**NATIONAL POLICY ON THE DIGITISATION
OF
HERITAGE RESOURCES**

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NATIONAL DEPARTMENT OF ARTS AND CULTURE

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ABBREVIATIONS

ALUKA	A digital library of scholarly resources
CORI	Common Repository Interface
CSIR	Council for Scientific and Industrial Research
DAC	Department of Arts and Culture
DHBOK	Digital Heritage Body of Knowledge
DISA	Digital Innovation South Africa
DoC	Department of Communications
EU	European Union
EU FP6	European Union : Framework Programme 6
FOSS	Free Open Source Software
GITOC	Government Information Technology Officers Council
HSRC	Human Sciences Research Council
ICT	Information and Communication Technology
IDH	Institute for Digital Heritage
IP	Intellectual Property
IPR	Intellectual Property Rights
ISO	International Organisation for Standardization
JSTOR	The JSTOR Digital Archives
MIOS	Minimum Interoperability Standards for systems in government
MISS	Minimum Information Security Standards
MOW	Memory of the World programme, UNESCO
MTEF	Medium Term Expenditure Framework
NARS	National Archives and Records Services
NDR	National Digital Repository
NFVSA	National Film, Video and Sound Archives
NGO	Non-Governmental Organisation
NHC	National Heritage Council
NHRA	National Heritage Resources Act 25 of 1999.
NQF	National Qualifications Framework
NRF	National Research Foundation
OAIS	Open Archival Information System.
OCR	Optical Character Recognition

OSS	Open Source Software
PHRA	Provincial Heritage Resource Authority
PNC-ISAD	Presidential National Commission – Information Society and Development programme
SAHRA	The South African Heritage Resources Agency
SMME	Small, Medium and Micro Enterprise
UK	United Kingdom
UN	United Nations
UNESCO	The United Nations Educational, Cultural and Scientific Organisation.
URI	Universal Resource Identifier
URL	Universal Resource Locator
URN	Universal Resource Name
US	United States (of America)
WIPO	World Intellectual Property Organisation
WSIS	World Summit on the Information Society. Geneva 2003 – Tunis 2005.

DEFINITION OF COMMONLY USED TERMS

TERM	DEFINITION
analogue	In the context of this policy, the term "analogue" refers to heritage information and resources that are not in digital form. Examples include paper records, tape recordings (non digital), video recordings (non digital), microfiche and models.
access	In the context of this policy, the term "access" is primarily used to indicate access through electronic means to digital heritage resources. The UNESCO Charter[1] states that the purpose of preserving the digital heritage is to ensure that it remains accessible to the public and thus access should be free of unreasonable restrictions.
authentication	Authentication is a process in which a user is required to prove that they are who they say they are before being granted access to information resources and services. This is the basis for most modern security implementations.
benchmarking	This is an approach to research in which similar institutions or organisations are compared against one another in terms of their inputs, processes and outputs.
born digital	This is information content which is produced in digital form and which in many cases is never converted into physical form such as paper. Examples include digitisation of the intangible heritage and most modern electronic records management systems.
conservation	"**Conservation** - all measures and actions aimed at safeguarding tangible cultural heritage while ensuring its accessibility to present and future generations. Conservation embraces preventive conservation, remedial conservation and restoration. All measures and actions should respect the significance and the physical properties of the cultural heritage item." ICOM – Committee for Conservation.
copyright	Copyright is a legal term describing rights given to creators for their literary and artistic works[2].
CORI	Common Repository Interface. This is a recommended implementation arising from this policy.
Creative Commons	Creative Commons is a non-profit corporation dedicated to making it easier for people to share and build upon the work of others, consistent with the rules of copyright.
database	A database is a structured collection of data.

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[1] UNESCO (2003). UNESCO Charter on the Preservation of the Digital Heritage. Adopted at the 32nd session of the General Conference of UNESCO, 17 October 2003
[2] WIPO. www.wipo.int

TERM	DEFINITION
digital divide	This is the difference in ICT infrastructure, access, content and capacity that occurs between the rich and the poor. This includes the divide between the rich and the poor nations, as well as the divide between the richer urban areas and the poorer rural areas of all countries of the world.
digital heritage	Digital forms of representing heritage, in three forms: • Born digital: Heritage resources that are created in digital form, and for which the "original" is digital. These include electronic documents and records, digital arts, digital images, digital recordings, computer programs, data files and web sites. • Digitised heritage: Heritage resources that are originally not in digital form but of which a digital reproduction has been made. • Digital information about heritage, such as descriptions, digital reconstructions of the original, databases.
digital master	The term "Digital Master" is a recommended practice within this policy. A Digital Master is a combination of digital files, metadata and index/manifest files which are structured as a unit which provides the basis for authenticity of digital records, and the means of reliable transfer between the creator and the National Digital Repositories.
digital migration	The act of moving records from one system to another, while maintaining the records' authenticity, integrity and usability[3].
digital preservation	Digital preservation consists of the activities that guard against loss of the digital heritage[4].
digital repository	This is a repository of digital resources structured into various collections.
digital resources	Digital resources include all types of digital content on any form of media and in any format. For the purpose of this policy these digital resources are specifically digital content representing heritage resources.
digital rights management	The formal management of the rights associated with digital content and digital masters.
digitisation	The conversion of analogue information into digital form.
dispersed collections	These are collections that are seen as a whole or unit, but which are physically located and curated by two or more individual custodial institutions.

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[3] ISO 15489. 2001.
[4] UNESCO (2003). UNESCO Charter on the Preservation of the Digital Heritage. Adopted at the 32nd session of the General Conference of UNESCO, 17 October 2003

TERM	DEFINITION
destruction	The process of eliminating or deleting records, beyond any possible reconstruction[5].
E-Culture E-Heritage	This is the reproduction of cultural and heritage elements to support the dual goals of long-term storage and preservations, as well as broadening access to such cultural resources and heritage resources.
E-Government	Electronic government - the usage of information technologies to improve how government operates, and how it communicates and interfaces with its stakeholders.
E-Learning	The effective usage of information technologies to enhance the ability to learn by providing access to materials, information, knowledge books, lessons, tests, and to provide a linkage to teachers on-line.
emulators	Special-purpose computer programs that are able to reproduce in software the functionality of obsolete hardware, so that programs available in executable or object form for the obsolete hardware systems are able to be used without access to that hardware.
fair dealing	Copyright shall not be infringed by any fair dealing with a literary or musical work for private research or study, for criticism of the work, or for reporting current events. Fair dealing outside of literary or music is not covered by the Copyright Act.
file format	Information and data is stored in binary digits, or bits. The manner in which these bits are combined into larger structures is called a file format.
heritage	The term "heritage" is defined in the White Paper on Arts and Culture (1996) as

"Heritage is the sum total of wildlife and scenic parks, sites of scientific and historical importance, national monuments, historic buildings, works of art, literature and music, oral traditions and museum collections and their documentation which provides the basis for a shared culture and creativity in the arts." (Section 12). |
| **heritage resources** | Section 3(2) of the National Heritage Resources Act (Act 25/1999) defines any place or object of cultural significance as a *heritage resource*, including:

(*a*) Places, buildings, structures and equipment of cultural significance;

(*b*) Places to which oral traditions are attached or which are associated with living heritage;

(*c*) Historical settlements and townscapes;

(*d*) Landscapes and natural features of cultural significance; |

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[5] ISO 15489. 2001.

TERM	DEFINITION
	(e) Geological sites of scientific or cultural importance; *(f)* Archaeological and palaeontological sites; *(g)* Graves and burial grounds, including— (i) Ancestral graves; (ii) Royal graves and graves of traditional leaders; (iii) Graves of victims of conflict; (iv) Graves of individuals designated by the Minister by notice in the *Gazette*; (v) Historical graves and cemeteries; and (vi) Other human remains, which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983); *(h* Sites of significance relating to the history of slavery in South Africa; *(i)* Movable objects, including— (i) Objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens; (ii) Objects to which oral traditions are attached or which are associated with living heritage; (iii) Ethnographic art and objects; (iv) Military objects; (v) Objects of decorative or fine art; (vi) Objects of scientific or technological interest; and (vii) Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).
Information Society	A people-centred, inclusive and development-oriented society where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life.[6]
metadata	Data describing context, content and structure of records, and their management through time[7].

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[6] World Summit on the Information Society. Declaration of Principles. 12 December 2003. downloaded from http://www.itu.int/dms_pub/itu-s/md/03/wsis/doc/S03-WSIS-DOC-0004!!PDF-E.pdf on 15 June 2010.
[7] ISO 15489. 2001.

TERM	DEFINITION
moral rights	Moral rights include a right to paternity, which ensures that the work cannot be falsely attributed; a right to integrity, which guarantees that the work cannot be modified without the author's permission; and a right to keep the work unpublished.[8]
National Digital Repository (NDR)	A digital repository which contains digital heritage in the national interest and which is managed in accordance with strict standards and practices to ensure authenticity and integrity of the digital content.
national memory institutions	All institutions whose responsibility includes the preservation of heritage including the documentary heritage, tangible heritage, and the living heritage. These include the National Archives and Record Services, the National Library, the Cultural Institutions as defined in the Cultural Institutions Act 119 of 1998, and all their associated institutions.
national significance	Collections that are declared in terms of the National Heritage Resources Act.
ontology	An ontology is a structure of knowledge as used for the construction of common category systems and vocabularies such as thesauri and authority files.
Open Access	Open Access is access to information resources free of limitations or in which some communities of users may have preferred access over others.[9]
Open Content	This is a form of publishing of works that is published under a license that allows anyone to copy, modify or use the information.
Open Source	Open Source is a means of producing and maintaining software programs in which the source code is provided and which is provided free of proprietary licenses[10].
preservation	Keeping safe from deterioration and loss; usually involves the use of a chemical reagent or preservative.[11]
repository	A repository is typically used in the context of archives repositories[12]. Within the context of this policy this term is primarily concerned with digital repositories.
scanning	This is the process of converting analogue artifacts into digital form using optical scanning equipment or similar equipment. This can be done in 2D or 3D.

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[8] Intellectual Property Guidelines. Version 1.0. Edited by the MinervaEC Working Group. September 2008. www.minervaeurope.org.
[9] Directory of Open Access Journals. www.doaj.org.
[10] www.opensource.org/docs/osd
[11] South African Museums Association. Professional Standards and Transformation Indicators. 2006.
[12] National Archives and Records Service of South Africa Act 43 of 1996

TERM	DEFINITION
sensitive information	This is information that is regarded as restricted, confidential, secret or top secret by an organisation in terms of the MISS[13].
thesaurus	A Thesaurus is a structured taxonomy of terms that are used for categorization and classification.

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[13] Minimum Information Security Standards, NIA.

CHAPTER 1
SETTING THE POLICY AGENDA

Introduction

1.1   Digitisation is often seen and defined as the process of converting analogue content into digital content, such as within the US Federal Agencies Digitisation Programme[14]. However, this digitisation policy argues that this definition is too limited and that rather than focusing on this specific type of conversion it is necessary to broaden the scope to include "born digital" resources under the premise that today's records are tomorrow's heritage. It should also include the premise that the management of heritage is not only a study of objects and items that are already regarded as heritage, but also the effective management of today's records and their protection as they become increasingly important as historical records. "Born digital" records consist of a range of data and information content that starts its life in digital form including word processing files, spreadsheets, digital presentation files, digital designs, images from digital cameras, video capture equipment and audio recording, computer programmes, data file and web sites. Since most new information content, including published materials and public records, are now produced in digital form, this policy on digitisation is required to include provisions for this new digital heritage.

1.2   The rapid progression and accelerating evolution of Information and Communication Technologies (ICTs) poses a serious challenge to our notions and practices of collective memory and heritage. These are increasingly dependent upon digital technologies and it is apparent that the long-term, perhaps eternal, agenda of heritage is in conflict with the rapid obsolescence of digital content and technologies. There are increasing capabilities in the resolution, or accuracy, of digital reproductions and this is one contributing factor to this obsolescence. This is perhaps the most important of all of the systemic issues that has given rise to the need for this digitisation policy and is an acknowledgement that the greatest risk of the widespread exploitation of digital technologies as the basis for heritage is unconstrained usage of these digital technologies themselves.

1.3   There are notable exceptions to born-digital artifacts, such as the various spheres of the arts, including painting, sculpture, architecture, music and the dramatic arts, as well as the living heritage which is by its nature intangible and transient. These are mostly "born non-digital" and it is the challenges of recording these that is of direct concern to this policy framework. The recording of heritage allows it to be preserved and shared, and the only practical and economic methods for widespread recording are its production in digital form, using digital still and video cameras and digital audio recorders, as well as the representation of music, notation and dance in digital forms. From a historical situation in which all types of

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[14] www.digitizationguidelines.gov

heritage are managed separately, the emergence of the digital heritage provides the opportunity for a single and unified policy that spans all such types.

1.4   The argument for a unified approach for the digital heritage allows for the incorporation of other digital records beyond those of the traditional memory institutions. These include those that present challenges in recording and documentation such as, but not limited to, the outputs of scientific, social and educational endeavours. The examples often quoted of the DNA records of indigenous plants and trees have an important place in a new digital heritage, and this policy is thus suited to the issues of access, presentation and ownership of these in the same manner as heritage objects, published materials and archives.

1.5   From its early beginnings in the 1950s, digital computing has moved from being the domain of a few very large institutions, to being accessible by an increasingly large proportion of the population of the planet through modern mobile phone technologies. The initial mainframe computers gave way to the personal computer in the early 1980s, and then to the widespread usage of mobile phones as computing devices in the early 2000s. The position today, in 2010, is that there are around 70 mobile phones for every 100 people worldwide, and it has been estimated that more than 90% of the South African population has access to a mobile phone. There is an increasing range of functions in newer devices beyond the basic phone and SMS functions and these include full Internet access, and the ability to capture digital content in the form of images, video and sounds recordings, as to store, transfer and share this digital content with others. This digital revolution has expanded far beyond its early predictions. Thus, if mobile phones are considered to be ICTs, then Target 10 of the World Summit on the Information Society (WSIS), which is "*to ensure that more than half of the world's inhabitants have access to ICTs within their reach*"[15], has already been met at 70% in 2009, up from a mere 20% in 2003. It is apparent that this digital revolution is still in its infancy, and that digital technology is evolving more rapidly than we can reliably predict and adapt to. The Internet is by far the most significant of the ICTs in terms of impact on the world at large, and has led to the current situation in which the physical location of computers is almost irrelevant, as information storage and processing can now be placed into shared "clouds" of processing, storage and communication capabilities. It is the ICTs which provide the basis for the creation, storage and usage of digital content, and this policy addresses not only the limited activity of digitisation of previously analogue heritage items but rather the large opportunity that ICTs offer in the broader context of government and society as a whole.

1.6   In the local context, the Presidential National Commission (PNC) on Information Society and Development (ISAD) has been created as a state body falling under the National Department of Communications. The

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[15] Monitoring the WSIS Targets. A Mid-Term Review. World Telecommunication/ICT Development Report 2010. International Telecommunication Union. 2010. Available from http://www.itu.int/ITU-D/ict/publications/wtdr_10/material/WTDR2010_e.pdf.

purpose of this ISAD programme is to facilitate the development of an all-inclusive information society by promoting the uptake and usage of ICTs for improved socio-economic development and research. Its key functions are to provide timely and informed advice on matters related to the development of an inclusive information society, and to facilitate the coordinated development of an inclusive Information Society in South Africa. The vision is articulated as "To establish South Africa as an advanced information-based society in which information and ICT tools are key drivers of economic and societal development". This programme is currently under review and is likely to change during the 2011 MTEF process. This policy on digitisation is thus supported by a general impetus towards increased usage of ICT.

1.7   The benefits of digitisation within a South African national framework, using national standards, are immense. They range from the improved quality of digital repositories, the validity and authenticity of the digital resources and repositories, the increased lifetime of the digital resources, the improvements in the interoperability between repositories and realizing the dream of universal access. These benefits represent a shared vision that has informed the recommendations made throughout this policy. The digitisation sector in South Africa is fragmented with no evidence of national coordination. This position is aggravated by the many digitisation projects underway, some that are large and expensive, proceeding in the absence of national guidance, support systems and coordination. This fragmentation is a constraint in achieving these benefits and represents a significant risk. This policy makes specific recommendations on national coordination and support in terms of identifying an institutional home for national digitisation interests.

Digitisation and recorded history

1.8   Digitisation of heritage resources is an emerging approach to the capture and management of the collective memory of the country. The World Summit on the Information Society (WSIS) reaffirmed the significance of the heritage institutions as "[…] Public institutions such as libraries and archives, museums, cultural collections […] should be strengthened so as to promote the preservation of documentation records and free and equitable access to information"[16]. Digitisation exploits the unique opportunities provided by the ICTs to record, preserve, promote and provide access to the information and particularly that held by archives, libraries and museums. Digitisation is not merely a change of technology but rather introduces fundamentally new questions about the nature of the national memory such as, what is worth keeping, who are responsible as the gatekeepers and custodians of this memory, and how can we preserve these memories sufficiently for the next generation of custodians.

1.9   Digitisation presents more than merely a shift in our approach to recording human memory; digitisation redefines our notions of collective memory and knowledge and opens up new opportunities for capturing and holding

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[16] World Summit on the Information Society. Declaration of Principles. 12 December 2003.

memory and for providing access to these memory stores. Given the previously stated advances in digital technology, the current situation is that more human history, at a increasingly refined and detailed level, is able to be recorded, stored and made accessible than at any other time in history. The problem is that there is too much being recorded, rather than the situation of merely a few years ago in which digitisation was constrained by the high cost of recording, processing and storage. The current overwhelming plethora of digital information accessible through the Internet and the World-Wide Web raises the important concern of authenticity and the need to establish authentic sources of digital heritage.

1.10   While considering the potential offered by the power of the ICTs and digital technology, it is necessary to also identify and mitigate the risks posed by mass digitisation of the nation's heritage, which digitisation is in essence a conversion from tangible and physical records into intangible electronic records. This transition introduces the overriding risk that all of humanity's recorded knowledge may be lost forever to future generations unless we take extreme countermeasures to consciously preserve our digital heritage. An archaeologist of the future may find that entire generations of the records of history are gone forever – they are unable to be retrieved and used as intended. This is the scenario is referred to as the "digital dark ages" within the Lund Principles[17]. No matter how much attention is paid today to digital preservation and to the protection of archives and repositories against all kinds of threats, the success of this shift to electronic and digital records is premised on the importance that future archivists, librarians, governments, repository managers and curators will place on the continuity of these digitisation initiatives. Whereas the original, physical objects may be retained for long periods with minimal conservation, digital records will, for the foreseeable future, require regular maintenance and upgrading. Given that this is a common problem that impacts on every custodian, a common set of principles must be identified and implemented as part of a national preservation strategy.

1.11   This argument is given priority through the UNESCO Charter on the Preservation of the Digital Heritage "Attitudinal change has fallen behind technological change. Digital evolution has been too rapid and costly for governments and institutions to develop timely and informed preservation strategies. The threat to the economic, social, intellectual and cultural potential of the heritage – the building blocks of the future – has not been fully grasped"[18]. The UNESCO Charter identifies the urgent need for action, and provides clear guidelines to ensure digital continuity including "…the design of reliable systems and procedures which will produce authentic and stable objects".

1.12   It is argued that the risk of the Lund scenario of the "digital dark ages" should not be underestimated. A cursory review of the short history of

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[17] Lund Principles: Conclusion of Experts Meeting, Lund, Switzerland, 4 April 2001. Downloaded from ftp://ftp.cordis.europa.eu/pub/ist/docs/digicult/lund_principles-en.pdf on 23 April 2010.
[18] UNESCO (2003). UNESCO Charter on the Preservation of the Digital Heritage. Adopted at the 32nd session of the General Conference of UNESCO, 17 October 2003.

computing provides numerous examples of the failure to preserve the multiplicity of formats and media as well as the failure to contextualize the information that we store. "Digital archaeology" already exists within ICT in terms of recovery of information, programs and data from older formats and media and this is exemplified in the digital preservation challenges conducted by Digital Preservation Europe[19], an EU funded programme for digital preservation. These problems with digital preservation are renewable problems, with each generation of information professionals making similar mistakes in adopting technologies that have a short lifespan, and moving on to newer formats and media without consideration for the risks in such actions. There is need for guidance in the both the selection of appropriate technologies for digitisation, as well as for ongoing migration of formats.

1.13   Humanity finds itself at a unique point in history in which, for the first time since the advent of writing, the nature of human recording is experiencing a fundamental change. This change is from analogue and written structures, represented in heritage resources as physical artifacts that can be seen, touched, and read directly, to digital approximations of these same artifacts, as well as new information that is born in digital form and for which there is no corresponding analogue or physical manifestation. Given that this is the first time that such a transition has occurred, there are no precedents that can guide humanity in managing this transition. It is merely ten years since the first major attempts were started to digitally preserve our memory for future generations in a way that will render them accessible for centuries into the future and hopefully for the eternal lifetime of mankind in this universe. Every state body is impacted by this transition, and there is a need for programmes of action to carefully and creatively transform these organisations into the digitally-based organisations.

1.14   There is a natural conflict between access and preservation as the dual goals of any digitisation initiative, no matter whether such initiative is at the level of a project to digitise a single collection or at the level of national policy. The guiding principles contained with the UNESCO Charter and the Lund Principles provide a clear positioning of the primacy of preservation in digitisation decisions, with the requirements for access becoming satisfied as a natural outcome of a preservation strategy.

1.15   Digitisation is a long-term initiative for both individual institutions and for the country as a whole and this demands an equally long-term policy framework. It is important to raise the awareness and profile of digitisation among the political players[20] and one newly created opportunity is to introduce digitisation into the scope of the National Planning Commission[21] in its role to consider the long-term planning of the country's needs.

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[19] http://www.digitalpreservationeurope.eu/
[20] Drijfhout, D. Review of Existing South African Policy, Legislation, Guidelines and Standards. UNESCO Digital Preservation Project, South African Research Team. 19 Sept 2006. Available from www.nlsa.ac.za.
[21] www.thepresidency.gov.za/nationalplanningcommission.asp

Scope of this policy

1.16   The scope of this policy is directed towards the digitisation of heritage resources for the purpose of preservation, access and management of ownership. This covers heritage of all forms including objects, sites, the living heritage, scientific and industrial heritage, and the biological heritage. The following exemplar situations illustrate some situations of digitisation, that are applicable within the scope of this policy, but these are not representative of the complete list of all possible situations: the scanning or digital photography of archives in any state archive repository or the records of any state body; the scanning or digital photography or digital migration of any work of literature, art or artifact as held by the National Library, other state libraries, and all state museums; the scanning or digital photography of any items or archives in the national interest as may be held by universities or other such institutions; the creation of electronic records in any digital format of media as part of the records management work of any state body; the recording of the living or intangible heritage using audio, video and database formats; recordings of biological information including DNA sequences; and, heritage and records maintained by municipalities in electronic form.

1.17   There are a limited number of primary stakeholders which are the custodians of South African heritage and these demand special mention in terms of the scope of this policy. Each of these stakeholders will require its own strategy to meet its specific requirements. These stakeholders are positioned at the national, provincial and local spheres of government and its associated bodies and include the National Archives and Record Services, the National Library and all other Legal Deposit Libraries, the National Library for the Blind, the National Film, Video and Sound Archives (NFVSA), the cultural institutions identified within the Cultural Institutions Act[22], SAHRA, the National Heritage Council (NHC), and all universities. It is not possible to find a "one-size-fits-all" policy and this policy is thus required to address general issues, while the more specific needs are required to be accommodated within the institutional strategies.

Digitising in South Africa – recent developments

1.18   One of the earliest initiatives for digitisation in South Africa was a workshop held at the University of the Witwatersrand in September 1997, funded by the Andrew W. Mellon Foundation, which then gave rise to the DISA-1 project[23]. This commenced in 1999 and was the first digitisation project in South Africa to be undertaken on a national rather than a local or institutional basis. Digital Innovation South Africa (DISA) defines itself as "a national collaborative initiative undertaking the building of an on-line, high quality information resource containing materials of importance and interest to scholars and students, and making this resource easily and universally accessible."[24]. DISA-2 began in 2003 and is entitled "South African

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[22] Cultural Institutions Act 119 of 1998.

[23] www.disa.ukzn.ac.za

[24] Ibid. About Us.

Freedom Struggles, c. 1950-1994". A consultative workshop was convened by the NHC in May 2007 entitled "Archives, Digitisation and Ownership" with the aim being to share information on how to protect the national heritage through technologies of digitisation. The National Research Foundation (NRF) conducted a national research project, funded by the Carnegie Corporation of New York, to explore the national development need for effective and efficient digitisation and preservation of valuable heritage and research collections in the South African system. This research was conducted starting in October 2008, with the initial report published in March 2009.

1.19   A South African review of policy and legislation relating to digital preservation was undertaken in 2006[25] within the UNESCO Digital Preservation Project and this identified a number of key elements to be included within a national policy on preservation and the linkage of this to the government's e-government policy. This also stresses the need to enable cooperation between major stakeholders and to position digital preservation into the political agenda, as well as the need to clarify the roles and responsibilities of the established repository institutions.

1.20   The need for a national policy on the digitisation of heritage resources has been identified at this time in order to provide guidance to the multitude of projects that are underway or planned in digitising South Africa's heritage, and to support the creation of born-digital heritage objects and repositories. The approach adopted for the development of this policy has been to position the policy as not only a set of prescriptive statements, but also as a set of enabling mechanisms for implementation including an initial national body of knowledge for the digital heritage. Digitisation is a highly practical activity, which demands an equally practical policy framework in order to accomplish its ends. This policy document provides a range of positions each of which requires practical implementation. This policy document is complemented by a companion document that outlines recommendations on specific mechanisms to achieve these policy objectives.

1.21   Although South Africa has been comparatively slow in embracing the opportunities offered by the digitisation of its heritage resources, there are numerous discrete digitisation projects completed or underway at present[26]. Many of these projects are being undertaken outside the direct state repositories, such as in academic institutions and private bodies. There are clear advantages in being a late starter in this field, given the high costs associated with large-scale digitisation projects and the massive improvements in technology that have occurred recently. Being a late starter is now allowing the country to learn from prior international experience.

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[25] Drijfhout, D. Review of Existing South African Policy, Legislation, Guidelines and Standards. UNESCO Digital Preservation Project, South African Research Team. 19 Sept 2006. Available from www.nlsa.ac.za.
[26] An Audit of Digitisation Initiatives, Ongoing and Planned, in South Africa. Report for Stakeholders Workshop on 18 March 2009

1.22   The White Paper on Arts, Culture and Heritage[27], published in 1996, provides the basis on which to integrate the art, culture and heritage sectors into the national programme of transformation. The White Paper makes specific reference to the sea-change occurring in the information technologies, a change which continues to this day, and the need to "actively shape these to our own circumstances"[28], and this policy framework is a realization of this early vision. The White Paper continues that "information effectively transcends all boundaries" and this is particularly significant in terms of promotion of universal access using the ICTs. The White Paper also makes specific recommendations in various sectors of interest to heritage: (1) Libraries are important to South Africa yet many do not have access to the facilities provided and the provinces and municipalities are under-resourced. This opens up opportunities for the transformation of libraries into digital-based institutions for information delivery in terms of the future vision of "virtual libraries", (2) The living heritage is required to be permanently recorded and the modern technologies of digitisation represent the only viable method to ensure both long-term preservation and improved access, (3) The NHC is also required to enable a programme for using living heritage resources for cultural tourism, including the production of various media. Even though this White Paper predates the widespread usage of the Internet, it is fair to include the Internet into today's information environment as an practical alternative for the distribution of the products of heritage.

The African context

1.23   In January 2010 the African Union Heads of State and Government declared the Information and Communication Technology (ICT) sector as a top priority[29] and adopted a declaration that calls on the African countries to prioritize ICTs as a vehicle for driving Africa's development agenda. The building and improvement of ICT infrastructure was also recognized as the prerequisite for the African countries to develop the ICT sector and to lay the framework for the continent's programmatic approach to sustainable development. This has set the tone for the continent in respect for what each member state will be doing in their respective countries to give effect to these commitments. The implementation of this policy gives substance to this agenda by providing access to digital heritage content.

The international context

1.24   Many of the developed countries have already commenced large-scale projects for digitising their heritage resources, some more than a decade ago. Even developing countries such as South Korea, Brazil, the Republic of China, Egypt and India are catching up quickly.

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[27] White Paper on Arts, Culture and Heritage. Department of Arts, Culture, Science and Technology. Pretoria. 4 June 1996.
[28] Ibid. p12.
[29] 14th African Union Summit. Theme: Information and Communication Technologies (ICT) in Africa: Challenges and Prospects for Development. 25 January – 2 February 2010, Addis Ababa, Ethiopia. http://www.africa-union.org/root/AU/Conferences/2010/january/summit/14thsummit.html

1.25   The key international doctrinal text is the UNESCO Charter on the Preservation of the Digital Heritage[30] (2003), as previously cited (1.11), concerning the importance of digital continuity and the attitude of stakeholders. Whereas this charter is relatively small, it highlights the essential elements on which the international member states of the United Nations agree to, as the minimum requirements for the preservation of the digital heritage in their communities to leave a legacy for all of humanity. The Charter's preamble lists a number of core principles that have informed this policy document. In particular, that the growth in the digital forms of heritage requires urgent attention that is of worldwide concern. South Africa is not yet a signatory to this Charter and at present is not able to satisfy the requirements as identified in the individual articles. This national policy on digitisation provides a broad range of mechanisms to ensure that when implemented in concert with each other they will provide the basis for meeting these requirements and for consequently signing this important international Charter.

1.26   The Memory of the World (MOW) programme[31] of UNESCO has the aim of preservation and dissemination of the value archives holdings and library collections worldwide. Digitisation is a tool used by MOW to achieve its aims. South Africa has a number of inclusions within the World Register including the documentary heritage of the Rivonia Trial.

Challenges leading to this policy

1.27   The Task Directives that led to this policy identify a number of critical issues that have framed the research methodology and the structuring of the policy statements. These include the concerns around foreign funding, access to digital heritage, preservation of the digital heritage and the nature of ownership within the digital heritage. These challenges are described in the context of this policy.

1.28   There is a national concern over the lack of controls within foreign-funded digitisation projects, which are often large in terms of the financial resources provided, and represent some of the more significant collections in South Africa's heritage. Without a controlled environment, there is inadequate protection of ownership and copyright of the digital resources produced during such projects, and inadequate access to these resources. In the absence of widely agreed controls, these projects will have an unknown impact on the nation's digital heritage. Foreign funding agencies and institutions see value in investing their resources to assist with the digitisation of South African heritage and whereas such funds are generally welcomed, there is a danger that digital heritage will be lost to South Africa. This policy recommends minimum contents of contracts for foreign

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[30] UNESCO (2003). UNESCO Charter on the Preservation of the Digital Heritage. Adopted at the 32nd session of the General Conference of UNESCO, 17 October 2003.

[31] www.unesco.org/webworld/mdm/

funded digitisation projects as one important approach to effective control of such projects.

1.29   The true extent of heritage digitisation is unknown at this time, although the NRF (2009)[32] has conducted an audit with a goal of building a database of such projects. It has been established that many custodians are currently engaged in, or planning for, the digitisation of their heritage assets, but are doing so in the absence of national guidance. There is an expectation that the outcome of this policy development process will include practical guidance to help existing and future projects. Whereas such guidance is not ideally positioned within a policy framework, a companion document will provide a starting point for such a locally-relevant body of knowledge.

1.30   Universal access to digital heritage can be seen as an interpretation of the constitutional right of access to information. A number of challenges exist in providing such universal access. These are firstly, the continuing situation of the digital divide and the need to create an inclusive Information Society in South Africa; secondly, the constitutional requirement for transparency of information concerning government processes; and thirdly, the constitutional right to privacy. Larger libraries and archives are providing access to electronic indexes, but few have digital libraries in place, and this applies equally to the museum sector and to the lack of virtual museums. Providing access to digital resources will reduce the threat of loss through excessive handling of these items and will reduce the potential damage to fragile items. The future of access in a digital world requires that serious consideration is given to "virtual collections" which may be physically located and managed in different places and represent resources provided by a variety of institutions. Universal access requires that the citizens have access to the resources, and also the capacity to use these resources. This policy promotes an agenda that is called "free basic information" that reduces the barrier to entry to the Information Society for the poorer sectors of society and which can be made available through existing public structures.

1.31   There remain a range of threats to physical collections that may render entire collections or individual items subject to loss or damage. These threats include the risks associated with natural or man-made disasters, losses through deterioration of fragile materials, and losses due to theft or physical damage during handling. These threats and risks are mitigated in this policy through the requirement to ensure long-term preservation as well as through the introduction of good practices in collection management. These threats are accentuated by the increasing problem of the lack of space for storage of physical heritage. Whereas digitisation can be viewed as an approach that can facilitate access to such threatened collections and to reduce handling, the introduction of digitisation practices does not remove or reduce the responsibility for the ongoing management of these collections. This policy recommends the creation of a national

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[32] An Audit of Digitisation Initiatives, Ongoing and Planned, in South Africa. Report for Stakeholders Workshop on 18 March 2009

register of threatened collections through an audit process, which will assist with prioritisation decisions in the usage of public digitisation funds.

1.32   One overriding challenge is how the digital heritage will be preserved for the future, given that it is feasible that our entire future recorded history may be digital in nature and the risks that this poses if the digital heritage is not preserved. The preservation of older computerized formats has not been of major concern until recently, resulting in early digital archives being inaccessible or being difficult to access. This challenge has been addressed at the outset of this policy document.

1.33   There are challenges concerning the nature of ownership of digital heritage and in particular the extent to which existing legal protection suffices or whether new controls and regulations are required to ensure protection of the national heritage assets in digital form. There is a important distinction between the rights owners and the custodians in a heritage context. The owners of heritage include the original creators as both individuals and communities, and for the purposes of this policy it is the copyright ownership that is most important, since the creation of the digital heritage opens up the possibility for uncontrolled reproduction. Copyright owners are able to (1) reproduce the work in any manner or form, (2) publish the work if it has not been published before, (3) perform the work in public, (4) broadcast the work, (4) cause the work to be transmitted in a diffusion service, and (5) to make an adaptation of the work[33]. However, such copyright ownership can belong to third parties or to many parties, as is often the case with music rights, and can be sold and bequeathed. The copyright will exist in both the original works and digital surrogates. In order for any digital collection to become commercialized it is necessary to fully address the copyright issues of the items managed under custodial arrangements. These will include community rights for indigenous knowledge, as well as biological rights that may include DNA sequences. The legal position of ownership and rights associated with digital heritage must be clarified by relevant changes to legislation.

1.34   Finally, a serious challenge exists in ensuring the practical outcomes expected of this policy, in terms of where to position the implementation responsibility. This policy is not recommending the creation of an alternative implementing agency, since the current trend is towards consolidating of such agencies rather than the creation of new agency structures. Placing too much control within government structures runs counter to the current independent management of many significant custodial institutions, including the cultural institutions identified in the Cultural Institutions Act[34] and the universities. However, such institutions should also not be free to dispose of South Africa's national memory in order to appease foreign funders. This policy recommends that the Department of Arts and Culture (DAC) facilitates the creation of a community of practice, operated as a professional society, which

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[33] Nicholson, D. & Mpholefole, N. (2008). Digitisation vs Legislative Frameworks. A Case Study of Legal Deposit Libraries in South Africa. LIASA Conference, Cape Town. 8 October 2008.
[34] Cultural Institutions Act 119 of 1998.

implement many of the policies, with the additional need to implement controls associated with approving contracts that export rights in the digital heritage.

The legislative context

1.35   A review has been conducted by DAC recently on legislation in the context of heritage, archives and libraries[35]. The scope of this review includes a gap analysis in legislation, but has not directly addressed the key issues concerned with digitisation. Policy recommendations are made in terms of public interest copyright exceptions to enhance the mandates of public libraries, archives and places to legal deposit through changes to the relevant acts. The most relevant policy recommendations within this review are those concerning the role of heritage in building a knowledge society. It addresses the need to meet the challenges of access for all, the development of capacity to use new technologies, and the need to counter the threat of linguistic globalization in the knowledge society. The recommendations that are made within this review must be coordinated with this digitisation policy and particularly concerning the creation of mechanisms to facilitate public access to institutional resources, and the support for diverse forms of knowledge. This digitisation policy must be seen and used as one leg of this knowledge society.

1.36   The South African Constitution of 1996 enshrines the right of access to information and makes it incumbent upon the State to take reasonable legislative and other measures within its available resources to achieve the progressive realization of this right. In response to this Constitutional imperative, Government – DAC in particular – has in terms of Legal Deposit Act, Promotion of Access to Information Act and National Library of South Africa Act introduced a variety of Regulations which provide access to information. This legislation does not consider the predominance of future electronic and digital forms of information and such legislation must be reviewed to ensure that a consist regulatory environment is in place to ensure accessibility of the information,

1.37   All legislation acquires authority from the Constitution. Where there is need for clarity or a lack of protection, the legislatures have been granted authority to promulgate new law or policy. It is important to strike a fair balance between the fundamental constitutional rights of privacy, transparency of government action, access to information, and the right to be given information in your own language. These rights provide protection to both the state and citizens. The constitution provides no direct reference to the terms "digitisation" or "heritage" as anticipated in this policy, but it does refer to "culture" in a generic sense. A common thread within existing legislation is that too little attention has been given to the distinction between physical records and electronic or digital records, and it is important to make this distinction explicit within the relevant Acts and Regulations. There are a number of common issues that confront digital records and which can be identified within all of the legislation. These

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[35] Heritage, Archives & Libraries Legislation Review Report. Department of Arts and Culture. 2008.

issues include those which are cited under the Constitutional context above as well as the right to make copies of information or to distribute information; the right to refuse access to sensitive information; the authenticity of digital records, including the usage of such records as evidence; the longevity of digital records; the longevity of physical records and in particular older archives and records of heritage value which are subject to decay over time; the multiplicity of standards, formats and media available for digital records; and which bodies are responsible for managing these standards. It is important to question whether the shift from paper records into digital records changes the manner in which these rights are provided and controlled and to what extent, and whether additional provision should be placed within the regulatory system to provide clarification on such protections. All legislation that gives substance to these rights must be amended to ensure that they provide for various levels of access to digital resources.

1.38   The Legal Deposit Act makes provision for the accessibility and preservation of the national documentary heritage through legal deposit of published documents. This act was written in the context of printed, paper, tangible material and this policy needs to incorporate digital material held by Legal Deposit Libraries. The act does not provide for specific handling of non-book materials such as electronic documents, photographs, CD-ROMs and videos which contain information that should be digitally preserved, rather than physically preserved, to enhance public access and to prevent loss through technological obsolescence. Many of the new submissions to the Legal Deposit libraries are provided in digital form, and these are increasingly born-digital materials that have not arisen from the digitisation of previously analogue source materials. This act must be complemented by procedures and practices that explicitly describe the standards for such digital publications and materials, and the methods used to submit these to the depository. This must also include the manner in which the legal deposits are required to transform themselves into digital repositories in terms of the standards arising from this policy.

1.39   A similar situation arises with the National Archives and Records Services (NARS) Act, concerning public records, and a policy statement[36] provides guidance to state bodies that are embarking upon the introduction of electronic records management systems. This important NARS policy must be introduced to all state bodies as soon as is practically possible to ensure continuity in the documentary heritage and to reduce the risk of gaps in the historic record. The existing File Plan structures, as are required by all state bodies for their records management, must be amended to incorporate the provision for Digital File Plans for records maintained in digital formats.

1.40   The National Heritage Resources Act (NHRA) is the core legislation for the management of heritage resources, although this excludes the documentary heritage and is focused on the tangible heritage rather than

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[36] Managing Electronic Records in Governmental Bodies: Policy, Principles and Requirements, National Archives and Records Services, Second Edition, April 2006.

the living heritage. The NHRA brings SAHRA and the Provincial Heritage Resource Authorities (PHRAs) into existence and defines their respective responsibilities. In terms of the NHRA, SAHRA is required to maintain a database inventory of the "national estate", which consists of places and objects of significance. The NHRA does not provide for digitisation of the national estate, and the database anticipated is in the form of a list or register which is accessible at the offices of SAHRA. Whereas there is limited scope for the provision of access to the list, there is no provision for preservation of the digital heritage contained within the act. However, SAHRA does have the responsibility of administering reproduction rights for heritage sites, either in two or three dimensions, including the permits for such rights and fees payable in terms of these rights. The digital reproduction of such heritage sites, as well as rights associated with heritage objects or the intangible heritage are not covered by the NHRA. Regulations have been promulgated to accommodate the permitting for such reproduction[37]. The NHRA should be amended to clarify the scope of the reproductions as they are produced in digital form, in addition to two and three dimensional reproductions, as well as to such reproductions of objects in the national estate.

1.41   The NHRA also provides mechanisms for controlling the export of objects, and a regulation has been promulgated to prescribe the methods for such applications[38]. These regulations identify the need to provide precise descriptions and scaled photographs of the objects in order to determine its significance as part of the application process. However, they fail to include the necessary documentation to be retained in the form of digital heritage for those that are exported, or to consider the export of digital heritage as an alternative to the export of the physical objects. The advent of the digital heritage opens up such alternatives and these regulations must be amended to accommodate the accessibility of digital surrogates of the actual objects when these are sufficient for the needs of the international recipient, as well as the creation of sufficient digital reproductions for the physical objects exported to mitigate the risks of loss and to support the processes for recovery.

1.42   The South African Community Library and Information Services Bill[39] identifies a range of norms and standards applicable for community libraries including electronic access to library materials, which includes books, periodicals, manuscripts, charts, maps, video cassette, slides, filmstrips, audio cassette, compact disks and any other materials. To provide electronic access requires that these have been digitised, and thus the implementation of this Bill, once it becomes an Act, will be informed by this digitisation policy. In terms of this Bill, the libraries have specific responsibilities for not only promoting information literacy, but for also taking an active role in facilitating and promoting the development of ICT

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[37] Regulation for Application to reproduce a national heritage site. Chapter V. Government Gazette No. 21239, 2 June 2000.

[38] Regulation for Application for permit to export a heritage object. Chapter VII. Government Gazette No. 21239, 2 June 2000.

[39] South African Community Library and Information Services Bill, 2010. Draft for stakeholder consultation (25.01.2010).

skills within the communities. It is important not to underestimate the efforts required to facilitate this within the community libraries, and this provision of ICT skills should be included within a national programme and should include all workers in the memory institutions.

Copyright and moral rights

1.43   Whereas there are many intellectual property rights, including trade marks, service marks, and patents, it is copyright which is significant in terms of digitisation. Copyright is defined as specific acts that are restricted in terms of specific categories of "works". Copyright is owned by the first authors of a new work unless it has been assigned to an organisation or it has been sold or bequeathed. Copyright may be passed from one person to another until the duration of rights has elapsed, which is 50 years after the death of the original author for literary, music or artistic works, and 50 years since the date of first publishing for films, photographs and computer programs in terms of the Copyright Act 78 of 1978. The fundamental balance when considering copyright is that between the rights holders and the rights users, and this is complicated when these may be in different countries with different legislative protections. The introduction of digital materials into the realm of copyright has not substantially changed these rights, and the current practices of downloading electronic books, digital music, and educational materials are already established under controlled rights management processes. It is necessary at this time to clarify the position on the ownership of state archives, to ensure that access is provided to the digital heritage and to digital forms of published materials, and to introduce open content models to enhance the range of materials available through digital means.

1.44   The author of a copyrighted work also has moral rights on their creative works. These include a right to paternity, which ensures that the work cannot be falsely attributed; a right to integrity, which guarantees that the work cannot be modified without the author's permission; and a right to keep the work unpublished.[40] All digital works residing in national repositories must identify the rights information including who are the rights holders and their moral rights.

1.45   There are many situations in which the custodians of the documentary and cultural heritage are not the owners of the intellectual rights, and in particular the copyright. In terms of South Africa's being a signatory to the Berne Convention, a work of a foreign author or creator which is reproduced without authorization in South Africa can be dealt within terms of the Copyright Act of South Africa. It is important that the ownership information for digital reproductions includes the country under which the rights holder is bound in terms of copyright legislation.

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[40] Intellectual Property Guidelines. Version 1.0. Edited by the MinervaEC Working Group. September 2008. www.minervaeurope.org.

1.46   The Copyright Act includes protection for a range of "acts" over a range of categories of works[41]. These categories are literary works (books, articles and emails), dramatic works, musical works, artistic works (including photographs and images), films, sound recordings (including oral history and recorded lectures), broadcasts, and typographical works (including web site designs). The "acts" that are restricted in terms of copyright are the copying of the work, distributing copies to the public, renting or lending of the works to the public, communicating the work to the public (including publishing on Internet), adapting the work, performing, playing or showing the work, or broadcasting the work. A single work may belong to more than one of the categories such as a web site which includes typographical arrangement, literary protection in terms of the written content, artistic copyright in terms of the images, and sound recordings or music protection in terms of the sounds used. When converted into digital form, these different types of work are maintained within a common digital structure, essentially as bits in digital files, and this potentially simplifies the management of rights. It is recommended that a common approach be developed to cover rights management all types of digital heritage and to be applicable across all repositories.

1.47   The concept of "fair dealing" allows a number of acts to be permitted without violation of the copyright protections. These are important considerations for open access and define the boundaries between acceptable use and non-acceptable use. Within the South African Copyright Act[42] these fair dealing acts include (1) research or private study by, the personal or private use of, the person using the work, (2) criticism or review of the work, (3) reporting of current events in newspaper or magazine or broadcasting. In the cases of (2) and (3) it is necessary to respect moral rights by identifying the source and the name of the author. One example concerns photographs appearing in newspapers and web sites with the name of the photographer. Fair dealing offers a wide range of opportunity for the usage of the digital heritage for the purposes of education. Such fair dealing is important for the provision of digital reproductions to visually impaired persons, and this has been dealt with in the UK within an amendment to their copyright legislation[43]. This contains provision for approved bodies, which would include educational institutions and libraries for the blind, to hold intermediate copies of a master copy, which can be then used for lending to members. Fair dealing should be clarified in terms of digital reproductions and to include safeguards for additional protection as required by the rights holders. Such additional protection may include access to low resolution reproductions, embedded metadata tags, watermarks, and digital signatures.

1.48   At various stages within the digitisation life cycle various provisions must be introduced in terms of copyright and other rights, and these include the

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[41] Kom, N. (2005) Guide to Intellectual Property Rights and Other Legal Issues. Version 1.0. The Minerva Project.
[42] Copyright Act 98 of 1978, as amended. Section 12(1).
[43] Copyright (Visually Impaired Persons) Act, 2002. UK Government.

following[44]: Identifying any rights issues and who owns the rights; negotiation of the rights for the creation and use of digital objects and resources; including rights terms and conditions into all digitisation contracts; documenting the rights and linkage of these rights to the objects themselves; defining the systems and processes to support rights management and licensing; determining who should be granted access, and under what conditions; constructing technical and control measures to prevent unauthorized use and access, include limiting access to high quality images while providing access to low-resolution versions and also limiting the usage of digital cameras in libraries, archives and museums; negotiating rights for re-use, such as in learning materials, and; securing rights to external content. These provisions must be included into institutional strategies for contracts for mass digitisation as well as policies and procedures for ad hoc requests for creating digital copies.

Open Source, Open Standards and Open Content

1.49   Open Source (OSS) is a "development method for software that harnesses the power of distributed peer review and transparency of process. The promise of open source is better quality, higher reliability, more flexibility, lower cost and an end to predatory vendor lock-in"[45]. The term FOSS, Free Open Source Software is a variation of OSS, in which open source software is provided without fees. The South African Government has adopted a policy on OSS[46] which includes a range of provisions for selection, migration, new software development, advocacy, and open content which include a number of key recommendations and actions. These include the consideration of FOSS within purchasing decisions, the migration of software to FOSS where this is expedient, the introduction of open standards into new systems and data, the promotion of an open content model, and advocating open content and open standards throughout the public sector in South Africa. Open Content is a form of publishing of works that is published under a license that allows anyone to copy, modify or use the information. Open Standards are those that are in the public domain and which are available through non-proprietary, internationally-agreed standards. All national digital repositories contemplated within the scope of this policy must exclusively use open standards for all digital file format, and should make use of open source software where this is possible and migrate to OSS where this is possible. Open content models should be used to provide access while respecting the rights of the rights holders for copyright.

Interoperability

1.50   Interoperability is the ability for separate systems and data stores to be integrated by sharing and exchange of data, and by the ability to use

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[44] Kom, N. (2005) Guide to Intellectual Property Rights and Other Legal Issues. Version 1.0. The Minerva Project.

[45] The Open Source Initiative. www.opensource.org.

[46] Policy on Free and Open Source Software use for South African Government. Department of Public Service and Administration. August 2006.

programmed procedures across system boundaries. The Minimum Information Interoperability Standards (MIOS)[47] was developed by the Government Information Technology Officials Committee (GITOC) and released in 2002 and this sets out the Government's technical policies and standards for achieving interoperability and information systems coherence across the public sector. The MIOS defines the essential pre-requisite for connected and web-enabled government and the digital repositories as contemplated within this policy are one of the primary areas in which such interoperability will be applied. The national digital repositories must be designed in accordance with the MIOS and this must be provided primarily in terms of a common interface that all such repositories are required to provide in terms of (1) access to their content, (2) searching across multiple repositories, and (3) uploading content as required for the legal depositories and the national archives.

Future technologies and research

1.51   The scope of digitisation policy is required to be relevant over the long-term future and this is complicated by the inherent difficulties of accurately predicting future information technologies. Heritage has the longest-term agenda of any human activity, and this policy concerning the digital heritage must be structured so as to minimise the impact of any future technologies. As the technologies for storage and access are evolving, many users can potentially be left behind if they only have access to outdated technologies. Research must be undertaken to identify new scenarios for digital heritage and to explore the local conditions associated with emerging technologies. These should include online archives, digital libraries and virtual museums, the usage of social digital networks, as well as online market places for sharing and sales of digital heritage. The specific access technologies should also be explored including digital paper, in which the current digital book readers can eventually be produced in the size, shape and texture of an A4 sheet of paper that can be folded and placed into one's pocket, and the convergence of communication devices as fully-functional computers, as is emerging with the current generation of mobile phones.

The government's ICT mandate

1.52   The Department of Communications (DoC) has the mandate to facilitate, promote and enable a national ICT sector that ensures that all South Africans have access to affordable and accessible ICT services in order to advance socio-economic development goals and support of the African Agenda and contribute to building a better world. The DoC achieves this, inter alia, by developing ICT policies and legislation and ensuring the development of ICT infrastructure. The 2010-2013 Strategic Plan of the DoC defines the facilitation and promotion of an Information Society development programme to accelerate socio-economic development through, inter alia, improved access to cultural heritage information, with as

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[47] Minimum Interoperability Standards for Information Systems in Government. Version 4.1. Department of Public Service and Administration. 2007. Adapted for RSA from original UK government document.

its key output, a fully operational Cultural Heritage digital repository. The focus is on the capture of heritage information on provincial levels for the period 2011-2013. The accountability and responsibility of this outcome is placed with the Presidential National Commission. This is a considerable overlap with the vision of the digital heritage as contained within this policy and promoted by DAC and this policy recommends that a working group be established between DAC and DoC to coordinate these efforts, and to ensure that any such Cultural Heritage digital repositories meet the standards of this policy.

CHAPTER 2
THE POLICY DEVELOPMENT PROCESS

Terms of reference

2.1   The Task Directives that have given rise to this work outline the outcomes to be produced and the processes to be employed. The primary objective is the creation of a national policy framework for the digitisation of heritage resources which is informed by relevant research. The Task Directives identify a number of specific deliverables in addition to the national policy including a database of digitisation projects and guidelines on best practices.

Policy Research

2.2   The primary goal of this research has been to provide policymakers with informed results and recommendations that have practical utility in addressing the issues raised in Chapter 1 concerning the status, context and history of the digitisation of heritage resources in South Africa.

2.3   Policy research has been defined as "a process of conducting research on, or analysis of, a fundamental social problem in order to provide policymakers with pragmatic, action-oriented recommendations for alleviating the problem" (Majchrzak, 1984, p12, underlining not in original)[48].

2.4   The "fundamental social problem" in this case is the problem of how to manage the shift from paper and physical records or heritage assets into electronic and digital records as well as how to preserve these digital records over the long term. The failure to address this problem is resulting in situations in which digital heritage of South Africa may be lost through the lack of controls and guidelines referred to as "digital colonialism"[49]. This is analogous to the situation that existed in earlier colonial periods, when depleting a country of its heritage assets was condoned while there was no policy or legislation in place to protect the rightful owners of this heritage.

2.5   The "action-oriented recommendations" are presented in this document as a set of policy statements (Chapter 3). A set of implementation mechanisms are to be provided in a companion document at a later time which recommend approaches to achieve the desired outcomes of this policy.

2.6   Due to the multi-dimensional nature of the problem, five different types of skills were identified and assembled within the policy development team as being critical to provide a wide-ranging set of knowledge and experience to participate within the research and policy development processes. These

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[48] Majchrzak, A. (1984) Methods for Policy Research. Applied Social research Methods Series, Vol 3. Sage Publications. Newbury Park.
[49] D. Larsen

skills included ICT skills, heritage data and methods, practical digitisation, heritage management and copyright.

Research methodology

2.7   An initial review was conducted to understand the scope and nature of the problem and to define an analytical framework to structure the remainder of the research. It has been noted that policy research often requires that the scope is maintained open and designing the research study to exploit qualitative methods to help clarify this scope[50]. A literature survey was conducted as part of the initial research and this included the identification of international efforts in the creation of digitisation policies, an analysis of key international charters and conventions, and the opinions and expectations of local experts in terms of a digitisation policy.

2.8   A database of relevant stakeholders was compiled to include state bodies, state-owned enterprises, government agencies, professional associations, museums, archives and libraries. A questionnaire survey was conducted over all of the stakeholders to determine their current status in terms of digitisation activities and their motivation to digitise. A focus group structure was designed for in-depth analysis and a sample of the stakeholders was selected to represent the breadth of institutions with an interest in digitisation. The focus groups were conducted with twelve of the selected institutions. Variations in location within the country as well as the sizes of the budgets of the institutions were taken into consideration for the selection of the sample. The focus group approach allowed free discussion guided loosely by ten specific open questions. In cases in which the institutions were engaged in existing digitisation initiatives, additional questions examined the nature of the projects in terms of funding and copyright arrangements. The time frame of the research phase did not allow for focus groups to be conducted with all of the selected institutions, primarily due to the lack of response from the institutions or the inability of the institutions to coordinate their key personnel. Those selected institutions that could not participate have been invited to review the draft policy.

2.9   The research design was cognisant of the digitisation study[51] underway by the NRF with the goal of establishing a database of digitisation projects and to consolidate activities in digitisation in South Africa. The report from the NRF study was made available to the team and this helped to inform the planning and execution of this study. In discussion with the NRF it was decided to consolidate and collaborate in terms of the database of projects rather than to have two national studies on digitisation taking place simultaneously. The questionnaires invoked some negative reactions with a request for the various government departments to work closer together rather than in silos. This issue was noted and addressed early in the process.

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[50] Ibid.
[51] An Audit of Digitisation Initiatives, Ongoing and Planned, in South Africa. Report for Stakeholders Workshop on 18 March 2009.

Literature survey

2.10   Due to the breadth of the discipline of digitisation within the scope of heritage resources, it has been necessary to explore a wide range of literature, from formal legislation through to existing standards, international charters, as well as scholarly articles and conferences papers. The legal context has been examined earlier, in the analysis of the legal context in Chapter 1 and will not be repeated here. Literature selected for the purpose of this section concerns that specific to national digitisation policy. A large amount of literature in the survey has contributed to the Digital Heritage Body of Knowledge and is not included into this policy document.

2.11   The policy research approach used was informed by Majchrzak[52], and in particular her recommendation that the outcomes and form of policy should be implementable interventions. This approach has guided the entire research and policy development process.

2.12   The expectations of a digitisation policy have been outlined by Pickover (2009)[53] with particular reference to African heritage and the issues surrounding the selection decision in digitisation projects and the critique of the DISA-2 initiative being influenced by the production targets set by ALUKA[54]. Pickover identifies a number of issues that can be addressed by policy interventions including the nature of foreign funding and partnerships and the protection of the local heritage, the impact of the digital divide resulting from such partnerships, the rules of selection in digitisation projects, the positioning of Open Access and Open Source, intellectual property issues as well as the building of local capacity and to coordinate efforts to develop stronger communities of sharing. Nicholson[55] has recommended changes to legislation to improve access to the digital content in terms of "fair dealing" principles, to encourage review of relevant heritage legislation and to provide for contracts that limit access to only subscribers with a recommendation for Creative Commons licensing.

2.13   The NRF Audit of Digitisation[56] makes a number of recommendations including the development of a national portal to heritage and research, a national digitisation and preservations support centre, funding support from government, guidelines for approval of digitisation and preservation projects, as well as the identification of particular themes for the classification of collections.

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[52] Majchrzak, A. (1984) Methods for Policy Research. Applied Social research Methods Series, Vol 3. Sage Publications. Newbury Park.

[53] Pickover, M. Contestations, Ownership, Access and Ideology: Policy Development Challenges for the Digitisation of African Heritage and Liberation Archives. 1st International Conference on African Digital libraries and Archives. Addis Ababa, Ethiopia. 1-3July 2009.

[54] A Digital library of scholarly resources from and about Africa. From 2008 ALUKA has been a part of JSTOR.

[55] Nicholson, D. Digitisation: Considering the 3 C's – Copyright, Contracts, Creative Commons. 1st African Digital Curation Conference, CSIR, Pretoria. 12-13 February 2008.

[56] An audit of digitisation initiative, ongoing and planned, in South Africa. Report for stakeholders workshop on 18 March 2009. National Research Foundation.

2.14   The goals of preservation of the digital heritage are identified within the UNESCO Charter on the Preservation of the Digital Heritage[57], which is referred to throughout this policy. This lays the basis for international and national efforts in preservation and presents a range of challenges to be addressed and actions required of the member states if such preservation is to be successful over the long term.

2.15   In terms of the European approach to digitisation policy, the Lund Principles[58] are the outcome of a meeting of experts held at Lund in Sweden held on 4 April 2001. The purpose was to discuss issues on coordination of digitisation activities across the EU member states and to make recommendations for actions. This report identifies the key problems of fragmentation within the various digitisation activities, the threat of obsolescence, the lack of a simple form of access to the digital heritage as well as the balancing of the legitimate interests and intellectual rights of owners, intermediaries and users. The report makes recommendations that are informing digitisation policy within each of the member states including creating a forum for coordination, supporting a European view of policies, promoting and supporting good practice as well as accelerating the take-up of this good practice. The Lund Principles were followed up by an action plan[59] which identified specific actions and their objects, such as the creation of national web sites in support of digitisation. The Lund Principles and the action plan have given rise to the successful Minerva and Digicult projects[60] within the EU FP6 research programme. The experience of the EU through these Lund principles is paralleled within this work towards a South African policy on digitisation.

2.16   The World Summit on the Information Society (WSIS) identifies[61] the important role that the heritage community, including libraries, museums and archives should play in bringing the Information Society to Africa, particularly through the development of local content – "The development of local content suited to domestic or regional needs will encourage social and economic development and will stimulate participation of all stakeholders, including people living in rural, remote and marginal areas." (p. 7). This WSIS was followed up by an action plan which includes as Target 4 the provision of access points for information access in libraries, museums, archives and other public institutions, especially in rural and underserviced areas, the creation of a "digital public library and archives" including the formation of "hybrid libraries", training of workers in these institutions in ICT and also providing ICT training for the public. The Tunis Agenda for the WSIS reaffirms this commitment by "supporting educational, scientific, and cultural institutions, including libraries, archives

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[57] UNESCO Charter on the Preservation of the Digital Heritage. Adopted at the 32nd session of the General Conference of UNESCO, 17 October 2003
[58] The Lund Principles: Conclusions of Experts Meeting, Lund, Sweden, 4 April 2001. Downloaded from ftp://ftp.cordis.europa.eu/pub/ist/docs/digicult/lund_principles-en.pdf on 23 April 2010.
[59] Lund Action Plans. Action Plan on Coordination of Digitisation Programmes and Policies. Progress Update Version : 23 July 2001.
[60] www.cordis.lu/ist/digicult/projects_all.htm
[61] World Summit on the Information Society. Declaration of Principles. 12 December 2003. downloaded from http://www.itu.int/dms_pub/itu-s/md/03/wsis/doc/S03-WSIS-DOC-0004!!PDF-E.pdf on 15 June 2010.

and museums, in their role of developing, providing equitable, open and affordable access to, and preserving diverse and varied content, including in digital form, to support informal and formal education, research and innovation; and in particular supporting libraries in their public-service role of providing free and equitable access to information and of improving ICT literacy and community connectivity, particularly in underserved communities". However, the mid-term report of the WSIS[62] has presented a status in which the progress in the developing world has been far from adequate but identifies that, with the funding from private and public sources, the 2015 goals remain attainable. There is a strong relationship between programmes for the Information Society, and the requirements of universal access to digital heritage, and the WSIS provides important impetus for the interventions provided within this policy.

2.17   The need for skills within the library and archive sectors has been analysed in a research project undertaken for DAC in 2009/10[63]. This report identifies the needs for skills in digitisation and the need for more hands-on training in digitisation and the usage of the Internet. It recommends that all archivists receive advanced IT training. Within this report digitisation is considered within the scope of archives as "the planning and design of the scanning process, the preparation of the originals, the indexing and verification of the scanned images, the regular auditing of the scanning process as well as special requirements regarding the scanning technologies, formats and standards to be used. The purpose is to ensure that authentic and reliable records are created that would be admissible as evidence in a court of Law" (p.90). There is no current skills structure for what constitutes the digitisation discipline, and this policy recommends that such a structure be developed to support coherence and standards within this discipline.

Analytical model

2.18   The policy research approach adopted for this study recommends the development of a model to help analyse the issues and to plan the research methods to be used[64]. In the early stages of the research study, following the initial literature survey, an analytical model was designed and discussed within the team. The primary objective of the model is to provide a framework in which the various issues and discourses can be positioned and compared in a total picture of the world of digitisation.

2.19   Initially a suitable model was sought within the considerable literature available on digitisation, but no such model could be found that was suited to serve as the basis for the development of national digitisation policy and it became necessary to build a model especially for this study. The model was designed to satisfy the following criteria: (1) process-based, treating

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[62] World Telecommunication/ICT Development Report 2010. Monitoring the WSIS Targets: A Mid-Term Review. International Telecommunication Union.

[63] The Demand for and Supply of Skills in Library and Information Services, Archival Services and Records Management. Final Report. DAC. 15 March 2010.

[64] Majchrzak, A. (1984) Methods for Policy Research. Applied Social research Methods Series, Vol 3. Sage Publications. Newbury Park.

digitisation as essentially a process, (2) resource-independent and time-independent, (3) complete, in terms of coverage of the discourses and issues, (4) concise, (5) extensible and adaptable, (6) as a basis for discourse, (7) widely agreed and accepted (8) clarify the distinction between policy, process and practice.

2.20   The high-level structure of this analytical model reflects the three primary parties to any digitisation process, being the "creator", the "custodian", and the "user". In the project and organisational environment there is also a "manager", who is responsible for managing the digitisation process. Within this model the "creator" represents the producer of the digital resources, which includes both the rights owners of the materials being digitized, including the original creator of the works, as well as the organisations that are engaged in creating the digital surrogates from analogue originals since they may also claim rights to the digital objects created. The "custodians" are organisations or institutions that administer and manage the collections, or may own their own collections and in most cases this will apply to both analogue and digital collections. The "users" represent the consumers of the digital resources, including all individuals and organisations that will need to access and use the digital resources. The model is structured into 10 distinct processes, and this model is described in the Digital Heritage Body of Knowledge which is provided as the companion product to this national policy. This model provides the basis for examining and comparing discourses concerning access, preservation, ownership, foreign funding, and authenticity within the scope of digitisation.

Questionnaire

2.21   A database of 216 stakeholders was created for the purpose of this questionnaire, consisting of representative organisations in various sectors including local, provincial and national government, public entities and private business, museums, art galleries, archives, libraries, research institutions, science councils, universities, heritage organisations, NGOs, and professional associations. It was not the intention to create a database of the entire sector, but rather of the most significant and representative bodies, as well as those that had participated in previous studies.

2.22   The questionnaire was structured to be sufficiently small to ensure quick turnaround in response, given that most institutions would not be inclined to give precedence to large questionnaires, and the project was under strict time pressure. A core set of questions was compiled to establish firstly the current status of digitisation, including the number of projects and items, as well as the nature of the collections, secondly the source of the funding and the digitisation experts who are conducting the projects, thirdly the policies and standards that are informing the digitisation efforts, and finally, the specific motivations that are driving the digitisation efforts within the institution.

2.23   The questionnaires were distributed by email, and errors in the email addresses were corrected as the emails were returned. A telephonic follow-up was conducted for institutions that did not respond. Some

institutions indicated that they had no collections. The professional bodies were requested to submit the questionnaire to their members, and this resulted in additional responses that were not in the original list.

2.24   68 responses were finally received by the cut-off date, being 30% of the total within the database, with most of these received within two weeks of the request, and with the first being received within 15 minutes of the email being sent. In one case the institution concerned refused to answer based upon their participation in the NRF study but on the whole the responses were positive and encouraging with follow up emails and telephone calls to offer additional support. This relatively high response rate was attributed to the decision to reduce the questionnaire to two pages as well as the follow-up telephone reminders.

2.25   The results of the survey indicate that the majority of respondents are currently or have previously been active with digitisation projects, and that most are also using own funds, with only one in five having access to international funds.

Focus groups

2.26   The focus group discussions were designed in terms of the analytical framework in order to elicit information and opinions in free and open discussions directed by specific topic headings. The purpose of the focus groups was to engage with institutions that are either active with digitisation projects or which have major collections requiring digitisation, or that have an interest in the national success of digitisation. Specific questions were posed concerning the key parameters of access, preservation, copyright and foreign funding.

2.27   A set of organisations was selected from the larger database of stakeholders. The selection was based upon the need to obtain breadth of input from the widest cross-section of stakeholders. The selected stakeholders were invited to participate and those that accepted the invitation were sent an advance copy of the questions to enable them to prepare. Time constraints meant that some of the invited organisations could not engage in the focus group sessions during this period, and due to the significance of these institutions and to ensure inclusiveness, they have been requested to assist in the public review process following the publishing of the draft for public comment. The institutions that participated in the focus groups included representatives from government departments, government agencies, museums, universities, art galleries, libraries and local councils.

2.28   Each focus group discussion was led by a facilitator who posed questions to the groups and then engaged in discussions to elicit the responses and opinions. The questions posed were linked to the ten-process analytical model and included elicitation of the opinions of the participants on the definition and scope of digitisation, the nature of their own users and beneficiaries, the challenges they experience and what they expect from a

national policy, as well as their own approaches to key issues of preservation, access, repository management, and copyright.

2.29   These focus groups were conducted mostly in a round-table format. Detailed notes were taken and most of these focus groups were audio recorded for the purpose of clarifying comments in situations in which the notes were inadequate. Transcripts were not made of the audio recordings since this was deemed to be unnecessary in terms of the small incremental value that these would have over the written notes. These audio records were primarily used to clarify points where the written notes were insufficient. In the majority of cases there were three or more people present, but in three cases the focus group was with an individual and thus was treated as an interview rather than a focus group. In four focus groups in which specific digitisation projects were identified, additional questions were asked in terms of ongoing projects to elicit information relevant to these situations as case studies.

2.30   Each of the focus groups was given the opportunity to treat certain information as confidential, and the ethical approach has been to maintain confidentiality throughout and to not refer to individual opinions or information. The notes were taken in a way that specifically identifies the information as confidential. In some cases the audio recorder was stopped while such confidential information was being discussed. The purpose of these focus groups was to identify general trends, opinions and needs, rather than to attend to institution-specific issues and concerns.

2.31   The notes were taken by hand and were captured into Microsoft Word representing the structured discussions over the ten selected questions. Confidential information was captured in a manner that confidentiality is not breached. The notes were analysed using a codification structure to elicit the terms and points raised, examining the frequency in which such points were made across individual institutions and identifying alternative positions. Approximately 100 points and terms were identified across the focus groups, and these were consolidated in order to form a collective view of the opinions and the various positions on the topics. These collective views then have been used to inform the policy statements and the implementation mechanisms. Some of the findings were specific to particular sectors such as archives, libraries or museums, or even more specific to types of heritage (such as rock art) or particular technical problems (such as glass negatives) but in the main the findings were generic and applicable to the heritage sector in the large.

Research findings

2.32   The individual findings of the research methods have informed the structuring of the policy statements. The key findings are outlined here.

2.33   Digitisation of collections is an active pursuit at this time, but is being conducted in a fragmented manner, and in silos in which most institutions are working essentially alone. A national community of practice must be created and sustained as an outcome of this policy.

2.34   The majority of institutions indicate that existing threats to their collections are the largest motivation for engaging digitisation – in essence, that preservation of their collection over the long term is their primary goal. The money to perform digitisation is lacking, and access to funding opportunities is needed by many institutions.

2.35   There is a complete lack of consistency in the standards, guidelines and policies being used at present, with some institutions not using any external standards. Very few institutions are using similar standards and practices. Best practices embedded within the Digital Heritage Body of Knowledge (DHBOK) must include of national standards and recommended approaches.

2.36   A specification on digital masters is required to ensure that digital resources are able to be identified as authentic. This should also be included in the DHBOK.

2.37   All modern forms of electronic publishing fall within the scope of digitisation, including web site content, email archives, social networks interactions, and "born digital" content. Legislation should be reviewed and updated to accommodate these in terms of archival requirements.

2.38   A wide range of findings concerned the issues around access to the digital heritage including protection against misuse, and the provision for open access where this is possible and practical. Access should also be directly linked to rights management processes. A common access method for all repositories must be provided in the future to support interoperability requirements.

2.39   There is a need for both project-level contracts as well as one-time-usage contracts, such as for the usage of digital cameras in libraries and archives. Intellectual property rights should be negotiated with funders and owners in advance of a project. It is essential to know who has the rights to reproduce for education and commercial purposes. Contract guidelines must be provided for all such contractual situations.

2.40   With the public service moving to electronic records management, it is becoming increasingly important throughout all government bodies and agencies to consider the management of digital records for archiving as opposed to physical records.[65]. This process must be led by NARS in terms of the existing policy on electronic records management.

2.41   Format watching and format succession planning are essential elements of a national policy and should be provided at the national level rather than requiring each institution to carry these out by themselves.

2.42   There is a fear of mushrooming digital archives which contain important national content but which are largely uncontrolled and unconnected from

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[65] Managing Electronic Records in Governmental Bodies: Policy, Principles and Requirements. National Archives and Records Service of South Africa. April 2006.

the national memory systems. A small number of large and well-managed repositories are preferred. All repositories should be interoperable with each other, and be able to be accessed using a common interface.

2.43   Popular collections, as well as collections under threat, should take precedence in digitisation initiatives in order to reduce handling and improve access.

2.44   National standards on metadata are required as a matter of urgency and where possible, existing standards should be used or combined.

2.45   A range of selection criteria should be established, but rather than there being a national set of priorities, these should be incorporated into institutional digitisation strategies.

2.46   Skills development is a priority and should include the change management processes to reposition the roles of archivists, librarians and curators in the management of digital repositories. All such memory workers should be ICT proficient. A skills framework is needed to cover the entire digitisation sector, and to integrate skills frameworks being structured within museums, archives and libraries.

2.47   Beyond the development of skills, the general need for capacity development within custodial institutions is a stated priority, and government's role should be to facilitate this development.

CHAPTER 3
POLICY STATEMENTS

3.1   The challenges outlined at the end of chapter 1 and the research findings at the end of chapter 2 jointly inform the structuring of the policy framework contained in this chapter as well as providing the basis for the details of the policy statements contained within this policy structure.

3.2   The distinction is made between the policy statements and the practical implementation of these policies. The practical mechanisms are to be provided in two companion documents, with the first identifying a set of implementation mechanisms that give substance to these policy statements, and the second identifying good practices, in a body of knowledge. This is referred to as the Digital Heritage Body of Knowledge (DHBOK).

3.3   Custodian institutions need to create a digitisation strategy in line with this policy and to actively engage in digitisation initiatives. An environment for such initiatives is provided in terms of the development of institutional digitisation strategies which should include the recording and management of rights.

3.4   The issues of ownership of digital heritage are in many ways an extension of existing regulation, but they pose challenges in terms of foreign funding. Policy is provided to ensure controls over loss of digital heritage through uncontrolled export of rights.

3.5   Universal access presents a considerable challenge for any developing country in which the infrastructure is insufficient and in which the introduction of digital content may adversely impact on the underprivileged. A balanced set of proposals is included to accommodate this in a creative way and to provide access to all.

3.6   Access to finances for digitisation is a perennial constraint that causes finances from foreign agencies to be highly attractive and policies are presented to accommodate the effective usage of limited financial opportunities. Government's role in digitisation is also presented as a facilitatory role, and particularly in terms of encouraging and managing bilateral agreements to maximise their impact.

3.7   The need for authenticity, integrity and provenance of the digital heritage drives the need for effective management of national repositories that are managed in accordance with national standards and principles. Policies are introduced to accommodate the controlled implementation and management of these repositories.

3.8   The critical need for capacity development is provided for in terms of policies around capacity and institution building, including the facilitation of a community of practice to cover the discipline of digitisation, the development of a scorecard to measure capability and maturity of institutions in terms of digitisation, and initiatives to develop capacity within the institutions. There is a shortage of skills in the discipline of digitisation,

and the new skills required are beyond the traditional skills structures and curricula.

3.9 Digitisation is a new discipline, and there are few experts and few avenues available to develop skills. Support systems are a natural part of policy implementation and a body of knowledge is an essential component of an emerging discipline. Policies to encourage the development and maintenance of such communal knowledge are provided.

Getting Digitisation Done

Policy 1: Managing digitisation

Custodians are encouraged to put mechanisms in place for creating and managing digitisation programmes.

1 All custodians falling under DAC will develop a digitisation strategy under this national policy and the recommendations within in the Digital Heritage Body of Knowledge. The digitisation strategy for each custodian should reflect the unique characteristics of the institutions including its legislative mandate, the nature of the collections it manages and the institution-specific collection management processes.

2 All other public custodians, including universities, as well as private custodians, are encouraged to develop a digitisation policy and strategy in terms of this national policy and the recommendations identified within the Digital Heritage Body of Knowledge.

3 An institutional digitisation strategy must include the following minimum information:

- A description of the collections within the institution, and their significance and digitisation status.

- The nature of the threats to the collections.

- The frequency of usage and handling of the collections.

- The guiding principles for selection of collections for digitisation and the principles for selection of items within collections.

- The rights associated with each collection.

- The metadata to be used and applied for describing the digital resources.

- The management of the digital resources in terms of location and backup and the disaster management plans

- Access methods to the digital resources.

- The digital preservation strategy including the preferred media and formats, and how migration is used to ensure long-term preservation.

- The digitisation approach concerning usage of external agencies or internal expertise.

- The skills needed to digitise and maintain the digital resources, and how these are developed through capacity development programmes.

- The equipment used and whether this is purchased, rented, or outsourced to other specialists.

- The specific digitisation programmes underway including the stakeholders and beneficiaries, and the specific projects that have been structured under these programmes.

- The specific policies on collection management that impact on digitisation

- Institutional policies relating specifically to digitisation including local and foreign funding, rights identification and management, handling during digitisation, storage after digitisation, access to the digital resources, digital preservation and prioritisation rules for digitisation.

4   Digitisation programmes and projects will be designed, structured and documented in accordance with the institution's digitisation strategy.

5   All custodians under DAC are required to address digitisation within their strategic plans and to address this within their annual reports.

6   All other state bodies are encouraged to address digitisation with their strategic plans and to report on digitisation within their annual reports.

7   All custodians that hold part of a dispersed collection of national significance are required to negotiate with other custodians who hold other parts of the same dispersed collection in order to maintain consistency in their digitisation strategy regarding this collection. Such custodians are encouraged to work together in terms of creating virtual collections to facilitate access to these collections.

Policy 2: Maintaining good curatorial practice

Digitisation is not a replacement for good curatorial management and conservation practice, but it is a value-adding activity that enhances preservation of and access to collections and which complements and extends existing collection management functions.

1   Digital copies are not replacements for original heritage resources, but forms part of the management of these objects.

2   Digitisation must take place for preservation of information, especially where collections are under physical threat for any reason.

3   Digitisation must take place in order to provide wider and easier access to information.

4   Digitisation must help to reduce frequent access to objects where such access increases the risk of loss or damage to the object.

5   Digitisation must provide a surrogate copy of an object which may have a number of additional uses - from identification of the item in the case of theft to providing commercial and other opportunities in the use of the image of the object.

6   The surrogate copy created in digitisation projects must be created as a digital master that includes all necessary metadata in terms of this policy.

Policy 3: Metadata to include rights information

Ownership and rights information must be maintained in the metadata associated with a digital record

1   Every digital master must include rights metadata. This metadata must include information on the owner of the original object as well as the rights owner of the digital record. This must include the moral rights of the original creator.

2   Rights metadata must include a description of the rights for each of the possible types of use including licensing for commercial purposes.

3   Rights metadata should indicate who is authorised to give permission for access and reproduction.

4   Access to digital master records must respect the rights as identified within the rights metadata and such access should be automated within the access systems of the National Digital Repositories.

Ownership, Copyright and Foreign Funding

Policy 4: Establish a clear copyright management policy and contract mechanisms

Institutions will establish a clear copyright policy and contract that either allows the option of transferring copyright to the memory institution or a license to represent and sublicense the work to Consumers.

1   This policy distinguishes between the rights of copyright holders, the rights of owners and the rights of custodians and will provide mechanisms for regulating these rights. The provisions of the Copyright Act are deemed to be sufficient for the digital heritage, and have been already applied in the context of digital content.

2   Asking for the transfer of copyright, or a license granting the right to represent and sub-license the work, should be considered as a fair request considering that institutions will be taking the responsibility for the ongoing preservation of the work, its digitisation and dissemination.

3   If authors or owners want to hold on to their copyright and elect to rather grant the right to represent the works to the institution by way of a license then Creative Commons licenses will be considered as an option in terms of writing up such contracts.

4   If institutions intend supplying digital publications to editorial publishing and broadcast markets, they will clearly state this in the contract.

5   Unless institutions are digitising for preservation purposes they must obtain written permission from the copyright owner prior to investing time and resources in getting the works digitised. This process includes orphan works where the name and address of the maker or rights holder is not known. Obtaining such permission may involve research that should be well documented.

6   Digitisation for the pure purpose of preservation can be undertaken without necessarily obtaining prior permission from the rights owners, as long as such digitised materials are not provided for access until this permission is obtained or reasonable efforts have been made to identify the rights owner and to obtain such permission. This may be done to fulfil institutional mandates and in which a change of medium from analogue to digital does not impact on the nature of these mandates.

7   Since South African copyright law is undecided whether a digital copy of an original work can be considered as an original work in itself, institutions must ensure that they have clear contracts with contracted staff and digitisation service providers that state clearly that they are being commissioned to do the work and cannot claim copyright under any circumstances. Established service providers to the heritage sector are likely to already have this as part of their standard contracts.

8   Funding organisations may introduce terms and conditions that require the transfer of rights in the digital material to the funder. It is essential that ownership of digital objects should be held in trust for the people of South Africa and remain in the hands of South Africa's public sector. Sufficient access and usage rights for funders can usually be granted without compromising ownership by South African heritage institutions, by granting those licenses, preferably non-exclusive licenses to use the digital masters. Rights to sublicense the digital master can even be granted to them. In terms of this approach, sublicensing agreements with funders should ideally require the payment of a percentage (usually 50%) of royalties from their sublicensing activity to the South African heritage institution. Contracts should be put in place to ensure this and should clearly state that the presiding law is South African law.

9   Heritage institutions may use the law of contract to ensure certain requirements are adhered to such as reference given to the institution or payment for access, depending on the institution's access policy.

10   Access must only be given to those who agree to the terms under which institutions grant access.

11   As the basis for contracts for usage with rights, users may not include transfer of rights to the user.

12   It is recommended that a national copyright clearing house or reproduction rights organisation be established for digital masters provided through the National Digital Repositories and it should take the form of a collective administration organisation. The process of establishing this organisation should be managed by DAC.

Policy 5: Negotiate rights with creators, donors or lenders

Digital rights must be negotiated with the creator, donor or lender at the time of accession

1   Digital rights must be negotiated at the time of accession of the objects for any form of such accession including accession from the original creators.

2   Digital rights must be negotiated with authors and owners at the time of digitisation and loading into the digital repository.

3   Agreements must be concluded with each individual author and owner to ensure that all digital rights are explicit. This must include digitisation service providers who are commissioned to undertake digitisation projects.

Policy 6: Agreements for foreign funding

Custodians which make use of international funding for digitisation projects must develop agreements governing terms of use and ownership of the digital copies.

1   Any request for the digitisation of South Africa's heritage of any form, from any foreign agency or funder, must be treated as an international arrangement and must be conducted in terms of bilateral agreements or other government-to-government structures in cases when such bilateral agreements exist. When no such bilateral agreement exists between South Africa and another country these requests should be conducted as a government-to-government initiative when this is appropriate in terms of the significant of the collection and other parameters. A set of guidelines on such appropriateness should be produced and made accessible and which are linked to existing declaration of significance of objects and collections as are identified within the NHRA and its regulations.

2   All contracts for foreign funding must include a set of minimum elements of such contracts and which guide the process for acceptance of such contracts. These minimum elements are provided below under point 7 of this policy.

3   It is of considerable concern that digital rights to South African heritage may be lost or access to the digital objects be reduced resulting from

foreign-funded projects. Digital rights ownership must be clearly stated within such contracts in a manner in which the South African custodian or institution remains the owner of the digital rights.

4   Rights of funders to access digital records must be limited to non-commercial, "fair dealing", use only unless under special license.

5   The digital masters produced by funded digitisation projects must be lodged with the National Digital Repositories (NDRs) in a manner analogous to the legal deposit libraries. The specific formats and media used are required to comply with this policy.

6   Requests for the exporting of digital rights must be treated in the same manner as the export of the tangible or analogue objects, and be administered by the appropriate body. The National Archives and Records Service, the National Library, and SAHRA must introduce procedures that control this and that protect the digital heritage from uncontrolled export. The necessary changes to legislation must be introduced to enable this level of control.

7   Digitisation agreements and contracts with foreign funders must include the following minimum provisions:

- The custodian organisation details

- The list of collections to be digitised, and the details of the selection criteria identifying why these are selected and why others are excluded. This to also indicate whether this complies with the institution's digitisation strategy.

- The total number of items in the collections, and the nature of the originals.

- Procedures for handling of originals, and the mitigations in place against loss or damage during digitisation.

- The media and format for the completed products

- The metadata to be used for description, and the extent to which this complies with this digitisation policy, with specific reference to provenance and rights metadata.

- The nature of preparations to be performed on the originals prior to digitisation, such as cutting of paper originals to support scanning.

- The rights owners of the collections and the authorisations obtained to allow digitisation.

- The manner in which the digital masters will be created and maintained.

- The location where the digital masters will be stored, and in particular the high-resolution photographs and scans.

- The intended beneficiaries and the kinds of access that they are to be provided with.

- The access available by the general public for fair and private use.

- The charges that will be levied for access to the digital resources.

- The restrictions that will be placed on access to the digital resources.

- The digital preservation strategy for these collections.

- The backup strategy for these digital collections.

- The National Digital Repository which will hold the digital masters.

- The specific rights that the funding organisation and its associate organisations will retain concerning the digitised materials.

Access

Policy 7: Accelerate the development of an inclusive Information Society and provide Free Basic Information

All citizens must have easy access to the required ICT infrastructure and be granted free access to selected repositories.

1 For any policy on digitisation of heritage to achieve the objective of universal access it is essential that a suitable ICT infrastructure is facilitated or provided by the government which enables all citizens and other interested parties access to the digital heritage.

2 This also requires that the users have the capacity to access and use this information and that programmes to accelerate the Information Society in South Africa must be given sufficient funding and support. The development of ICT capacity must be provided by libraries, museums, archives and by local government in public-private partnerships with local private sector ICT training companies.

3 In order to ensure success in the provision of the digital heritage to the citizens, the government must provide free basic information resources to each of the citizens in a manner analogous to the existing programmes for free basic water and free basic electricity. This free basic information is to be provided in the form of broadband access that is widely available and free for use to selected repositories. This may include the accelerated introduction of modern wide-area technologies such as 4G and WiMax.

4 This free basic information should be provided by coordination of the National Departments of Arts and Culture, Science and Technology, and Communications, facilitated and funded by the provincial structures and implemented by the local municipalities or by district municipalities or provincial structures for municipalities without sufficient capacity.

5 The National Library, in conjunction with the provincial and municipal libraries, should take the lead in establishing programmes for ICT literacy in order to develop capacity for the Information Society.

Policy 8: Open access as the default

Access to digital records held by custodians and repositories must be open and free where records are not used for commercial gain or governed by access restrictions

1   This policy recognises the intellectual rights within all digital heritage and that such rights are protected by national legislation and international treaties, including those digital resources in the public domain.

2   Every access to the digital heritage, and the subsequent use of the accessed digital resources, constitutes a relationship between the rights owner and the rights user for those resources. Restrictions of access are applied to prevent misuse of the intellectual property of the rights owner, but these restrictions may contribute to denying fair and reasonable access to the digital heritage.

3   Open and free access to digital records held in a repository must be provided for public, academic, educational, research or personal use, where there are no restrictions governing the information held in the record, such as for purposes designated as "fair dealing" in the Copyright Act. The principles of fair dealing should be extended as far as possible to provide such open access.

4   Such free and open access may be provided at a lower resolution format of the record which is unable to be used for commercial reproduction.

5   Such free and open access must be provided through the web where possible with no requirement for proprietary software for viewing or playback.

6   All access must recognize the moral rights of the creators.

7   Cooperative agreements are encouraged between repositories, the state, and state-supported bodies promoting the shared use of digital records for public benefit.

8   Access to information held within each of the National Digital Repositories is to be managed by the repositories themselves, including content which is private and content that is provided under specific license conditions and which may require payment of royalties for usage.

9   License agreements between the repositories and users of digital records must be used as a means of managing usage.

10   It is recommended that blanket agreements within repositories must be developed to support ranges of common uses and to avoid the problems of creating individual license agreements for each specific retrieval and usage.

Policy 9: Use of other national languages

Although English must be used for metadata in order to provide for interoperability, it is encouraged that where appropriate other languages be used in addition to English to provide for wider access

1   It is encouraged that web and search interfaces be provided to suit the language-specific requirements of user groups.

2   Metadata must in the first instance be in English in order to provide for interoperability between collections.

3   Metadata in additional South African languages is encouraged to provide wider access to searching and retrieval. Translations into other languages should be undertaken firstly at the level of the national standard vocabularies.

4   Although digital records must be scanned as objects in accordance with the DHBOK, an optical character recognition (OCR) program may be used to create a searchable version of the record. The OCR version of the object will be in the language of origin, unless translated to enable improved access.

5   Use of audio narrators and screen magnifiers to widen accessibility to users with disabilities is encouraged.

Policy 10: Develop and implement a Common Repository Interface (CORI)

Given the variety of systems, software and database technologies that may be used or developed for repositories in general and for the National Digital Repositories in particular it is essential to have a common method for access to the digital content residing within these repositories.

1   The Common Repository Interface must be developed as a standard protocol to access any information across any repository.

2   All NDRs are required to implement the CORI and to provide CORI as the primary form of access.

3   The CORI protocol must enable multiple simultaneous connections to multiple repositories on a technology-independent basis; must make optimal use of metadata-based semantic information discovery and retrieval through national vocabularies, authority files and metadata schema of well managed content; must accommodate the seamless sharing of information within and between communities; and must provide retrieval that automatically complies with digital rights management requirements and which provides automated citation information for back-referencing to the authentic source.

4   CORI should provide a user experience of a single national digital memory structure, rather than the experience of accessing multiple separate repositories and collections, spanning all of the NDRs, and

also providing access to virtual, as opposed to physical collections. The benefit of CORI is expected to be the ability to restructure the historical record in innovative ways by creating new stories that integrate the collections of libraries, archives, museums, heritage sites and the living heritage.

Financing digitisation and relationship to other government bodies

Policy 11: Financing of digitisation

1   Government financial support to move heritage management into the digital age and provide for the digitisation of heritage resources has been a serious challenge, and adequate resources have to be made available to ensure success.

2   All national memory institutions must use existing budgets for digitisation purposes since digitisation is inherently a part of their mandate to protect and preserve heritage and this mandate remains unchanged in the shift from physical collections to the digital heritage.

Policy 12: Implications for other state bodies

All spheres of government are required to urgently plan for the digitising of their heritage resources.

1   Whilst DAC is the lead department in terms of heritage legislation and digitisation, both on its own and through its statutory bodies including the National Archives, National Library, NHC and SAHRA, there remain other national government departments and their public entities that are custodians of heritage resources and hence have a crucial role to play in co-operation with DAC.

2   DAC should work closely with DoC in terms of enabling the Information Society, and providing the means of access to the digital heritage. This should be conducted with the PNC-ISAD programme which has a stated goal of the creation of a Cultural Heritage digital repository, but which has been created in the absence of a policy on the digital heritage.

3   Every national government department must prepare a register of their own repositories of heritage including collections, archives and libraries, and should develop digitisation strategies and plans.

4   Examples include the Department of Public Works as the central repository of plans, drawings and other data regarding public buildings, as well as the custodian of heritage objects in official residences and offices; the Department of Rural Development and Land Affairs as the central repository of title deeds, cadastral information, maps and aerial images; the Department of Defense together with the South African National Defense Force as a repository of military heritage resources; the Department of Science and Technology, together with the NRF,

CSIR and HSRC; and the Department of Mineral Resources together with the Council for Geoscience as a repository of information and objects pertaining to the country's geological heritage.

4   It is recommended that DAC, in collaboration with the Departments of Communications, Trade and Industry and Science and Technology, take the lead in a nation-wide initiative for the awareness, creation and promotion of the digital heritage that will include all state bodies and public entities to adopt a single digitisation framework for heritage.

Repository Management

Policy 13: Create the National Digital Repositories (NDRs)

The recommendations are for large-scale centralised repositories rather than a multitude of small-scale repositories that will be difficult to monitor for compliance with this policy.

1   A small set of fixed National Digital Repositories (NDRs) will be established, each of which is managed by a single state body or institution, such as the National Archives and Records Services and the National Library. These NDRs are created by the custodial institutions themselves, as the digital repositories that contain the digital content of their digitised holdings as well as born-digital content that they have accessioned. The NDRs are seen as extensions of the services that these institutions currently provide, in terms of changing the nature of storage and access, but not changing their functional mandates.

2   These fixed NDRs are to be the nominated legal depositories for digital masters.

3   Each of these NDRs must comply with a basic set of standards and good practices based upon an accepted reference model such as the OAIS Reference Model[66] and this policy.

4   The fixed NDR repositories must be sufficiently capacitated to house the digital masters of digitisation activities within the national memory institutions.

5   Other institutions that have collections and repositories that fall outside of these NDRs are encouraged to comply with the NDR requirements and to be included into the National List of NDRs.

6   This structure is motivated by the need to ensure consistency in the preservation of the national memory in digital form while providing sufficient autonomy in the management of these repositories, as is a declared necessity for university and private-sector archives.

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[66] Preservation Metadata and the OAIS Information Model. A Metadata Framework to Support the Preservation of Digital Objects. OCLC/RLG Working Group on Preservation Metadata. June 2002.

7   Where it is possible and prudent, Open Source Software should be used for the construction of the NDRs.

8   Each NDR must maintain a register of its holdings of the digital heritage, and this register is itself regarded as digital heritage.

Policy 14: Digital masters maintained in terms of standards

Repositories must ensure that digital masters are managed in terms of national standards

1   The digital master is the digital reproduction of the best quality and the highest resolution to be maintained as the single main record, and such a digital master may combine a group of related records or items. The digital masters may also include lower resolution forms of the digital content or partial selections of the digital content that may be used for open access purposes.

2   Digital masters must be lodged with a National Digital Repository. Any digital record existing outside of a National Digital Repository is not considered to be an authentic digital master.

3   All metadata relating to the master copy is retained in the digital master, which includes:

- Descriptive metadata that outlines the content, and which is used to categorize and contextualize the digital object

- Provenance metadata, identifying the source and identifying this as the authentic version of the content

- Version metadata, including history of any changes and preparations that have been performed on the digital record

- Creation metadata, including basic parameters associated with the content such as the equipment and settings used for digitisation, as well as identification of the original creator

- Preservation metadata, designed to identify the nature of the content and the threats to the sustainability of the content

- Rights metadata, including copyright and moral rights information concerning who is allowed access, in what form, and under which conditions of license, and which specific types of digital content is included, and what are they allowed to do with this content, such as modification of the content.

Policy 15: Protect the digital heritage

Mitigating the risk of loss of the digital heritage requires that clear actions be taken to ensure disaster management plans and backups are in place and that centralised backup services are provided.

1   Each repository must develop and maintain a Disaster Management Plan. This applies no matter whether this is a National Digital Repository or any other repository that holds the digital heritage and which is managed by a state body, and this includes the records functions of each state body.

2   The Disaster Management Plan must address how information lost or damaged through disaster may be identified, retrieved and made available as soon as possible after the disaster, ensuring integrity, authenticity and efficacy.

3   An integral part of each Disaster Management Plan is a register of digital heritage maintained in the repository. This register must be maintained separately from the backup sites and be accessible immediately when required.

4   A safe and secure backup site for all digital records must be established, to be known as the National Backup Digital Repository, with sufficient capacity to house the contents of all of the other National Digital Repositories.

5   This must be maintained under the most secure of conditions, both physical and technologically.

6   Each of the National Digital Repositories must have a mutual backup agreement with at least one other National Digital Repository

7   The backup processes between the NDRs and the National Backup Repository should be automated and should continue without human action, and monitoring systems should be in place to alert in the event of failure.

8   For the most complete approach to risk mitigation, it is highly recommended that this backup repository be housed deep underground with long-term access to a non-grid electrical power source so that the threat of surface or air risks of known or unknown causes is reduced. These threats may be man-made or natural.

Policy 16: Establish a National Digital Repository for Living Heritage

The living heritage, including all of its constituent structures, is sufficiently unique that a special repository is recommended for establishment

1   A National Digital Repository (NDR) for the Living Heritage must be established.

2   This NDR must integrate and comply with both living heritage metadata standards and with digitisation metadata standards.

3   This Living Heritage NDR must be in compliance with the documentation and recording requirements identified within the Living Heritage Policy.

Policy 17: Ensure security, authenticity and integrity of the digital heritage

Custodian bodies must ensure that their digital records adhere to standards of security, authenticity and integrity

1 All repositories must take acceptable care of the digital heritage under their custodianship, with particular reference to information security considerations in terms of national and international standards. Such security measures must include control over accessibility of the digital records as well as prevention of unauthorised change or deletion.

2 All digital masters must include provenance metadata which provides for the authenticity, provenance and integrity of the digital record and this must be maintained as an integral part of the digital master.

3 The provenance metadata must include the description of any specific preparations or treatments performed on the digital records as well as on the original object or analogue record prior to digitisation.

4 Digital masters, as master copies of digital records, must carry a digital signature to ensure authenticity and to ensure they cannot be modified without invalidating the integrity of the digital master. This signature should enable linkage back to the original creator, which may also be a government department in the case of state records.

5 Digital masters must be lodged with a NDR and the digital master located within the NDR is the only truly authentic version. The term "digital master" should only apply to those records maintained in the NDRs.

6 All digital records other than digital masters are not considered as authentic including exact copies of the digital master from the NDRs.

7 Each digital master is required to have a unique address or name that provides reference back to the record within the NDR. This may take the form of a URI, URL or URN or any other internationally agreed unique naming convention. This unique address is to be used when citing references back to the digital master.

Policy 18: Implement privacy policies in repositories

Privacy is a constitutional right and must be implemented into the core of the design for repositories.

1 Until legislation is promulgated, the ethical treatment of personal information within digital resources must be managed under institutional policy. This personal information may be in the form of text, image, audio, video or any other form.

2 Personal information that is subject to such ethical treatment must, where reasonably possible, be identified within the metadata for the

digital masters as information concerning the nature of the subject matter.

3   The repository's digitisation strategy must include the manner in which personal information is handled and protected to the extent that this is required during the processes of capturing, describing, loading, storing and accessing.

Policy 19: Handle confidential and secret records in accordance with MISS

Digital records falling under the Protection of Information Bill[67] or the Minimum Information Security Standards (MISS) as published by the National Intelligence Agency must be managed in accordance with this standard

1   Each state body is required to handle digital records that fall under the Protection of Information Bill or MISS on secure servers which are not accessible through standard access methods.

2   Such records must be managed in a manner where it is not possible to separate the digital content from its metadata.

3   Metadata associated with sensitive digital data must clearly indicate any moratorium periods that are applicable in order to support automated or semi-automated release of such embargoed information.

4   Sensitive information must be accessible only by those with the required level of access authority, and in order to protect this material it is required that additional forms of information security be implemented including the usage of one-time passwords, biometric authentication or device-based security.

Policy 20: Develop and implement national metadata and vocabulary standards

National metadata and vocabulary standards must be adopted to ensure semantic interoperability between digital collections. Purely technical interoperability is insufficient.

1   In order to allow for effective searching across institutions and holdings, the metadata associated with digital records must conform to an agreed national set of metadata elements including schemas, thesauri, ontologies, terminologies, vocabularies and authority files.

2   State and state-supported institutions must adhere to minimum national standards in accordance with the Digital Heritage Body of Knowledge.

3   Private custodians are encouraged to adhere to these minimum national standards.

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[67] Protection of Information Bill. Government Gazette No. 30885, 18 March 2008.

4   The professional body contemplated in Policy 22 will include within its objectives the construction and maintenance of these national vocabularies, authority files and other such elements.

5   These metadata and vocabulary standards must be built on strong semantic principles, to facilitate improved access to large repositories and to provide for a more natural interface to complex repositories. This must be done in a way that provides for long-term evolution and improvement of the semantic structure.

Policy 21: Use standard technologies, formats and media

Repositories of digital records must use standard technologies, format and media types, and plan for changes in formats, technologies and formats

1   The formats and media types currently in use are not likely to remain as fixed standards in the long-term future and repositories must accept and plan for migration into newer formats and media.

2   Technology and succession plans for migration to newer formats and media must be in place and budgeted for by repositories.

3   Only approved digital formats and media must be used as outlined in the Digital Heritage Body of Knowledge (DHBOK).

4   Digital material in alternate formats must be migrated to the approved standard.

5   Digital and electronic collections and reproductions in obsolete formats and media must be identified within a National Registry of Lost Collections and maintained by the IDH for the eventuality that some future technologies will be able to migrate the content.

6   New technologies and media types must be reviewed regularly through a Media and Technology Watch under the auspices of the Institute of Digital Heritage. These will feed into the DHBOK.

7   DHBOK must be consulted regularly for new formats, technology and media.

8   Repositories must preserve older technologies and equipment to access all digital records in that format.

Capacity and Institution Building

Policy 22: Creating a Community of Practice

The digitisation sector is fragmented with most institutions operating in silos. A community of practice will help to unify the sector and provide a common purpose.

1   A community of practice, in the form of a professional body, must be established to integrate the digitisation sector by building up national capacity through coordination of skills development, and consequently to reduce the dependence upon foreign agencies. This is to be an independent professional body which may over time be constituted as a statutory body. DAC will facilitate the establishment of this professional body through workshops and conferences and to provide guidance, support and linkage with key governmental stakeholders. For the purposes of this policy this proposed professional body that embodies the community of practice is referred to as the Institute for Digital Heritage (IDH).

2   This professional body should engage in activities typical of such a body and should maintain membership structures and maintain professional standards.

3   The professional standards should include a body of knowledge that represents the shared expertise of the digitisation community, both locally and internationally.

4   The professional body must develop ethical standards and codes of practice that are enforceable and that apply to both individuals and organisations, and for which monitoring procedures will be implemented.

Policy 23: Developing and implementing a skills framework for digitisation

There is a need for a skills framework that covers the digitisation discipline, which supports monitoring of skills demand and supply, and which forms the basis for skills development programmes.

1   A skills framework must be established that will provide a range of skills that can be developed and used for the development and management of the digital heritage. Such a skills framework should be developed in accordance with the National Qualifications Framework (NQF) and will be one of the core responsibilities of the professional association identified in Policy 22.

2   Existing skills structured in digitisation and related disciplines must be consulted to ensure coherence in the skills framework. Particular attention must be given to skills that are not transferrable from other disciplines and which are unique to digitisation as a discipline.

3   A national and continuous assessment of skills should be undertaken to ensure a balanced supply of local skills and to reduce the need for importing international skills to participate in local projects.

4   Local training companies should be encouraged to offer skills in accordance with the skills framework.

Policy 24: Developing and measuring institutional capacity

Many institutions are competent to undertake digitisation projects without external assistance. It is essential that institutional capacity be developed to ensure that digitisation becomes a core activity.

1   Each custodian should develop institutional capacity to enable digitisation to become a core competence. For practical purposes this may be developed as shared services among regional collection of custodians to benefit from economies of scale.

2   An institutional scorecard must be developed to enable measurement of the capability and maturity of custodians in terms of this scorecard.

3   Regular assessments should be conducted for each custodian in terms of this scorecard and national awards may be implemented to recognise specific achievements and institutional excellence. This should be performed either as self-assessments or through the shared services centres.

4   Special attention must be given to the development of SMMEs within the sector and to the inclusion of SMMEs as subcontractors on larger projects for state bodies.

Policy 25: NARS to take the lead in capacity development for electronic records management

1   NARS must take the lead in developing the necessary capacity for the introduction of electronic management systems throughout all state bodies.

2   This leading role must take the form of supporting the development of digital repositories at national, provincial and local government levels as the long-term transition and migration from physical records stores.

3   Coupled with this should be the developing of ICT literacy programmes among all stakeholders as a pre-requisite for the introduction of electronic records management systems.

4   NARS must develop internal capacity and competence prior to embarking on capacity development for the other state bodies.

Policy 26: Promoting Research and Development

1   A research agenda must be developed that has a focus on understanding the long-term implications of digitisation and the development of long-term solutions.

2   This agenda to include current and emerging open standards and their applicability to the local conditions; the practical applicability of recommended practices and the continual improvement of these practices; the preservation of the various types of heritage with an

emphasis on the living heritage; capture and recording technologies with particular focus on collections under threat, and recovery of content from obsolete technologies; the management of rights information and associated metadata considerations; and, the development and management of national vocabularies as a step towards a semantic information environment for the digital heritage.

3   To support the research and development as well as to gain national-level perspective on the status of digitisation, a national audit of collections must be conducted within statutory memory institutions for the purpose of building up a register of collections under threat, and to support prioritisation of collections for digitisation. This audit should produce a database that can be sustained and managed as a critical resource in planning and management of the digital heritage.

4   A forum for scholarly publication of research into digitisation should be published through the professional body identified in Policy 22.

Creating Support Systems for Digitisation

Policy 27: Creating a Digital Heritage Body of Knowledge

The lack of local guidelines on digitisation is hampering the quality of projects and the digital heritage.

1   A Digital Heritage Body of Knowledge (DHBOK) must be developed and maintained by the digitisation community as the representation of good and best practices within the sector, covering all situations both technical and non-technical. The primary coordinating body for carrying out this function should be the digitisation professional body as identified in Policy 22.

2   An initial version of DHBOK is to be provided in conjunction with this policy.

3   Formal processes must be established to enhance and update the DHBOK.

CONCLUDING REMARKS

The preparation of this policy document has been a concerted effort over a long period by members of the project team and particularly with the DAC personnel who have spent their time in review and critical comments to enable this policy to reach this point.

It is apparent that this policy writing could continue forever with new ideas and incremental changes being made, while at the same time collections are increasingly under threat of loss and while some digitisation projects are continuing without the guidance provided by this policy and others have been placed on hold.

The next step in this process is for a formal public review of this draft policy, with particular attention being given to the engagement of key stakeholders that were unable to be included fully into the focus group research.

There is no doubt that this policy, in its final form, will have a major impact on the management of national memory, as well as the workings of government administration, since there is no way to stop the emergence and widespread usage of digital technologies. This policy, therefore, has an important role in controlling what should be controlled and guiding what should be guided in order to reach a future in which digital records are preserved forever and are universally accessible.

The key problems that remain are beyond the scope or controls within this policy and have been hinted at here, such as the acceleration of the Information Society, as well as the long-term planning for good digital curation within all state bodies.

We welcome your comments and critiques in order to move this draft into its final version as a matter of urgency.

The Policy Development Team.

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