajasthan.

Ms Chaudhuri has served as Vice President of the International Association of Sound and Audio-Visual Archives, the Executive Board of the ICTM (International Council of Traditional Music), and as council member of the Society of Ethnomusicology.

Sustainability

Mr Jeffrey van der Hoeven is Head of the Digital Preservation department at the National Library of the Netherlands (KB). He is responsible for defining the policies, strategies and organizational implementation of digital preservation at the library, with the goal to keep the digital collections accessible to current users and generations to come. In previous roles, Mr der Hoeven has been involved in various national and international preservation projects such as the European projects PLANETS, KEEP, PARSE.insight and APARSEN. Mr der Hoeven holds a Master’s degree in Computer Engineering.

Ms Marcie Hopkins is Head of International and leads the British Library’s international engagement activities. Previously, she has led major transformational programmes including the Centre for Conservation and the Newspaper Programme. For the past six years Ms Hopkins has directed the Secretariat for the Conference of European National Librarians. She is a member of the Editorial Board for Alexandria Journal of National and International Library and Information Issues and a fellow of the Franco-British Young Leaders Programme. Most recently she has developed the Library’s first International Library Leaders Programme and is responsible for a number of international skills exchange projects.

Mr Gabriel O. Alegbeleye is Professor at the Department of Information Resources Management in the School of Management Sciences at Babcock University in Nigeria. He has a postgraduate diploma in the preservation and conservation of library and archival materials from the Camberwell School of Art and Crafts and specialized in Archives and Records Management at Case-Western Reserve University (USA) and Catholic University of America (USA). In his prior roles, he served as Head of the Department of Library, Archives and Information Studies University of Ibadan and Dean of Faculty of Education University of Ibadan.

Mr Alegbeleye participated in Records and Information Management Improvement Projects across African countries including Ghana, Gambia, and Sierra Leone, and has been responsible for producing a National Preservation Policy for Nigeria. He served as Vice-President of the Association of International Records and Information Management Council (1986-1991), a Secretary and then President of IFLA Africa Section from (1999-2004).
Ms Laila Hussein Moustafa is Associate Professor of Library Administration and teaches in the iSchool at the University of Illinois. She is the Middle East and North Africa subject specialist and has worked for human rights organizations in the Middle East and in the USA. Ms Moustafa advocates for preserving cultural heritage as part of human rights. She has been conducting research around the world on disaster preparedness, especially in times of war. She has presented at local and international conferences including UNESCO. Ms Moustafa was selected as a Fulbright Specialist to work with University of Khartoum in Sudan. She has published extensively on preservation challenges in the Middle East in the conditions of chronic war, including the preservation of Afghanistan's Cultural Heritage during wartime.

Mr Dhani Sugiharto, Mr Prasetyo Utomo and Mr Adhie Gesit Pambudi work at different departments in National Archives of the Republic Indonesia (ANRI). Together they represent the perspectives on preservation, technology and international cooperation of ANRI. They have been extensively involved in the digital preservation initiatives in Indonesia and participated in international events and activities. They have been designated by the Secretary General of ANRI to represent Indonesia in the Virtual Policy Dialog on Documentary Heritage at Risk: Policy Gaps in Digital Preservation with a particular focus on Sustainability.

Mr Robert Buckley is a Technical Adviser at the National Archives of the United Arab Emirates. He is a member of the Preservation Sub-Committee of the UNESCO MoW IAC and Chair of the UNESCO PERSIST Policy Working Group. Mr Buckley holds a PhD in Electrical Engineering from the Massachusetts Institute of Technology and has extensive experience in research and innovation from his tenure at Xerox where he was a Research Fellow. He served as President of the Society for Imaging Science & Technology (2011-2013) and continues to advise on technologies and methods in colour digital imaging, digital preservation and the use of JPEG 2000 in cultural heritage applications.

Mr Günther Cyranek is Senior Consultant with the Cyranek ICT4D, developing the Competence Centre for Photographic Digitalisation (KAdKA) in Karlsruhe. He studied Computer Science, Education and Psychology in Stuttgart, Karlsruhe and Gießen and has PhD (Dr-Ing) in Informatics from University Bremen. Mr Cyranek was UNESCO Regional Adviser (1998-2010) and consultant to the Communication and Information Sector, where he supported the development of Knowledge Societies in sub-Saharan Africa, South- and Central America, the Caribbean, and South Pacific Island States. He is a member of IFAP working group on Information Preservation.

Mr Felix Gross is a professional photographer working for a range of organizations, including Aenne Burda Editors and OTTO Versand. He has extensive experience with the cultural sector, including exhibition planning, and assist with digital preservation activities as an expert in digitising techniques. Together with Mr Günther Cyranek, he has worked on methods and best practices for image digitalisation and is involved in developing the Competence Centre for Photographic Digitalisation (KAdKA) in Karlsruhe.
Mr Dietrich Schüller is a specialist in audiovisual preservation and re-recording. He has been actively engaged in the Memory of the World Programme of UNESCO since its beginnings, specifically in its Sub-Committee on Technology (now Preservation Sub-Committee, Chair 1994-2007). He presently serves as a member of the International Advisory Committee. Mr Schüller is author of numerous publications on audiovisual preservation, an early advocate of preservation by digital content migration, and co-author/editor of IASA preservation standards. He has worked as a consultant to a number of audiovisual archives world-wide, and as an organiser and presenter of workshops and tutorials.

Ms Yolía Tortolero Cervantes Ms Yolía Tortolero Cervantes is Professor in Records Management at the Andean University in Ecuador. Since 1999 she has worked in historical research and teaching, records management, preservation of documentary heritage, archival standards and legislation and transparency and access to public information. She served as Chair of the National Register on Archives (2000-2003), Director of Research and Archival Standards (2003-2010) and Director of the Historical Archives (2016-2018) in the National Archives of Mexico. She also was Vice Director of the General Archive of the State of Oaxaca, Mexico (January-June 2020). Ms Tortorelo Cervantes has been a long-standing member of the Committee on Descriptive Standards at the ICA (2003-2015) and more recently assumed the roles of Executive Secretary and advisor to the Latin American Archives Association, Vice Chair of the Regional Committee of Latin America and the Caribbean (MOWLAC), Correspondent Member of the MoW Subcommittee on Research and Education and a member of the Program Commission of ICA. From Dec 2019-May 2020 she worked on policy development and capacity building initiative supported by the UNESCO MoW Japan Fund.

Ms Amanda Harris is Director of the PARADISEC Sydney Unit. She is also a Research Fellow at Sydney Conservatorium of Music, University of Sydney, Australia. Ms Harris’ research is focuses on intangible cultural heritage, music, and cross-cultural histories. Her monograph representing Australian Aboriginal Music and Dance 1930-70 is published by Bloomsbury (2020). The PARADISEC collection was added to the UNESCO Australian Register of the Memory of the World in 2013.

Mr Frédéric Maire is President of the International Federation of Film Archives (FIAF) and Director of the Cinémathèque Suisse in Switzerland. He also serves as a Board Member of the Co-ordinating Council of Audio-visual Archives Associations (CCAAA).

Mr Kevin Bradley is Assistant Director General at the National Library of Australia and is responsible for building and managing the collection in all its forms. His long career at the Library has included a range of curatorial and executive positions. He has published extensively on topics such as Australian folklore and vernacular culture, oral history and ethics and collection management, preservation and archival practice. Mr Bradley is a member of UNESCO MoW Preservation Sub-Committee and the Australian Memory of the World Committee.
Legal frameworks

Mr Eric Chin has been General Counsel at the National Library Board since 2012 and previously General Counsel at the National Heritage Board and State Counsel at the Attorney-General’s Chambers, Singapore. Acting on his long-standing personal interest in library and archival sciences, he obtained a Master’s degree in Information Studies at Nanyang Technological University in 2010 in order to count himself a librarian. Mr Chin was Director of the National Archives of Singapore from 2012-2017 and currently serves on both the ICA Expert Group on Legal Matters and IFLA Committee on Copyright and Legal Matters.

Ms Soledad Abarca is a conservator of photographs. Since 2008 she has worked at the National Library of Chile as Head of the Photographic and Audiovisual Collections, leading different projects as well as organizing exhibitions and publishing works about Chilean photography. Since 2010 Ms Abarca has been a Member of the Memory of the World National Committee and since 2017 she has been coordinating the IFLA PAC Center in Chile.

Mr Maximiliaan Scriwanek is a Historian and Archivist, currently serving as National Archivist of Curacao and Vice President of the Caribbean Branch of the ICA (CARBICA). He is co-presiding the Caribbean Heritage Emergency Network (CHEN), a CARBICA initiative aimed at safeguarding heritage in the hurricane prone-Caribbean region. At a national level, he initiated and presides the National Committee of Blue Shield Curacao. Mr Scriwanek has designed a new archives law which passed legislation in 2008 and has worked on a project to create a new depository. As Director of the National Archives Curacao, he is actively involved in founding an Archives school on Curacao and in appraisal projects to support transferring historical records to the new repository.

Topic moderator

Ms Ingrid Parent is a University Librarian Emerita at the University of British Columbia, a former President of IFLA, a member of the MOW Preservation Sub-Committee and a Chair of the UNESCO PERSIST Content Task Force. Prior to her work at the University of British Columbia (2009-2016), she served as Director General of Acquisitions and Bibliographic Services at the former National Library of Canada (1994-2004) and, subsequently, as Assistant Deputy Minister for Documentary Heritage, Library and Archives Canada (2004-2009), responsible for the development, description and preservation of Canada’s documentary heritage. Ms Parent has represented Canada with IFLA and was appointed President of IFLA in 2011. She has held numerous roles in the federal government of Canada and has worked with international bodies such as UNESCO. Her primary focus is the future of libraries in the digital age.