Answer to Question on Notice – Julia Mant, President, Australian Society of Archivists Inc. - received 7 July 2020

1. Examples of best practice in digital recordkeeping

The ASA welcomes the opportunity to provide the Standing Committee on Social Issues considering the *State Records Act 1998* and Policy Paper on its review with examples of best practice digital recordkeeping drawn from a number of other jurisdictions.

Digital recordkeeping and archiving is complex and involves a range of strategies, skills and resources. Strong archival legislation supports the framework and structure for implementing best-practice recordkeeping, although it is not the only factor in successful programs.

The NSW State government is leading the nation in digital transformation. A key underpinning for sustainable digital transformation is enabling the long-term accessibility and integrity of born-digital records by employing effective digital recordkeeping strategies and developing a digital archives program. To support the ongoing digital transformation of government, the review of the State Records Act should consider how to support this ongoing government and citizen need.

Digitisation and the Digital Archives Program: it is important to be clear on the differences between these two functions:

- Digitisation: the creation of digital versions of analogue records, such as the creation of digital image files from documents, or digital audio-visual files from film or tape.

- Digital archives program: a dedicated program for accepting, preserving and providing access to born-digital records (typically stemming from digitalised processes), including any form of born-digital record, including documentary forms, structured data, audio-visual records, web records or others. May also support the management of digitised copies of analogue records. A digital archives program might operate separately to, or integrated with, other archival work.

Comprehensive digital recordkeeping strategy

Governments today face a range of pressing risks associated with a lack of strong standards and guidance in the making and keeping of born-digital records, especially in data-driven environments. Such risks include:

- Evolving business and service environments that do not support information accountability requirements
- Increased use of social media, applications, BYOD, email and other diverse business platforms that create an inability to track, use and share consolidated client, project or process information, leading to incomplete and untrustworthy information
- Incomplete or partial data migrations that do not carry all necessary business information from one system to another and result in information that is no longer trusted for client service or business arrangements
- Cloud services that do not sustain or export all necessary business information and lead to incomplete and untrustworthy business information
- Staff using a variety of uncontrolled business and data storage environments which result in limited information accessibility, no consolidated view of a project or client and information that cannot be trusted for client service or business arrangements
- Volumes of uncontrolled data that overwhelm storage environments and result in inaccessible data lost within the ‘noise’.

Today, other governments in Australia and internationally continue to support and implement such robust strategies and services supporting best practice digital recordkeeping, without which the records needed by government, business and the public will be unusable, unreliable or simply fail to exist. Some examples of such strategies include those implemented by the National Archives of Australia, the Public Record Office Victoria, Archives New Zealand, the National Archives of Korea and The National Archives UK, the National Archives of Estonia, and the Danish National Archives.

Further detail on a number of these initiatives is provided below, with an assessment of particular strengths.

Digital context in NSW state government

The NSW State Records and Archives Authority has had a strong reputation in this area exemplified by its own Future Proof strategy (2007–2018), which was designed to ensure the protection and management of digital government records with clear, informal communications supporting simplified and easy to use standards.

The NSW State Government landmark funding of $1.6 billion dramatically increases the pace of its digital transformation. In order to mitigate the inherent recordkeeping risks of such large-scale technical disruption, it is critical that SARA finds an authoritative voice again on these issues.

A key challenge faced by SARA is the current extent of digital transformation. Within each cluster across the NSW public sector, there are potentially more than 500 digital business applications, systems and environments used for business operations. Governing the information in each and ensuring archival continuity of the core information in each of these environments is a substantial challenge. Addressing this challenge using engagement with leaders in digital government, new technologies such as artificial intelligence and machine learning needs to be a key priority of SARA, with the prioritisation of historical interpretation as a secondary objective.

Digital Preservation challenges

Keeping born-digital archives relies on the discipline of digital preservation. Digital preservation work involves activities like analysis of digital content, its formats and metadata, identification and implementation of suitable migration strategies for any and all digital information types, adoption of emulation techniques, technological change monitoring and much more.

Digital preservation is necessarily a continuous program, not a ‘one off’. Digital archives cannot be put on shelves in climate-controlled conditions and more or less forgotten until needed. Rather, they require active monitoring, management and migration, as the technologies we use change around them. It is also important to understand that this work is not about making digitised copies of archival materials using scanning and similar technologies. These digitisation programs are important in that they aid both preservation of originals and online access, but they are not the same as programs dedicated to born-digital archives preservation. Digital preservation is also, of course, different in nature from the work of keeping physical archives, which comes with its own set of costs. Australian archival organisations and programs today are engaged in all of these activities, but, in most cases, are funded as if they were still only keeping physical materials.

ASA Survey on Digital Archiving 2018

The key findings from a 2018 survey of ASA corporate members (86 respondents) highlighted the factors inhibiting effective digital archiving:

- Digital archives programs that are in place amongst the survey population are typically new or only partially implemented.
- Funding arrangements for digital archive programs are unpredictable and often inadequate.
- There is a lack of skilled personnel to run digital archives programs, and many respondents’ budgets are not enough to attract and retain such personnel.
- A tendency to prioritise digitisation of analogue records over digital preservation for born-digital records, and a lack of a unified approach to digital recordkeeping persists.

- There is a lack of awareness of the seriousness and urgency of this issue amongst senior managers, bureaucrats and other controllers of funding and support that archival programs rely on.

Peak expert bodies

Digital Preservation Coalition (DPC)

DPC Handbook (2nd edition): The Handbook provides an internationally authoritative and practical guide to the subject of managing digital resources over time and the issues in sustaining access to them.

The Digital Preservation Coalition has established a Branch in Australia based at the University of Melbourne and the DPC team can provide expert advice on digital preservation strategies.

The DPC builds on the work undertaken by E-ARK Project (European Archival Records and Knowledge Preservation Project), which includes a number of pilots and use cases for reference.

Australasian Digital Recordkeeping Initiative
The Australasian Digital Recordkeeping Initiative (ADRI) is an undertaking of the Council of Australasian Archives and Records Authorities, (CAARA) the peak body of government archives and records institutions in Australia and New Zealand.

ADRI Is a Working Group of CAARA. The ADRI Convenor is appointed by CAARA. The current ADRI Convenor is Justine Heazlewood, Director and Keeper of Public Records, Public Record Office Victoria.

Australian digital recordkeeping initiatives

National Archives of Australia:

The NAA has been a strong leader in transformation of digital information management, first with the Digital Transition Policy 2011, and then from 2015 implementation of the Digital Continuity 2020 Policy. The focus of the policy has been on robust digital information governance, however, a 2019 review by the Australian National Audit Office (ANAO) was critical of the reliance on self-assessment by agencies and minimal assurance regarding the accuracy of the results. The ANAO Review highlights the need for strong processes to ensure the communication, evaluation, risk management, monitoring and evaluation to ensure a successful implementation. For the full assessment: Implementation of the Digital Continuity 2020 Policy Auditor-General Report No. 11 of 2019–20

The NAA Advisory Council Submission to the Tune Review in 2019 also recommended a review of the *Archives Act 1983* with particular regard to its digital readiness and information governance, management responsibilities and transfer processes. The Tune Review was completed in March 2020 and is with the Attorney-General.

Public Records Office Victoria: the PROV has the most mature digital preservation implementation in Australia, the Victorian Electronic Records Strategy, first initiated in 1998 and extending to include Digital Archives Program. A 2017 Review Managing Public Sector Records found overall that "the absence of system-wide compliance monitoring and reporting and out-dated legislation—heighten the risk of key government records being lost, inaccessible, inappropriately accessed, unlawfully altered or destroyed". Recommendations included a focus on strengthening regulations and compliance. A subsequent 2018-19 review of the Victorian *Public Records Act 1973* was undertaken with reference to compliance and mandatory standards.

Queensland State Archives: Digital Archiving Program (and FAQ Page)

Queensland State Archives received funding for the first part of their digital archiving implementation in 2017 and has just gone live with the successful implementation of a new archival control system (ArchivesSearch). The 2nd tranche focus on the digital preservation element but is as yet unfunded.

The National Archives (UK):

The National Archives (TNA) digital archive is pioneering in its digital preservation strategy as set out here. Although involved in digital preservation for the past 20 years they are re-focusing their strategy to "become a second generation archive that is 'digital by instinct and design'".

Their current project focus is DIAGRAM: *a risk model in the form of a Dynamic Bayesian Network. This tool will allow archives to investigate potential mitigations to digital preservation risks based on their own current circumstances, and communicate the relative effectiveness of different strategies (and the costs of different strategies) to relevant decision makers, funders and other stakeholders in an easy-to-understand way. This will allow archives to evidence their requests for support based on a rigorous model which will have been developed using the experience of a wide range of institutions.*

TNA also manages the UK Government Web Archive, Legislation.gov.uk, and the Government Gazette. This portfolio of digital resources means that some of the most vital digital records of government are in the TNA's hands from creation. They are using those resources to support better government: they have recently created an EU Exit Web Archive to ensure that there is a complete record of all key European legal texts valid up until the date of Brexit (https://webarchive.nationalarchives.gov.uk/eu-exit/) and are mirroring EU legislation onto legislation.gov.uk

National Archives of Estonia

Estonia has a very high rate of digital delivery of services (see https://e-estonia.com/) and as such has been focused on recordkeeping, archiving and data security. A history of the development of their digital archives is set out here. Estonia has been named by Wired magazine as 'the most advanced digital society in the world.' It is a world-leading example of the customer, business, information and archival benefits that result from building government services that are 'digital by design.'

NSW Government, led by the Department of Customer Service, is using Estonia as a best practice model for digital government. Integrating archives and archival requirements into the best practice models for digital government in NSW, as they have in Estonia, has the potential to bring significant efficiencies for both customer service and archival management.

See Toivo Jullinen, Deputy National Archivist, Estonia, Presentation 2019 to the ASA ICA Conference: Digital Transformation: what it means and how to achieve it

Key messages:

- Shortened transfer periods (10 years)
- Active pre-appraisal–More than 97% of records have been fully covered
- Staff development for digital preservation
- Infrastructure–Active development of software and guidance since 2007(Digital repository; tools for producers; specifications and workflows; guidelines and training)
- State-of-the-art physical infrastructure (Invested in a new building and digital archives called Noora)
- Multi-site storage-at least two locations
- Trend towards "minimal ingest"(relaxing transfer requirements and ingesting "as is"; taking time for migration etc once the first version of the AIP is safely in storage
- Transition to E-ARK IP (international standards for packaging digital information for archiving purposes)

The Estonian government is also actively exploring the potential of artificial intelligence (AI) for government services. The utilisation of new technology such as AI and machine learning is a key emerging strategy for scaling archival and other information management approaches to meet the challenges of digital government and its associated data deluge.

For a look at AI in the Australian context refer to *More human than human: artificial intelligence in the archives'* by Dr Gregory Rolan, Glen Humphries, Lisa Jeffrey and Tatiana Antsoupova (ASA 2018, Perth, Australia). Includes paper from SARA: Machine Learning and Records Management at the Digital State Archive. Published 2019, More human than human? Artificial intelligence in the archive, *Archives and Manuscripts*, 47:2, 179-203, DOI: 10.1080/01576895.2018.1502088

The National Archives of Korea (NAK)

Since 2009 the NRK has invested strongly in the development of a recordkeeping system described as supporting the "entire course from the production of records to the preservation and utilization of the same." (NAK website)

The Korean digital recordkeeping system redesign had the following elements as described at the 2016 ICA Congress session by Kyungtack JUNG, National Archives of Korea, Republic of Korea:

- Full scaled amendment of Public Records Management Act of which contents include the establishment of electronic production and management system of public records.
- Central Archives Management System based on the digital records management and BRM(Business Reference Model) classification system, records classification system and the information of records management standard. CAMS also provides take-over, storage and preservation, evaluation and disposal, disclosure management and the function of description. Also it provides the function of access control and audit to secure the reliability of record management.
- Digital records can be transmitted through online or transferred through offline media from Record Management System to Central Archives Management System. The transferred records will be taken over through the process of automatic quality inspection and direct visual inspection. And it also provides the functions of evaluation and disposal, disclosure management and description of digital archives the same as non-digital archives. History information such as re-classification on digital archives is saved and managed within long-term preservation format through the periodical re-encapsulation of long-term preservation format.

Danish National Archives

Denmark has gone through an extensive digital transformation since 1996 and is one of the most digital countries in the EU. Denmark legislation sets standards on how agencies are required to manage "archival materials", see here.

The Strategy for archiving digital records 2013 sets out the importance of early transfer: *Migration of existing collections to a new preservation format should take place within a few years after the change in preservation format, so that data is migrated while the organisation's knowledge of and practical experience with formats and related programs is still intact.* (p6)

The Danish National Archives is based on a conversion model as described here: *Conversion means that data (not applications) are migrated at suitable intervals to ensure that they are continually compliant with current technology. The electronic archival materials which are submitted to the State Archives should therefore be stored in a way that enables data conversion to formats suitable for continuous conversions without significant data loss. Legislation on archival matters authorising the Danish National Archives to define requirements of the authorities is prerequisite to this strategy. By and large, the situation is the same in the other Nordic countries which, in different ways, all use the conversion strategy. Based on the conversion strategy, the authorities' demands concentrate on the authorities' use of the system, system storage, and a number of technical demands concerning the transfer of material.*