

NetDiploma: Network for Digital Public Library of Modern Africa. Final Project Report.
AHRC Funded GCRF Networking Project (Grant Ref AH/R004277/1) 2018-19
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NetDiploma International Networking Project. Final Report

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NetDiploma is an international networking project funded by the UK Arts & Humanities Research Council (AHRC) under the GCRF (Global Challenges Research Fund) scheme (Grant Ref: AH/R004277/1). The NetDiploma network's aim has been to build a global multi-stakeholder network to mobilize and share knowledge and identify future collaborative research required to build a *Digital Public Library of Africa* (DPLAf) that will promote access to African indigenous information for everyone and support economic and cultural development. The project has taken a bottom-up approach to stakeholder engagement to understand the various research, development, engagement and advocacy activities required to build the future *DPLAf*.

Report Summary

1. A number of initiatives and activities have taken place recently, or are ongoing, for promoting access to digital information in Africa. Some key initiatives include the *Agenda 2016* of the African Union, the ASKIA service of the UNECA, and various national and institutional repositories.
2. The ASKIA service provided by the UN ECA (Economic Commission for Africa; <http://askia.uneca.org/>) provides access to scientific and socio-economic information for the African community, including scientists, researchers, academics, students, economists and, policy-makers, over an interactive online portal acting as a one-stop shop to such knowledge and associated information. It does not specifically cover cultural heritage information, and government information and records.
3. The NetDiploma project aligns with the Agenda 2063 of the African Union, especially, **Priority area 3 (Cultural heritage, creative arts and businesses): Strategy 13: Expand access to cultural information through Community public libraries; and the Pan-African e-network** (<http://www.un.org/en/africa/osaa/pdf/au/agenda2063-presentation.pdf>) and **Aspiration 5: An Africa with a strong cultural identity, common heritage, shared values and ethics.** (<https://au.int/en/agenda2063/aspirations>)
4. Aflia (African Library & Information Associations & Institutions) is also advocating for promoting access to information, as evidenced through their statement on Freedom of Information (FOI) Act Statement of FOI (2017) <http://aflia.net/web/pages/news-events/aflia-statement-on-freedom-of-information>) and the Strategic Plan 2015-2020 (http://dl.aflia.net/strategic_plan_2015_2020.pdf)
5. There have been some research on building and managing institutional repositories in the three chosen African countries; there have also been some research on access to business information, health and agricultural information; and LIS education in Africa. A summary of the key literature related to the broad theme of NetDiploma appear in Appendix 1.
6. The state of the digitisation of content varies amongst various content providers in the partner countries, e.g.
 - a. A large amount of content (amounting to more than 19 million pages) has been digitised at the Kenyan National Archive but they are not accessible to anyone because of the lack of resources – ICT, financial and human – and access/use policies

- b. A variety of content types have been digitised – including text, manuscripts, photographs, text and films – at the National Archives of Malawi; and some documents, largely text, have been digitised at the National Library of Malawi but those cannot be accessed because of the lack of resources – ICT, financial and human – and access/use policies
 - c. A large volume of content has been digitised at the Institute of Ethiopian Studies (IES) but those cannot be accessed because of the lack of resources – ICT, financial and human – and access/use policies
 - d. Archival and cultural heritage content at ENALA have yet to be digitised.
7. A catalogue of hard copies and of digitised content is available at the national Libraries and national Archives in the three partner countries in Africa, although often not with full and standardised metadata.
8. There is a lack of legal and ethical framework in relation to access and use of digitised content held at various institutions in the partner countries.
9. The APAI (African Platform on Access to Information) Report 2017 (<http://www.africanplatform.org/>) provides some country level cases studies and comparison of African countries' preparedness for, and awareness of, access to information law (which are modelled on the AU model law). The AU Model Law aims to ensure that legislative drafters and policy-makers address all issues relevant to the African context in their adoption or review of access to information legislation.
10. There is a concern amongst national agencies and information professionals that if all the content is made freely available on the Internet, it may disadvantage the content providers – national libraries, national archives, research institutions, etc. The sentiment was that they might lose control of the content, and this may have implications for their long term existence and role in the management of indigenous content, records and archives.
11. ICT infrastructure and capacity – both at the supply (content providers) and demand (user) side vary significantly amongst the partner countries and specific institutions. Generally the content providers lack the modern ICT infrastructure required for digitising content and making digitised content available online.
12. Lack of resources is a key challenge for every content providing institution. Government funding is often the only source which is not adequate for running the current level of service, let alone investing in digitisation and online services. Most of the digitisation activities so far have been funded externally through grants and aid.
13. Lack of human resources, and more so for professionally qualified staff, and staff with adequate ICT skills is common amongst content providing institutions in all the partner countries. For example, it was revealed that less than 5% of the staff at ENALA are professionally qualified.
14. Capacity building: In some countries, for example in Ethiopia and Malawi, there are no university courses that offer professional qualifications in librarianship, archives, records management etc.
15. User skills: It was revealed that user skills required for accessing and using digitised content, vary significantly in Africa, and amongst the cross sections of society and geographical regions – city vs. rural areas - with regard to: literacy skills, ICT skills and language skills.
16. The vision of DPLAf can be accomplished through as joined-up approach of various stakeholders, viz. content providers (national libraries, national archives, universities and institutions), funding agencies (national, Pan-African and international), policy makers (government ministries/departments), professional associations, NGOs/charities, and users.

17. The first step should be to make the catalogue and metadata of digital content searchable online so that people can discover what is available where.
 18. Appropriate access and use policies have to be developed at national and institutional level so that users can choose the most appropriate way to access the discovered content
 19. Digitisation of content should continue with the long term goal of making all the content of national libraries, national archives and similar institutions accessible online
 20. Content providers and other stakeholders should work together to build specific ‘use cases’ demonstrating the benefits of accessing and using indigenous knowledge and government information/content for better education, research and innovations, businesses, civil rights, and other global challenges.
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NetDiploma project

Access to and sharing of information is paramount for sustainable development in all areas (Chowdhury, G & Koya, K. (2017) *Information practices for sustainability: role of iSchools in achieving the UN Sustainable Development Goals (SDGs)*. JASIST). UN Sustainable Development Goal [SDG16.10](#) specifically advocates for ensuring public access to information, yet knowledge access and sharing are some of the key challenges in modern Africa, whose population is growing rapidly with large numbers of people being marginalised or left out. Communications with the project partners in Africa revealed that millions of records and information objects have been digitised by various memory institutions, but largely remain inaccessible because of a lack of ICT infrastructure, human and other resources. Such inaccessibility to information assets has implications for access to education, healthcare, agriculture, industrial innovation and development, environmental sustainability and disaster response.

In line with SDG17.16 and the UN [Addis Ababa convention](#) the long term goal of the NetDiploma project was to build a sustainable global multi-stakeholder network to mobilize and share knowledge and identify future collaborative research required to build a *Digital Public Library of Africa* (DPLAf) that would promote access to information for everyone and support economic and cultural development. With this long term goal in view, the NetDiploma network aimed to explore how the life, education and empowerment capabilities of people, including those that are “left behind” (<https://consultations2.worldhumanitariansummit.org>) can be improved by information access and use, utilising enabling technologies, systems and policies appropriately adapted to the culture and context of people in Africa. To achieve this, the project aimed to address the following questions:

1. What are the key cultural, historical, political, linguistic and technology enablers and challenges to community access to information in Africa?
2. How can modern ICT and mobile technologies be used to facilitate access to information required for education, health and wellbeing, cultural integration, agriculture, tourism etc?
3. What policies and practices are required for developing and managing a free *DPLAf*?
4. What further research is needed to enable the development of a *DPLAf*?

The network will explore specific issues and challenges that were associated with the recently launched *Digital Public Library of America* (DPLA) (<https://dp.la/>) that brings “different viewpoints, experiences, and collections together in a single platform and portal, providing open and coherent access to our society’s digitized cultural heritage”. The project also aimed to learn from the Access to Scientific and Socioeconomic Knowledge in Africa project (<http://askia.uneca.org>). NetDiploma took a bottom-up approach to stakeholder engagement to understand the various research, development, engagement and advocacy activities required for understanding the specific research and development challenges to be addressed in order to develop a research roadmap for the *DPLAf*.

Bringing together a consortium of academics, researchers and professionals, key local partners such as the national libraries, national archives and universities in three African countries (Ethiopia, Kenya, Malawi), and international organizations including IFLA, UNESCO and the African Union, the project set out to seek to understand the historical, cultural, linguistic, technological and transregional challenges to inform the research and development agenda for building a *Digital Public Library of Africa*. Through one event in the UK and one in each of the three participating African countries, viz., Ethiopia, Kenya and Malawi, the network engaged with researchers and professionals in memory institutions, international and national organisations and NGOs. The networking and engagement activities of the project focused on the cultural, behavioural and literacy issues of people as the key enablers in exploring how everyone, including the poorest and most vulnerable, can benefit from better access to and use of information. The project aimed to develop an arts and humanities led interdisciplinary research agenda to inform and facilitate the achievement of UN SDG 16.10 (public

access to information) to promote access to information held at the memory institutions, especially the national libraries and national archives in the partner African countries.

NetDiploma Network

The initial network of NetDiploma comprised of five project team members (2 from UK and one each from the three partner African countries), 7 international steering committee members, and 12 members of national steering committees – 4 from each partner country. Subsequently 18 new members from the partner countries joined the network. In addition, a number of organizations/agencies in the partner countries took part in the workshop and subsequent networking and collaborative activities resulting from the NetDiploma project (for details see the report of subsequent activities in Malawi; and workshop reports in the Appendix).

International Steering Committee: Comprises subject experts and international information organisations:

1. Dr Alistair Tough, Glasgow University (Expertise: Digital archives and Malawi);
2. Prof Keshav Dahal, University of West of Scotland (Expertise: IT & Sustainable Information Systems);
3. Dr David Thomas, Northumbria University (Expertise; IT infrastructure for archives and records management);
4. Dr Donna Scheeder, President of IFLA (former Deputy Chief Information Officer, US Library of Congress) (Expertise: national libraries; international and professional bodies and associations);
5. Dr Lynn Connaway (OCLC and President ASIST) (Expertise: information users; global perspectives in information research and development);
6. Prof Michael Seadle (Executive Chair, iSchools) (Expertise: Digital humanities research and development; global perspectives of information education and research).
7. Prof. David Neal, Senior Vice President, Elsevier

Project partners and network members from the partner African countries

Ethiopia:

1. Institute of Ethiopian Studies (***Partner*** from the application stage)
2. National Archives & Library Agency (NALA) (***Partner*** from the application stage)
3. Knowledge & Library Services Section, UNECA (network member from the application stage)
4. Information & Knowledge Management Division, African Union (network member from the application stage)
5. ARCCH (Authority for Research and Conservation of Cultural Heritage) (new network member joined in course of the project)
6. Save the Children (new network member joined in course of the project)
7. Science and Technology Innovation Commission of Ethiopia (new network member joined in course of the project)

Kenya:

1. Kenya National Archives & Documentation Service (KNADS) (***Partner*** from the application stage)
2. National Documentation & Retrieval Services (NDRS) (network member from the application stage)
3. Kenya National Commission for UNESCO (network member from the application stage)
4. Article 19 (NGO) (network member from the application stage)

5. Kenya National Library Service (new network member joined in course of the project)
6. Kenyatta University (new network member joined in course of the project)
7. Egerton University (new network member joined in course of the project)
8. Commission on Administrative Justice (Ombudsman) (new network member joined in course of the project)
9. ICT Authority, Kenya (new network member joined in course of the project)
10. Council of Governors, Kenya (new network member joined in course of the project)
11. Ministry of Education, Kenya (new network member joined in course of the project)

Malawi

1. National Archives of Malawi (network member from the application stage)
2. Malawi National Library Service (network member from the application stage)
3. University library, Mzuzu University (network member from the application stage)
4. National Commission for Unesco, Malawi (partner from the application stage)
5. University Library, University of Malawi (partner from the application stage)
6. Lilongwe University of Agriculture and Natural Resources (new network member joined in course of the project)
7. Kamuzu College of Nursing (new network member joined in course of the project)
8. Department of E-Government (new network member joined in course of the project)
9. Ministry of Information (new network member joined in course of the project)
10. Delegation of the European Commission to Malawi (new network member joined in course of the project)
11. Parliament of Malawi (new network member joined in course of the project)
12. Ministry of Education, Malawi

Key developments and challenges for digital information access in Africa

Review of relevant literature and reports on the current state of digital information access and use in Africa, especially in the context of sustainable development revealed a set of key challenges which are briefly discussed below.

SDGS and global challenges in Africa

African Union Agenda 2063 <http://www.un.org/en/africa/osaa/pdf/au/agenda2063-presentation.pdf>
Communication Strategy aims to generate sustained public awareness, involvement, support and ownership by the African population of the Agenda and its execution. It will ensure extensive outreach with up-to-date and accurate information.

- a. Goal 2 (Education),
 - i. Strategy 11: Provide public / community libraries to enhance learning, access to information and knowledge;
 - ii. Strategy 12: Implement the outcome of the World Summit on Information Society
 - b. Goal 16 (Engaged and empowered youth and children)
 - i. Strategy 13: Promote the use of Educational Information Management Systems
 - ii. Create a platform for networking and sharing of best practices in education
 - c. Priority area 3 (Cultural heritage, creative arts and businesses)
 - i. Strategy 13: Expand access to cultural information through Community public libraries; and the Pan-African e-network
2. Priority Africa at Unesco (<http://unesdoc.unesco.org/images/0022/002244/224489e.pdf>) has two specific Flagship programmes that are relevant for the NetDiploma project and its long term vision of the DPLAf:
- a. Flagship programme 3 : Harnessing STI and knowledge for the sustainable socioeconomic development of Africa
 - i. Improve universal access to information and knowledge as well as build capacity in the field of ICT use in Africa
 - ii. Develop African capacity in the preservation of documentary heritage
 - b. Flagship programme 6: Promoting an environment conducive to freedom of expression and media development
 - i. Promoting universal access and preservation of information and knowledge

Studies and reports from the Institute of Development Studies demonstrate how ICT and infrastructure can contribute to knowledge sharing opportunities in Africa (Bimbe et al. (2015), but calls for some strategic planning and investment in ICT and digital infrastructure, information search and discovery tools, and training of information professionals (Bimbe, et al. IDS Policy Briefing 87; Gregson, et al . IDS Evidence Report 125).

Krone et al(2015) discuss access to appropriate ICT can contribute to market access for smallholders in agriculture in Kenya and Tanzania. Ochieng et al (2013) evaluate the impact of participation in ICT-based market information services (MIS) on farm input use and land productivity in Kenya.

Digital content

Several externally and internally funded initiatives have taken place for building institutional repositories of digital content and digitisation of content held in memory institutions like national libraries and national archives in different African countries over the past few years. Internal reports of institutions that are partners of the NetDiploma network, reveal that more than 19 million pages have been digitised at the Kenyan National Archive. Similarly, a variety of content types have been digitised – including text, manuscripts, photographs, text and films – at the National Archives of Malawi; and some documents, largely text, have been digitised at the National Library of Malawi, and hundreds of thousands of manuscripts and other objects and artefacts have been digitised at the Institute of Ethiopian Studies. However, lack of the appropriate ICT infrastructure, metadata standards, policies and human resources make such content inaccessible to the public.

Similar challenges exist in case of institutional repositories. Moseki and Mutula (2016) observe that inadequate institutional support for research and scholarly communication including funding, material and physical infrastructure, mentorship, and information and communications technology (ICT) facilities cause poor use of institutional repositories in Kenya. Similar situations prevail for access to institutional repositories in other countries like Botswana (Oladokun (2015), Ethiopia (Mammo and Ngulube, 2013) and Malawi (Chawinga and Zoziw, 2106).

Regulations and policies

Growing adoption of the right to information in Africa should, in theory, improve access to government data, reduce corruption and expand the frontiers of democracy. The APAI (African Platform on Access to Information) Report 2017 (<http://www.africanplatform.org/>) provides some country level cases studies and comparison of African countries’ preparedness for, and awareness of, access to information law (which are modelled on the AU model law). The AU Model Law aims to ensure that legislative drafters and policy-makers address all issues relevant to the African context in their adoption or review of access to information legislation. It also serves as a benchmark for measuring compliance with regional and international. The APAI report reveals the state of access to information in their countries in a scale of 1 (very weak) to 10 (very strong).

Table 1: African countries’ preparedness for Information law

Country	Score	Country	Score
South Africa	8	Kenya	4
Namibia	7	Malawi	4
Tanzania	7	Madagascar	4
Uganda	6	Zimbabwe	3
Ivory Coast	5	Niger	3
Mozambique	5	Nigeria	3

Many researchers (see for example, Adu (2018) (<https://doi.org/10.1016/j.giq.2018.10.003>); Svärd (2017); Chisango and Lesame (2017)). Some (see for example Adu (2018) argue that the right to information has contributed little if not nothing to improve the fledgling democracy in Africa because of corruption, human rights abuses, restrictive media, absence of media pluralism, denial of access to information, lack of transparency and accountability. It is argued that adequate political leadership, civil society involvement and a balancing act would promote access to government information/records and the protection of individual privacy.

However, efforts are being made at the Pan-African level to formulate policies and guidelines for internet and broadband access. The ECA (2017) report (<https://www.uneca.org/publications/towards-improved-access-broadband-africa>) aims to assist African countries in their efforts to formulate and implement policies. The report contains a number of recommendations, including recommendations on the way forward, for consideration and adoption by African Governments and their development partners. Reviewing the ICT policies developed for the SADC (Southern African Development Community) countries, Munyoka and Maharaj (2017) recommend that member states should update their national ICT policies in-line with the SADC digital regulatory framework and policies.

Bunyasi et al (2014) recommends that the government needs to come up with a policy for capturing business information locally and internationally on small and medium enterprises to support sustainable development in small and medium-sized businesses in Africa.

Infrastructure for accessing digital information/content

Recent statistics show that access to mobile devices is rapidly increasing in some countries in Sub-Saharan Africa like Kenya, South Africa, Nigeria, and so on; and benefits of mobile access have been widely recognised (see for example, Asongu et al (2018), Traxler (2018); and Cibangu., Hepworth and Champion (2017)). However, there are several challenges surrounding mobile access, associated costs, electricity, social norms and customs, etc. However, some researchers argue the supply and use of telecentres in Africa has remained very slow and there is a long way to go to fully benefit from internet service through telecentres due to: (a) weak infrastructure resulting from lack of computers and lack of, slow and unstable, connections; (b) management caused by lack of marketing and lack of relevant information and services; and (c) human factors due to lack of awareness and knowledge among the citizens (Furuholt, 2018).

There are other challenges too. For example, there is a huge gap between mobile phones and electricity. Max and Berman (2018) argue that while about 83% of the sub-Saharan population is covered by a mobile network and nearly 70% has a mobile subscription, only 33% can access electricity. As a result access to internet, and facilities for charging of devices remains a key challenge especially in rural and remote areas. Citing the 2016 ITU report, Kaba (2018) (<https://doi.org/10.1016/j.ijinfomgt.2017.08.007>) argues that only 15% people in Africa have internet access. High cost of Internet access is often a major barrier, especially for rural and low income communities. However, there are evidences of success of community networks than can offer low cost Internet access (Gwaka, May and Tucker,(2018).

Social practices, customs and economic constraints

Some researchers that the principal barriers to technology adoption in Africa are neither macroeconomic variables nor aspects related to the telecommunications sector. Instead they are related to consumer behaviour, in particular being able to access mobile top-ups in rural areas (Sawadogo and Ammi (2018)).

A recent study by Wyche and Olson (2018) shows that economic constraints leading to access only to old or used handsets, misinformation or restrictions surrounding social media, and gendered allocation of mobile time to family members often restrict women's access to mobile devices and services. In rural Africa women who use Internet are more likely to be better educated and have higher incomes (Lwoga and Chigona, 2019).

Education and training facilities

Many countries in Africa, for example Ethiopia and Malawi – do not have any university course on library and/or records management. However, in countries where such university courses exist, the quality of education and research is adequate to meet the demands of today's digital information world (see for example, KACUNGUZI and SAMUEL (2017); Katuli-Munyoro and Mutula (2017)).

Davis (2015) discusses the suitability of the Western world model and methods of teaching librarianship for Africa, and suggests the need for an African-centred approach to librarianship training.

More specialised training is required in some specific areas like providing health information to users (see for example, Grace et al (2017)).

User education

User literacy and education remain a key challenge in Africa. Reporting on a study of mobile device literacy in Senegal, Scharff, et al (2017) demonstrate the importance of a physical learning environment for users to improve their mobile device literacy skills and for developers to engage with users to produce better quality and fitted apps. Studying the usage of telecentres in KwaZulu-natal (South Africa), Mbatha (2016) comments that there is a need for adequate and coherent government policies regulating the training of local community to effectively use ICTS and online services. In a similar study undertaken at a telecentre in Malawi, Kapondera and Hart (2016) observe that the key constraints facing users are: the lack of online search skills, lack of local content, cost and electricity.

Deen-Swarray (2016) observes that the three key issues contributing to poor adoption and use of ICT and Internet services in Africa are poor language and digital literacy skills. In a study involving 12 African countries, the author observed that both adoption and range of ICT uses correlated with increased basic literacy.

It is a well-established fact that sharing and reuse of data can contribute to research, innovation and sustainable development. However, user education and policies play an important role in data sharing. Jao et al (2015) how trust-building processes are central to perceptions of fairness in sharing data among researchers, and how user education and supporting policies for data sharing are crucial in this context.

NetDiploma Workshops

Four workshops, 2 days each, were held in course of the NetDiploma project:

Workshop 1, Northumbria University, Newcastle, UK, 28th February and 1st March 2018: Initial meeting of the project team and six invited members took part in the 2-day workshop and project meeting. (see attached report in Appendix 1)

Workshop 2, National Library of Malawi, Lilongwe, 18-19 September 2018. The workshop was attended by 32 people from a range of organizations including the National Library and National Archives of Malawi, representatives from various ministries and government departments, research/professional bodies and private businesses in Malawi. (see attached report in Appendix 2)

Workshop 3, Ethiopian National Archives and Library Agency (ENALA), 15-16 January, 2019. The workshop was attended by 36 people from a range of organizations including ENALA, African Union, Science and Technology Innovation Commission of Ethiopia, Institute of Ethiopian Studies, Addis Ababa University, Save the Children, and so on (see attached report in Appendix 3).

Workshop 4, Kenya National Archives and Documentation Services (KNADS), 4-5 September, 2019. The workshop was attended by 31 people from a variety of organisations in Kenya and members of the project team.

In addition to the 4 workshops, mentioned above, a series of bi-monthly meetings, email communications, and file sharing activities using the Google Shared Drive, took place throughout the project period.

Summary of findings from the workshops and networking activities

1. The state of the digitisation of content varies amongst various content providers in the partner countries, e.g.
 - a. A large amount of content (amounting to more than 19 million pages) has been digitised at the Kenyan National Archive but they are not accessible to anyone because of the lack of resources – ICT, financial and human – and access/use policies
 - b. A variety of content types have been digitised – including text, manuscripts, photographs, text and films – at the National Archives of Malawi; and some documents, largely text, have been digitised at the National Library of Malawi but those cannot be accessed because of the lack of resources – ICT, financial and human – and access/use policies
 - c. A large volume of content has been digitised at the Institute of Ethiopian Studies (IES) but those cannot be accessed because of the lack of resources – ICT, financial and human – and access/use policies
 - d. Archival and cultural heritage content at ENALA have yet to be digitised.
2. A catalogue of hard copies and of digitised content is available at the national Libraries and national Archives in the three partner countries in Africa, although often not with full and standardised metadata, and such catalogues can be searched through in-house systems of the content providers – national libraries and national archives in the partner countries.
3. There is a lack of legal and ethical framework in relation to access and use of digitised content held at various institutions in the partner countries. Also there is a concern that if all the content is made freely available on the Internet, it may disadvantage the content providers – national libraries, national archives, research institutions, etc. – in that they might lose control of the content, and this may have implications for their long term existence and role in the management of indigenous content, records and archives.
4. ICT infrastructure and capacity – both at the supply (content providers) and demand (user) side vary significantly amongst the partner countries and specific institutions. It was pointed out that the content providers lack the modern ICT infrastructure required for digitising content and making digitised content available online. A number of concerns were raised with regard to ICT access and use for the users which included:

- a. Lack of access to broadband network which varies significantly amongst the partner countries, and amongst regions – cities and remote areas – within each country
 - b. High cost of internet access in some partner countries which could prohibit or limit the use of digitised content available through the internet, especially at the individual user level
 - c. Variation in the availability of ICT devices and mobile phones amongst people in different partner countries, and amongst different cross sections of society in each country, which will have implications for mobile access to, and use of, content
 - d. Lack of appropriate software/tolls and capabilities required for handling content in multiple languages in each partner country
5. Lack of resources – financial and human – is a key challenge for every content providing institution.
- a. Government funding is often the only source which is not adequate for running the current level of service, let alone investing in digitisation and online services. Most of the digitisation activities so far have been funded externally through grants and aid.
 - b. Lack of adequate number of staff, and more so for professionally qualified staff, and staff with adequate ICT skills is common amongst content providing institutions in all the partner countries. For example, it was revealed that less than 5% of the staff at ENALA are professionally qualified.
 - c. In some countries, for example in Ethiopia and Malawi, there are no university courses that offer academic and/or professional degree qualifications in librarianship, archives, records management.
6. User skills: It was revealed that user skills required for accessing and using digitised content, vary significantly in the partner countries, and amongst the cross sections of society and geographical regions – city vs. rural areas - with regard to:
- a. Literacy skills
 - b. ICT skills
 - c. Language skills, especially English language skills and skills in multiple languages that are spoken in each partner country.

Specific findings/outcomes of NetDiploma towards the vision of DPLAf

Year 1

Outcome of event 1 (Workshop in Newcastle, UK, held in February-March 2018)

DPLAf: ICT, infrastructure – technology, interoperability and usability

Experience suggests that a simple architecture, with flexibility for building specific applications, would be better suited to the vision of DPLAf that aims to link and provide access to various digital collections and repositories through a one-stop shop. The technology, policies, resources and capacity building should be considered in tandem in order to make the system sustainable. A ‘light touch’ design will be considered to aid sustainability. Open approaches and common standards are important. We need to understand and stimulate the demand side so that the DPLAf can add value to user’s goal(s), whatever they are, and potential users can appreciate the value of information and how they can use it. Wide promotion will be needed. Innovation hubs supporting start-up organisations and young people (digital natives) creating knowledge products have information/data demands. It is

important to find out what else exists and differentiate DPLAf from that (e.g. Michigan State University Africa portal, Africa Online Digital Library AODL.org – a directory of material in the USA about Africa).

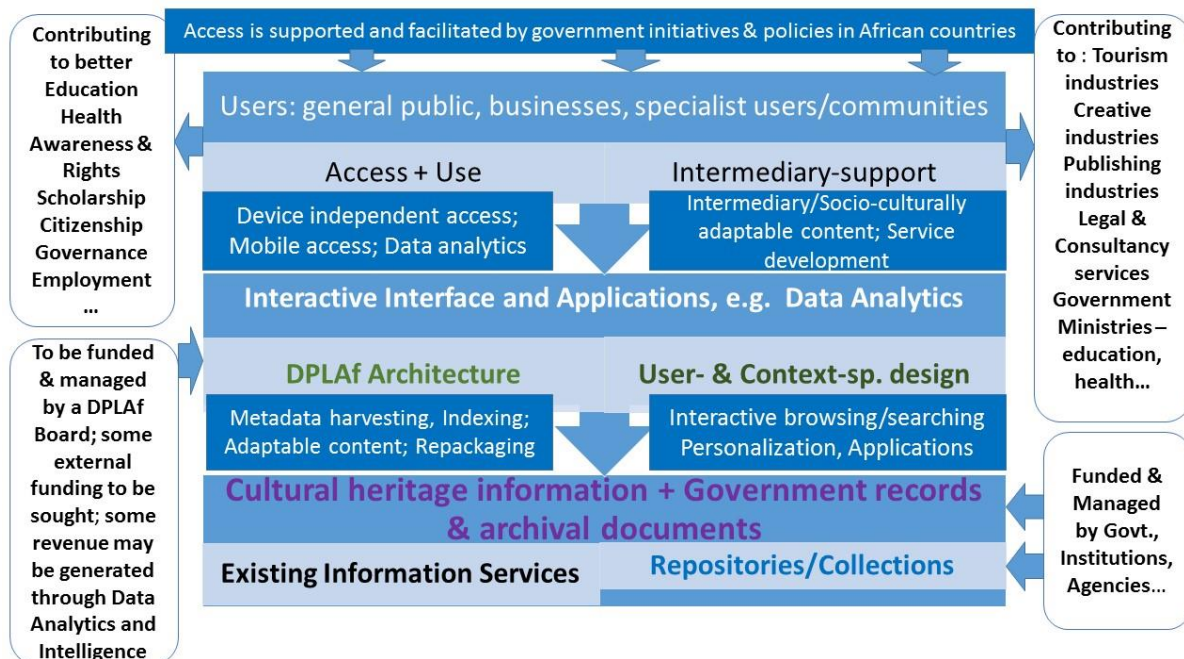


Figure 1: An early vision of the DPLAf

Technology and infrastructure for providing access to digital cultural heritage and government information: The Northumbria workshop and the Addis Ababa workshop proposed a four-stage approach for providing access to, and use of, cultural heritage, archival and government information resources through the Digital Public Library of Africa (DPLAf):

- a. **Discovery:** The first step should be to make all the catalogues of the cultural heritage archival and government information resources available online. Collection and content level access based on content type, descriptor/keyword, etc., where available, should be provided both in English language and local/original source language. This will require minimum resources and efforts at the specific institution level, but this will improve access at both national and international level which will increase demands for indigenous content and government records.
- b. **Access:** Online access to specific content may be provided where the specific information access policies of the respective content providers permit this (e.g. identified digitised content that falls within the open access policies). Content and data may be linked, at collection and/or specific item level, through the use of appropriate metadata standards. Additional work will be required at the institutional and national level for developing appropriate policies and adoption/adaptation of appropriate metadata standards and staff training, etc.
- c. **Use:** Downloading and use of the content discovered through the DPLAf, in whole or in part, should be based on the information use and governance policies of the respective content providers (national libraries, national archives, research

institutions, etc.). Various access and governance policies specifying the terms of access to, and downloading of, different types of digital content need to be developed and implemented through the DPLAf metadata and design architecture.

- d. **Re-use/Re-purpose:** Re-use or re-purposing of information and data held in various African organizations – national libraries, national archives, research institutions, etc. – in part or in full, in various contexts and applications should be based on the specific governance policies of the respective institutions. Specific access policies and business models governing the terms of access need to be developed to establish rights for re-purposing and commercial use of digital content, and implemented through the DPLAf metadata and design architecture.

Resource and policy requirements: outcome of event 2 (Malawi, September 2018)

It was revealed that a variety of content including photographs, letters, correspondences, maps, books and manuscripts, etc., have already been digitised, or are in the pipeline for digitisation in the Malawian memory institutions. It was also revealed that a number of staff members at those institutions have the relevant expertise that would be useful for co-designing the digital teaching materials using ICT and media skills. However, additional resources would be required to cover for the staff time, teachers' time, and ICT support/resources for design and development of the required teaching materials. Some legal and policy-related support would be required from the relevant government departments with regard to copyright clearance, changes in the school curricula for using the digital materials in teaching different subjects, etc. Similarly, resources would be required for training of school teachers. It was suggested that design and media specialist, cartoonists, etc., would add value to the teaching materials to be developed through the project. Key points from the groups discussions were noted, and an outline project plan was developed.

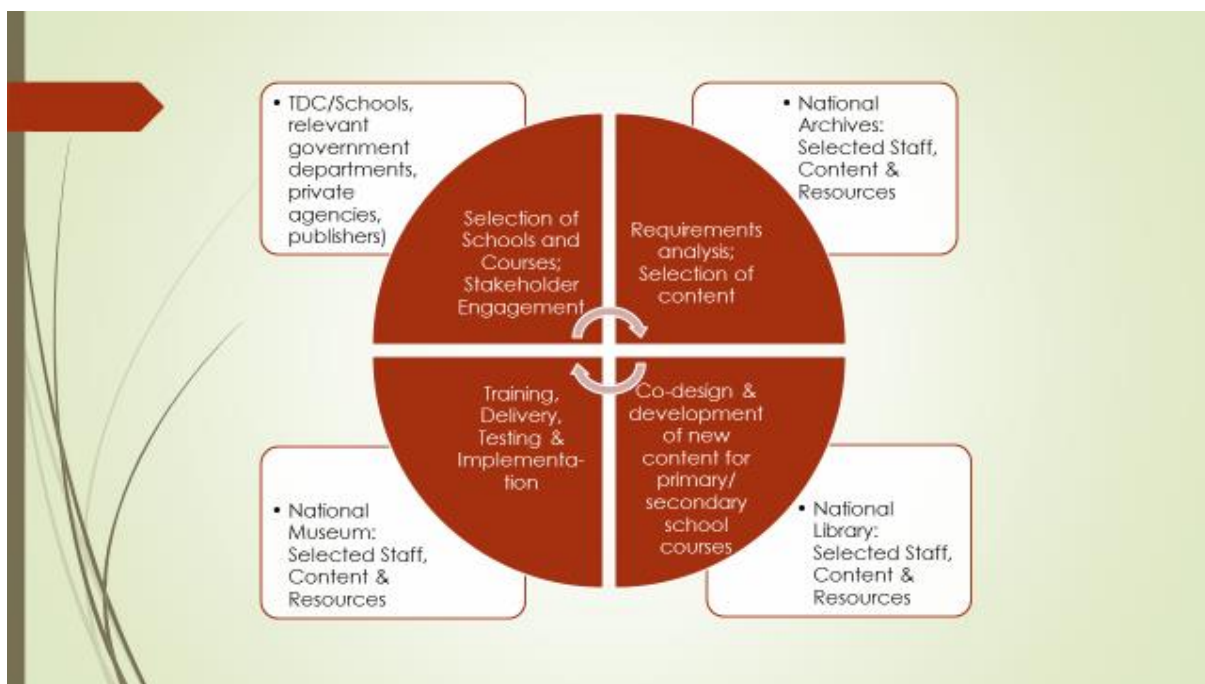


Figure 2: project outline – partners and activities

Project activities (see the diagram)

1. Selection of sample primary and secondary schools and teachers (through TDC)
2. Selection of sample subjects where new/digitised teaching materials may be required
3. Selection of sample content from memory institutions for inclusion in the co-design activities
4. Engagement with the selected school teachers to prepare specific content and design requirements vis-vis ICT infrastructure and support required for design and delivery
5. Prototype co-design and development of new content for different subjects involving selected staff from memory institutions, school teachers, graphic designers/cartoonists, publishers, etc.
6. Deployment and testing of the co-designed content with selected primary and secondary schools in specific subject areas
7. A detailed project plan for scaling up the co-design, development, distribution and evaluation of content, and training, at national level.

Expected outcomes/impact

1. A series of new digital learning materials suitable for use in teaching different subjects in primary and secondary schools which will on the one hand address the lack of reading materials facing schoolchildren, and on the other hand help them learn about the country's heritage, culture, eminent people and their activities, government policies/documents concerning various socio-economic issues, etc.
2. Building partnerships between memory institutions and various stakeholders interested in education, and developing means for fruitful use of digitised content held in the memory institutions in the country.
3. Creating culturally informed students and future citizens/workforce who can make appropriate contributions to the economy and society.
4. Paving the way for making more digitised content online with applications developed to promote their use in other sectors like higher education, research (promoting innovation), businesses (like tourism), etc.
5. Creating potentials for new business opportunities (revenue generation) and creative industries through the co-design of content using the collections of memory institutions.

Overall the outcomes of this project will contribute to several SDGs, especially SDG4 – Education; SDG16.10: Access to Information; and in the longer term SDG8- Economic growth.

Follow-up activities and impact of the NetDiploma Project (in Year 1)

1. **Creation of the NetDiploma project website for dissemination of the project outcomes** (www.northumbria.ac.uk/netdiploma)
2. **Further AHRC grant:** While discussing this broad design of the DPLAf amongst the project team members and the national and international steering committee members, it was revealed that we should try to develop specific case studies demonstrating how indigenous content and government (archival) information in Africa can be useful to promote education, health, tourism, etc. This would be useful in creating awareness and improve the use of information held at the memory institutions in Africa, and in this will also demonstrate how

indigenous and government (archival) information can contribute to sustainable development in Africa. This idea gave rise to a new project proposal which has since been funded by AHRC as a follow-on project (grant ref: AH/S005773/1). The LeaPS project aims to develop a proof-of-concept on how digital cultural heritage and government information can be taken to classrooms in Africa. The project has partners from four Sub-Saharan African countries: Ethiopia, Kenya, Malawi and Nigeria. The project aims to address specifically the global challenges SDG 4.7.1 (Education for sustainable development), SDG 8.9 and SDG12b (Sustainable tourism and creation of jobs and promoting local culture and products), and SDG11.4 (Strengthen efforts to protect and safeguard the world's cultural and natural heritage).

3. **Wider discussion at national Pan-African ministerial bodies:** NetDiploma was mentioned in the Government of Malawi Minister's status report on the 2015 Cape Town declaration at the African Ministers of Arts and Culture round table Conference on Access to Information with regard to the African Union (AU) Agenda 2063 and the Charter for African Cultural Renaissance in the context of the Cape Town Declaration signed in 2015. 5-6 July 2018, Durban, Republic of South Africa.

Year 2

Outcome of event 3 (Ethiopia, January 2019)

Outcomes

Based on the presentations and the group discussions held at the Addis Ababa workshop, the project team came up with two key areas that need to be addressed in order to be able to fulfil the long term vision of the Digital Public Library of Africa (DPLAf):

Capacity building for management of cultural heritage and government information: It was revealed that there are no university level education/training programme on (a) Library and Information Management, and (b) Records and Archives management in Ethiopia. As a result, there is a huge shortage of professionally qualified staff in libraries and archives. For example, it was revealed that less than 5% staff at the Ethiopian National Archives and Library Agency (ENALA) were professionally qualified. the key points which were noted to be:

1. **Capacity building:** Lack of professionally qualified staff for managing and providing appropriate services, especially digital information services, in libraries, archives and other institutions having indigenous content and data, was noted to be a major challenges. It was also revealed that the lack of professional training facilities and CPD (continuing professional development), poor pay and recognition often cause frustration and low morale amongst the staff members of the national libraries, national archives and other content providers.
2. **Lack of awareness and skills in related areas:** It was revealed that there is a general lack of awareness and skills in areas that are related to digital information access and use, such as data governance and IP issues, advanced software and information retrieval techniques that can be used to govern access to, and use of, digital content for specific use/purpose/audience. This includes organisational leaders being less aware and knowledgeable about ICT issues and including ICT development/facilities in their strategic planning.

In addition to these, the following points were also identified as the major challenges for achieving the vision of the DPLAf:

1. **Lack of clear policies for information access, sharing and re-use:** It appeared that the content providers and their respective governments have yet to develop clear policies and governance for information and data access, sharing and reuse. It was clear that specific policies have to be developed for making digitised content to be used for specific purposes such as education and research, commercial applications, etc.
2. **Software and language issues:** In addition to the lack of adequate ICT infrastructure and support that were identified in the course of the group discussion on day 1, it was revealed that each African country has several spoken and written languages (for example, there are as many as 80 languages in Ethiopia alone and many of them are in non-Roman scripts), which make it difficult to develop specific software and applications for search and retrieval, OCR and automatic indexing, etc.
3. **Metadata and tagging:** It was revealed that there are no clear policies and mandates for metadata and tagging of digitised content, and hence some work is needed to adopt/adapt an appropriate metadata standard and apply it to tag the digitised content in order to make it easier to index, and thus to facilitate better search and retrieval of the digitised content. With so many languages there is a need to prioritise about which language(s) to use in any DPLAf and to be able to transliterate from Amharic to English. It was also revealed that a lack of courses and policies for building professionally trained human resources would be a problem for development/adoption of metadata standards and tagging.
4. **Capturing and digitising intangible cultural heritage information:** Ethiopia has a strong oral tradition, especially in rural areas. It is important to think about the different formats in which to share, repackage and make such information available to the present and future generations. It was revealed that there are no formal mechanisms to capture intangible cultural heritage information in Africa such as oral tradition and storytelling, indigenous music, dance, drama, art and design, etc. Although it was revealed that there is an urgent need to capture and digitise such intangible cultural heritage content which are at the risk of being lost.
5. **Business models governing access to digital content:** It was revealed that varying practices exist in the partner country institutions for providing access to content and services. For example, it was revealed that access to content as well as the internet is free at ENALA for all users, whereas a small membership fee is charged for such access at the national library and national archives in Malawi. However, it was revealed that there are no specific business models or policies for supporting/promoting access to, and use/reuse, of digital content for specific business/commercial applications, and for content that have commercial value/potential.
6. **Representation/Lobbying:** It was revealed that professional bodies are either non-existent or too weak/invisible to represent content service providers and lobby for adequate funding support, policies and infrastructure.
7. **User training:** Although it is widely recognised that user training in digital literacy and information skills are essential in every partner country and institution, it was revealed that there are no formal mechanisms nor any plans to provide such training.
8. **Marketing:** Although there is a recognition of the value and market demand for indigenous and cultural heritage information, archives and government records, there are no marketing policies or plans for promoting the use of such content at any level – institutional or government level.

Record of activities/outcomes in year 2

An AHRC funded project, LeaPS, which was triggered by the findings of the NetDiploma project has been funded by AHRC (<https://gtr.ukri.org/projects?ref=AH%2FS005773%2F1>). The key objective of the LeaPS project is to promote access to and use of digital cultural heritage content for classroom education which will enable people to promote tourism and tackle health and wellbeing issues by learning about traditional and indigenous medicine and healthcare in Sub-Saharan Africa. It will undertake a series of creative and innovative fieldwork and engagement activities with key stakeholders in the partner countries to understand the key challenges at both demand and supply side of cultural heritage content for school education in Sub-Saharan Africa, and assess its potential impact on different sectors in particular tourism, and indigenous and traditional medicine and wellbeing of people. In order to achieve this, it will:

1. Explore how innovative digital learning and training materials can be developed by bringing together cultural heritage content and service providers, educators and policymakers; and
2. Engage with key stakeholders to understand the potential benefits and impacts that will arise from delivery of cultural heritage education in schools in Sub-Saharan Africa.

Record of Activities Related to NetDiploma Project in Malawi (Year 2)

3: New networks and initiatives in Malawi

In preparation for the Malawi NetDiploma Workshop, which was hosted by the National Library of Malawi in September 2018, the National Archives of Malawi worked hand-in-hand with the Malawi National Library Service. Through this close collaboration the National Archives was made aware of a collection of historic cine-films, which the National Library has but does not know what to do with them. An agreement was made for the National Archives to digitize the film collection and thereafter embark on a new programme of screening historical digitized content to the general public at the National Library. The aim of this programme is to showcase Malawi's socio-economic history through the digitized film collection. It was agreed that The National Archives would also train the National Library staff on digitization.

During the Malawi Workshop, the National Archives learnt about the Digital Malawi Project, which is funded by the World Bank. The project is being coordinated by the E-Government Department, which attended the NetDiploma Workshop. Among other components of the Digital Malawi Project is the Electronic Document and Records Management System (EDRMS), which the government wants to roll out to the entire public service. As a result of the interaction between the National Archives and the E-Government during the NetDiploma workshop, the National Archives was invited to chair the EDRMS Task-force of the Digital Malawi Project. Other members of the EDRMS Task-force are E-Government, Department of Human Resource Management and Development under the Office of the President and Cabinet, National Registration Bureau, and Ministry of Justice and Constitutional Affairs.

Since the NetDiploma Workshop in September 2018 the Malawi National Commission for UNESCO and the National Archives of Malawi have had several activities relevant to the project. From 1 to 4 October some professionals from the Commission, the National Archives and National Library attended International Association of Sound and Audiovisual Archives Conference that took place in Accra

Ghana as a preparatory capacity building tour for the establishment of national association on audiovisual archiving.

Through the NetDiploma Workshop, and the subsequent conference (mentioned above), the National Commission for UNESCO observed that there are a number of institutions in Malawi that generate and preserve archival material apart from the National Archives and the National Library Service.

For this reason, the National Commission for UNESCO held a number of discussions with the National Archives and organised a national workshop on heritage preservation. From 10- 11 December 2018 the two organisations organized a Sound and Image Archiving workshop which took place at Bridgeview Hotel in Lilongwe, Malawi. The workshop was officially opened by the Minister of Civic Education, Culture and Community Services and middle management representatives of 30 institutions in paper and audiovisual records management and archiving attended. Participants to the workshop were drawn from the following institutions: National Archives, National Library, Malawi National Commission for UNESCO, Anti-Corruption Bureau, Reserve Bank of Malawi, Malawi University of Science and Technology, the Polytechnic, Lilongwe University of Agriculture and Natural resources, Chancellor College, Mzuzu University, Lilongwe City Council, G4S, National Initiative for Civic education, Malawi Broadcasting Corporation, Zodiak Radio and TV, Ministry of Information, the media (the Times), the Judiciary and University of Ghana. The main objective of the workshop was to create a network/association for audiovisual archiving and digital records management in Malawi. It also served as a platform to identify documents with outstanding global value for nomination for inscription on the UNESCO Memory of the World Register.

One of the main facilitators was from the University of Ghana. The workshop observed that there is no proper networking among archivists in Malawi and records management is a problem hence the meeting was a stepping stone for coming up with proper networks and platforms that would help share ideas and strategies. It further noted the lack of courses run locally that are tailor-made to address the challenges faced by local institutions and professionals in the field. At the end of the workshop, participants came up with resolutions and agreed to form an association for records managers and archivists in Malawi. Currently the National Archives is leading a team that is working on constitution of the association. After the meeting, the Malawi University of Science and Technology (MUST) has began work to develop an undergraduate course on records management and archiving.

The workshop agreed to establish an association for digital records management and audiovisual archiving. Currently the National Archives is leading a team that is working on constitution of the association. After the meeting, the Malawi University of Science and Technology (MUST) has began work to develop an undergraduate course on records management and archiving.

Recommendations

Specific recommendations of the NetDiploma project are:

1. The proposed DPLAf (Digital Public Library of Africa) that aims to provide access to digital information in Africa should focus on indigenous knowledge, cultural heritage and government information held in African memory institutions because this is one of the priority areas identified in the African Union Agenda 2063, and such information is easily accessible at the moment.

2. The vision of DPLAf can be accomplished through a joined-up approach of various stakeholders, viz. content providers (national libraries, national archives, universities and research institutions), funding agencies (national, Pan-African and international), policy makers (government ministries/departments), professional associations, NGOs/charities, and user communities.
3. The first step should be to make the catalogue/metadata of content available and searchable online so that people can discover what is available where. Digitisation of content should continue with the long term goal of making all the content of national libraries, national archives and similar institutions accessible online. However, catalogue/metadata of all kinds of content, in whichever format they are currently available, should be made available online by individual institutions.
4. A searchable online catalogue – to be developed and managed by a Pan-African organization – should link online catalogues/metadata of African cultural heritage content available in African institutions and elsewhere in the world. This will ensure that users will be able to discover African indigenous content and government information irrespective of where those are available. A common and sustainable funding model may be developed through contributions from different African government agencies as part of their development agenda.
5. Appropriate access and use policies, ethical guidelines and business models for digital content management and access, should be developed at national and institutional level so that users can choose the most appropriate way to access and use African indigenous content and government information for a specific purpose.
6. Content providers and other stakeholders should work together to build specific ‘use cases’ demonstrating the benefits of accessing and using indigenous knowledge and government information/content for better education, research and innovations, businesses, civil rights, and other global challenges.
7. University courses and CPD (continuing Professional Development) programmes should be developed in each African country to meet the demands of professionally qualified human resources, and ensure that each memory institution have appropriate staff with adequate information/records management and ICT skills.
8. Appropriate information and digital literacy skills programmes have to be developed for users at all levels so that people in every sphere of education, business, government, etc. , can access and use the DPLAf.
9. Further research and innovation capacity should be developed to build and improve the design and management aspects of the DPLAf system and service.
10. National and international networking activities will continue to promote the development and use of DPLAf and its services to address various global challenges and sustainable development goals in Africa.

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Appendix: Workshop outcomes/reports

Appendix 1

NetDiploma project meeting and Workshop at Northumbria University, Newcastle, UK

Date: 28th February and 1st March 2018; Venue: Northumbria University, Newcastle, UK

Attendees: Prof Gobinda Chowdhury (GGC); Dr Keshav Dahal (KD); Dr Paul Lihoma (PL); Prof Julie McLeod (JM); Prof Michael Seadle (MS); Dr Solomon Teferra Abate (STA); Dr David Thomas (DT); Dr Richard Wato (RW). Prof David Neal (via skype, part of Day 1); Nason Bimbe (NB) & Jon Gregson (JG)

Apologies: Dr Alistair Tough (AT)

Day 1

1. A number of initiatives and activities have taken place recently, or are ongoing, for promoting access to digital information in Africa. Some key initiatives include the *Agenda 2016* of the African Union, the ASKIA service of the UNECA, and various national and institutional repositories (see points 4, 8, 9 and 10 below)
2. The NetDiploma project aligns with the Agenda 2063 of the African Union, especially, **Priority area 3 (Cultural heritage, creative arts and businesses): Strategy 13: Expand access to cultural information through Community public libraries; and the Pan-African e-network** (<http://www.un.org/en/africa/osaa/pdf/au/agenda2063-presentation.pdf>).
3. The UN ECA have developed a service called ASKIA <http://askia.uneca.org/> that provides access to digital content on a range of subjects. It focuses on scientific and socio-economic information. It does not specifically cover cultural heritage information, and government information and records. (*see introduction slides from PI, Chowdhury*)
4. A brief review of literature shows that there have been some research on building and managing institutional repositories in the three chosen African countries; there have also been some research on access to business information, health and agricultural information; and LIS education in Africa (*see the literature review slides from UK Co-I, McLeod*).
5. The APAI (African Platform on Access to Information) Report 2017 (<http://www.africanplatform.org/>) provides some country level cases studies and comparison of African countries' preparedness for, and awareness of, access to information law (which are modelled on the AU model law) (*see the literature review slides from UK Co-I, McLeod*).
6. Aflia is also advocating for promoting access to information, as evidenced through their statement on Freedom of Information (FOI) Act and the Strategic Plan 2015-2020 (http://dl.aflia.net/strategic_plan_2015_2020.pdf)
7. It was good to note that Elsevier, whose Senior VP is a member of the NetDiploma International Steering Committee, is actively engaged in some activities such as Women in Science in Africa, Promoting African entrepreneurship, and access to free information to

promote research in Africa (*see slides from Prof. David Neal*). These will be valuable for the NetDiploma project and the future DPLAf

8. Wato (Co-I, Kenya), noted that over 17 million pages have been digitised at KNADS but they can't be accessed because of the inadequate ICT infrastructure and capacity. He noted that the situation is more or less similar in other institutions in the country; overall, several millions of records have been digitised by various government and other agencies in Kenya, but they can't be accessed online. He commented that the OGP and Access to Information Act of the Kenyan government can be the key enablers for promoting access to information; however, there is a lack of awareness amongst people, even for government officials who are expected to implement the law. He also commented that the *Huduma centres* that provide access to eGovernment services through broadband internet connection and intermediary-based services; and the high level of mobile phone penetration and easy access to free wifi connections (e.g. provided by the local councils in public parks), can be the key enablers for promoting access to digital information, and for the proposed DPLAf. (*see slides from Co-I, Wato*)
9. Lihoma (Co-I, Malawi) noted that the National Library of Malawi has already developed a national digital repository of content, and the National Archives is also building a similar digital collection of records. These along with the university-level institutional repositories can be the key enablers for the DPLAf from the point of view of digital content and interests of the national agencies to make them available online. He pointed out that the Malawi government is laying fibre optic networks for broadband throughout the country which will link public libraries which could promote access to digital information (a key enabler for the DPLAf); and (c) the open government partnership and the information legislation of the government will be the key enablers for the proposed DPLAf. (*see slides from Co-I, Lihoma*)
10. Solomon (Co-I, Malawi) noted that the UNECA have produced the ASKIA services and they are keen to join hands with the NetDiploma network for promotion of access to digital information, and thus a DPLAf that can complement the ASKIA service would be welcome by the UNECA. He pointed out that Ethiopia does not have government legislation for promoting access to information, but there have been some government initiatives for recording information objects that have cultural heritage value, and such activities will promote the vision of connecting cultural heritage information across African countries through the proposed DPLAf. He also pointed out that several institutional repositories have now been built, and the Addis Ababa University is now involved in a project with Elsevier in providing free access to research literature; such activities will be key for the success of the proposed DPLAf. (*see slides from Co-I, Teferra*)
11. Given the current levels of development and activities in the three chosen countries, and also in the other African countries, it was felt that while the proposed DPLAf should be designed to act as a layer providing access to the existing services and collections (mentioned above); it should focus on two areas of digital information for access, viz.
 - a. **Cultural heritage information:** this will align with the *Priority 3 of the African Union* (see point 2 above), and will promote access to cultural heritage information which will not only enrich people's knowledge of indigenous cultural heritage in Africa, but will promote businesses like tourism through for example promotion of

heritage tourism (AT suggestion), and creative industries and businesses; it will also promote better education and knowledge creation in disciplines that depend on access to cultural heritage information and objects; this may contribute to the publishing industry.

- b. **Government information:** better access to government records, archives and legislative materials, etc., will promote better governance and justice, better business as well as better awareness and equality amongst the African population.

Note: it will be important to understand and enable rights issues to be handled and managed appropriately.

12. **Alternative and indigenous medicine/healthcare practices:** It was also noted that a focus on cultural heritage information and archival materials may be relevant for research on alternative and indigenous medicines, healthcare and related socio-cultural practices; and these may be of interest to Elsevier's health related research and development activities.

13. **Take away points from the day:**

- A lot of relevant ongoing activities from the UN level to national level (archives, universities, repositories); the proposed Digital Library of Africa (DPLAf) should aim to connect them all
- We can demonstrate strength in certain areas; this will require an audit of what major digital collections and repositories are currently available
- Long term vision for the DPLAf is a one-stop shop for any information but first focus is on cultural heritage information and government information (Point 11 above) because of the African Union specific agenda item about cultural heritage and business (see point 1 above)
- Need to understand (and stimulate) the demand side and address this rather than being driven solely by the supply side. This will involve identifying users, communities, those who are not aware (demand side) and also content providers, stakeholders (supply side)
- Then understand policies etc.
- Areas of concern/challenge: 1) issues of infrastructure – technology, electricity, capacity; 2) people, institutions, culture, behaviour, language; 3) resources, policies, governance (incl. rights)

Actions

1. PL/STA/RW to link their websites/social media sites/email signature lines etc. to NetDiploma website <https://www.northumbria.ac.uk/netdiploma>
2. PL/STA/RW to send GGC any material they want to add to the NetDiploma website
3. GGC to check what web analytics data can be captured (for reach and impact)
4. GGC/JM to establish a social media presence (Twitter handle/hashtag) and add to website
5. MS to publicise the project in the iSchools community
6. JM to check InterPARES Trust project for any other relevant legislation/Acts in the three African countries and add to the literature review slides
7. JM to add APAI report and further information to the AFliA slide in the literature review slides
8. JM/GGC to set up Dropbox site for sharing project documents and send link to PL/STA/RW (full rights) and International Steering Committee finds (read only)
9. RW to add a map/details of coverage of the Huduma Centres to his slides
10. GGC to send a formal invitation letter to African Union contact

Day 2

14. Bimbe and Gregson presented some of their research and consultancy activities in some African countries for promoting access to information, especially for scholarly information through development of institutional repositories and national repositories. Their experience suggests that a simple architecture, with flexibility for building specific applications, would be better suited to the vision of DPLAf that aims to link and provide access to various digital collections and repositories through a one-stop shop. The technology, policies, resources and capacity building should be considered in tandem in order to make the system sustainable. Consider a 'light touch' design to aid sustainability. Open approaches and common standards are important. Need to understand and stimulate the demand side so that the DPLAf can add value to user's goal(s), whatever they are, and potential users can appreciate the value of information and how they can use it; will need wide promotion. Innovation hubs supporting start-up organisations and young people (digital natives) creating knowledge products have information/data demands. Important to find out what else exists and differentiate DPLAf from that (e.g. Michigan State University Africa portal, Africa Online Digital Library AODL.org – a directory of material in the USA about Africa)
15. Group Discussions on specific focal points of the project generated a lot of lively discussions and provided some interesting insights:
 - a. Group discussions on key technology, systems and infrastructure issues for design of DPLAf: These discussions helped us understand the current state of development vis-à-vis some of the general technology and systems related requirements of the proposed DPLAf which can be explored further through various networking and crowdsourcing activities in Africa (see the list of key technology enablers and constraints)
 - b. Group discussions on identifying networking partners and stakeholders, and their possible benefits from, and contributions to, DPLAf, etc. This resulted in a list of partners and stakeholders that may be approached and involved in the network (see the list of potential partners and stakeholders).
 - c. Group discussions on key cultural, human, governance and management issues for design of DPLAf: These discussions created a shared understand of the current policies and management practices for promoting access to digital information in the three countries. This shared understanding can be explored further through various networking and crowdsourcing activities (see the list of policies and practices).
16. NetDiploma Impact measure: PI Chowdhury discussed the importance of data collection for NetDiploma impact measures/assessment. Templates for collection of impact data were discussed, and agreed that these templates will be used by the ODA Co-Is for collection of data related to impact measures.
17. Crowdsourcing activities: Discussed and agreed that the conventional approach to crowdsourcing will not be adequate to engage with all the stakeholders and potential users of the DPLAf. Hence it was agreed that while some data may be collected through crowdsourcing using social media, an alternative approach which is socio-culturally appropriate for the chosen African countries, will be adopted. Such crowdsourcing activities will take place in the form of group discussions and engagement events where people from various cross section of the African society can be reached, e.g. by organising such events in

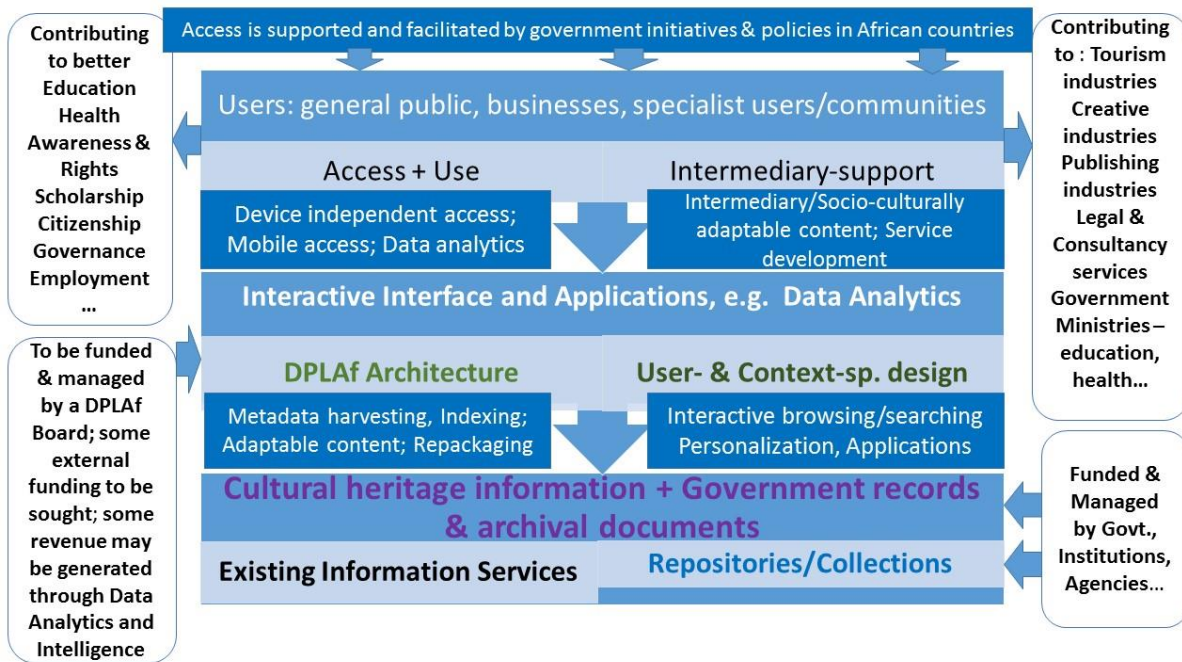
libraries, schools, community and public halls, etc. Crowdsourcing activity post this workshop in the three African countries to focus on identifying stakeholders and asking them what already exists and if there are gaps, what these are. Next level of crowdsourcing could focus on (selected) end-user groups to probe further e.g. one in a city area, one in a rural area, or more/less affluent/educated groups.

18. National Steering committee meetings: Agreed that each Co-I will engage with the members of their National Steering Committee, and such meetings may take place individually with each member, or with all at once; such meetings may also take place face-to-face or using other forms of communications.
19. NetDiploma event in Malawi: The next event of NetDiploma will take place in Malawi in September 2018 where we will discuss the technology, systems, infrastructure and design issues of the proposed DPLAf. Agreed that the Co-Is will engage with their national steering committee members, and other partners and stakeholders (a list has been produced through the group discussions during the Northumbria event (item 14b above), in their respective countries to collect data and views/comments on the technology related issues which will be discussed in the Malawi meeting. Suggest Day 1 is the workshop with a wider group of stakeholders/users and comprising different activities to gather their input; Day 2 is the project team to reflect on Day 1 and discuss next steps in the project.

Actions

1. JG/NB to help us identify innovation hubs in the three African countries as they may be sources of volunteers, interesting digital native users with demands
2. JG to share his concept paper (National Observatory based at University of Sussex)
3. GGC/JM to create a short summary of Workshop1 and the vision to post on NetDiploma website and for PL/STA/RW to use in National Steering Committee meetings/engagement activities and for crowdsourcing.
4. GGC to add a column to the impact template for 'engagement activities' and then upload template to Dropbox.
5. PL/STA/RW to complete the impact template on an ongoing basis using Research Assistants to complete parts of it (e.g. first three columns in green). This is vital to gather evidence to support a research bid to develop the DPLAf
6. PL/STA/RW to capture notes of all phone calls/meetings in their institutions as evidence of partner in-kind contributions. GGC to share the 'in kind' costs that were shown for each partner in the proposal individually
7. PL/STA/RW to arrange National Steering Committee meeting/engagement activities to share discussion and outcomes of this workshop
8. GGC to organise next International Steering Committee meeting to discuss Workshop 1
9. GGC/JM to identify potential dates for Workshop 2/meeting in Malawi and circulate a Doodle Poll to confirm best dates for Africa Co-Is
10. PL to start planning Workshop 2

An early vision of the DPLAf



Appendix 2
NetDiploma Project Event 2 in Malawi

Report

A two-day workshop was held at the National Library of Malawi in Lilongwe on 18th and 19th September 2018. The workshop was attended by 32 people from a range of organizations including the National Library and National Archives of Malawi, representatives from various ministries and government departments, research/professional bodies and private businesses in Malawi.

List of NetDiploma Workshop in Malawi

Name of Participant	Institution
Trevor Namondwe	Lilongwe University of Science and Technology
Humphrey Mpondaminga	Department Arts (Ministry of Civic Education, Culture and Community Development)
Stanley Gondwe	Delegation of the European Union in Malawi
Grace Khoza	Department of Arts
Thokozani Chikuse	Malawi Parliament
Nubson Benje	Malawi Law Commission
Chrissie Mtonga	Department of E-Government
Michael Phoya	Open Culture
Christopher Magomero	Malawi National Commission for UNESCO
Gray Nyali	Malawi National Library
Keshav Dawal	University of the West of Scotland
Richard Wato	Kenya National Archives and Documentation
Solomon Abate	Addis Ababa University
Julie MacLeod	Northumbria University
Gobinda Chowdhury	Northumbria University
Paul Lihoma	National Archives of Malawi
Clement Mweso	National Archives of Malawi
Heinz Kaposi	National Archives of Malawi
Naomi Mwenda	National Archives of Malawi
Drina Mphote	National Archives of Malawi
Enock Bauleni	National Archives of Malawi
Martha Khonje	National Archives of Malawi
Mphatso Mwangumba	National Archives of Malawi
Veronica Jere	National Archives of Malawi
Evelyn Kachigamba	National Archives of Malawi
Bright Joshua	National Archives of Malawi
Innocent Mankhwala	National Archives of Malawi
Evans Kadongola	National Archives of Malawi
Philip Samuteni	National Archives of Malawi
Austin Chilanga	National Archives of Malawi
Annet Ng'ambi	National Archives of Malawi
Robert Mkuwira	National Archives of Malawi
Vote Somba	National Library Service

Thomas Bello	Kamuzu College of Nursing
Alice Benza	Ministry of Information

Members of the project team – PI Chowdhury, UK Co-I McLeod, Co-Is from the partner countries, viz. Co-I Lihoma, (Malawi), Co-I Wato (Kenya) and Co-I Solomon (Ethiopia) were present in the event. Prof. Dahal, member of the International Steering Committee was also present. Member of the Malawi National Steering Committee and Librarian and CEO of the Malawi National Library hosted the event and took active part in the discussions on both days.

Day 1 (Tuesday, 18th September) began with a welcome address by the country Co-I Dr. Paul Lihoma followed by a welcome address by the host Mr. Grey Niyali, Librarian and CEO of the Malawi National Library. Dr. Lihoma presented a list of the partners/stakeholders of the NetDiploma project from Malawi that include the following:

13. National Archives of Malawi
14. Malawi National Library Service
15. University library, Mzuzu University
16. National Commission for Unesco, Malawi
17. University Library, University of Malawi
18. Lilongwe University of Agriculture and Natural Resources
19. Kamuzu College of Nursing
20. Department of E-Government
21. Ministry of Information
22. Delegation of the European Commission to Malawi
23. Parliament of Malawi

Presentations: This was followed by:

- A presentation by Prof. Gobinda Chowdhury, PI of the NetDiploma project, where he explained the key objectives of the project, activities and achievements so far. He outlined the key objective and plan for the workshop which was to understand the key challenges and enablers for ICT and infrastructure required for building the future DPLAF (Digital Public Library of Africa), a broad outline of which was developed after the Northumbria event of NetDiploma (in March 2018) (available on the website: www.northumbria.ac.uk/netdiploma)
- A presentation by the country Co-I Mr. Richard Wato (Kenya) explaining the networking activities and developments in relation to the NetDiploma project that have taken place in Kenya since his last report at the NetDiploma event in the UK in March 2018. He pointed out that new partners and stakeholders have been added since the beginning of the project. The list of project partners and stakeholders in Kenya now includes the following (the first four are the original partners/stakeholders, and the others are new:
 1. Kenya National Archives and Documentation Service
 2. Kenya National Library Service
 3. UNESCO Kenya
 4. Article 19
 5. Kenyatta University
 6. Egerton University
 7. Commission on Administrative Justice (Ombudsman)
 8. ICT Authority

9. Council of Governors
10. Ministry of Education

- A presentation by the country Co-I Dr. Solomon Teferra (Ethiopia) explaining the networking activities and developments in relation to the NetDiploma project that have taken place in Ethiopia since his last report at the NetDiploma event in the UK in March 2018. The list of partners/stakeholders from Ethiopia include the following:
 1. Institute of Ethiopia Studies, represented by Mr. Meseret Assefa
 2. National Archives & Library Agency, represented by Msr. Mulumebet Hagos
 3. Knowledge & Library Services Section, UNECA, represented by Msr. Irene
 4. Information & Knowledge Management Division, African union, represented by Mr. Garoma Daba

Dr. Solomon has also pointed out that he is discussing to have partnerships with other potential partners including the following:

1. ARCCH -- Authority for Research and Conservation of Cultural Heritage
 - Partners on Leaps, represented by Msr. Zelalem
 - Registers moveable and immovable cultural heritages
 - Makes them accessible for researchers and the public
2. MCIT
 - Developed National ICT policy
 - Running National open data portal
 - Leads research and development of local ICT solutions
 - Eg. SIS and Department of Computer Science will start developing local social media with MCIT
3. MoST
 - Developing the National ICT roadmap
 - Running Digital Library in the areas of S&T

In his presentation, Dr. Solomon has highlighted that the Ethiopian telecom has dramatically reduced the price of mobile call. This has been considered as an opportunity for mobile based content delivery plans in Ethiopia, enabling factor for the utilization of the fast growing mobile penetration (70%) rate in the country.

- In her presentation, a senior representative from the Malawi government responsible for providing the ICT infrastructure and networking facilities, briefly outlined the current activities, and future plans, of the Malawi government in laying out the broadband network and ICT infrastructure in the major cities and district towns in Malawi. It was evident that these ICT infrastructure and facilities will be instrumental in building the DPLAf.
- A presentation by a local entrepreneur who explained how commercial applications could be built to provide cultural heritage content to meet the specific needs of specialist users.

Group discussions: The second half of the day comprised intensive brainstorming and group discussions. Three groups were formed with participants from a mixed range of institutions. Each group was monitored by one or two project team members (PI or Co-I). Each group focused on one of the three user groups – school teachers and students, remote communities, and young people – and

discussed what needs to be done, for making digital information accessible to these communities, in terms of:

- ICT infrastructure and support
- Regulations and policies
- Financial and human resources

At the end of the discussions lasting for about 3 hours, each group presented the key points of their discussions that included the following:

7. ICT and infrastructure: The broadband network connections and IT support that is currently being made available in the city and at district level, by the Ministry of IT and Communications as part of the eGovernment initiative in Malawi, will be immensely useful in making digital information available to people. Mobile penetration in Malawi is increasing (currently at 35% penetration), but it is expensive for common, especially rural population
8. New regulations and policies have to be developed to support the activities of the National Library and National Archives of Malawi to work with various ministries and government departments in their efforts to bring digital content to classrooms in a user-friendly way
9. Financial and human resources will be required to make the digitised information accessible to people to meet their specific purpose, like education, health and social developments, etc.

Day 2 (Wednesday 19th September): Key points arising from day 1 were discussed in more detail in course of five hour group discussions that took place on the second day of the event. Two groups were formed, one focusing on the primary schools and the other on secondary schools in Malawi.

Each group was asked to prepare an outline project plan for co-designing digital learning materials, based on the digitised content held at the National Library, National Archives and National Museum, for delivery to school children in Malawi using the digital infrastructure put in place by the e-Government initiative.

The key objective of these group discussions was to understand what needs to be done to make the digitised content available at the memory institutions of Malawi suitable for teaching different subjects in primary and secondary schools. The group discussions were moderated by the project team members, and the aim was to develop a draft project outline that can be discussed later with various stakeholders for further progress and possible funding support. Each group was assigned with the following tasks:

- T1: Identify user groups in two schools that can benefit from digitised content on cultural heritage and government records (archival materials) held in the National Library, National Archives and National Museum of Malawi
- T2: Prepare a list of user requirements - teachers and children – with reference to T1
- T3: Propose a suitable means to engage with the school teachers in understanding the user requirements and for preparing the digital teaching materials for the school children
- T4: Identify different kinds of digitised content that would be used to prepare the teaching materials. Also identify how you see yourself and your role in co-designing the digital learning materials.
- T5: Prepare an outline project plan listing each task, people, resources, etc.
- T6: Present a brief report

At the end of the day, each group came up with an outline project plan, a list of activities and recommendations. It was revealed that a variety of content including photographs, letters, correspondences, maps, books and manuscripts, etc., have already been digitised, or are in the pipeline for digitisation in the Malawian memory institutions. It was also revealed that a number of staff members at those institutions have the relevant expertise that would be useful for co-designing the digital teaching materials using ICT and media skills. However, additional resources would be required to cover for the staff time, teachers' time, and ICT support/resources for design and development of the required teaching materials. Some legal and policy-related support would be required from the relevant government departments with regard to copyright clearance, changes in the school curricula for using the digital materials in teaching different subjects, etc. Similarly, resources would be required for training of school teachers. It was suggested that design and media specialist, cartoonists, etc., would add value to the teaching materials to be developed through the project. Key points from the groups discussions were noted, and an outline project plan was developed.

Appendix 3

NetDiploma Project Event 3 in Addis Ababa, Ethiopia

Report

A two-day workshop was held at the Ethiopian National Archives and Library Authority (ENALA) in Addis Ababa, Ethiopia, on 15th and 16th January 2019. The workshop was attended by 36 people from a range of organizations including ENALA, African Union, Science and Technology Innovation Commission of Ethiopia, Institute of Ethiopian Studies, Addis Ababa University, Save the Children, and so on (for details, see the table below).

List of participants in the NetDiploma Workshop in Addis Ababa

Name of Participant	Institution
Meseret Asseta	IES (Institute of Ethiopian Studies), Addis Ababa University
Yikunnoamlak Mezgebi	ENALA
Garoma Daba	AU (African Union)
Eyasu Taye	TECHINN
Bea Abyot Abera	ENALA
Martha Yifiru	SIS (School of Information Science), Addis Ababa University
Alemu Abebe	CODE-Eth
Mekonnen Kefale	ENALA
Elizabeth Ashenoti	ENALA
Sileshi Shiferra	ENALA
Mulelembef Gefachai	ENALA
Simelis Taeyu	ENALA
J Gaemup	INSA
Abiy Gihiwot	EBS TV
Earmida Haile	INDIUIDUAI
Hirut Timerga	Save the Children
Meseret Ayuno	Addis Ababa University
Yeseraw Wonlu	ENA
Temergen Assefa	ENA
Eskedar Girum	ENALA
Gizaw ...	ENALA
Geremew Kebese	ENALA
Genet Tesfaye	ENALA
Solomon ...	ENALA
Mygonet Wo..	Addis Ababa University
Agerie Mekonnen	ENALA
Solomon Kebede	ARCCH (Authority for Research and Conservation of Cultural Heritage)
Zelalem Wogayen	ARCCH (Authority for Research and Conservation of Cultural Heritage)
Abduiaziz Beshir	INSA
Betelhem Yitbarer	EBS
Etaferahu Sefineh	Techin

Solomon Tererra (Co-I)	Addis Ababa University
Richard Wato (Co-I)	Kenyan National Archives (KNADS)
Paul Lihoma (Co-I)	National Archives of Malawi
Julie McLeod (Co-I)	Northumbria University, UK
Gobinda Chowdhury (PI)	Northumbria University, UK

Members of the project team – PI Chowdhury, UK Co-I McLeod, Co-Is from the partner countries, viz. Co-I Lihoma, (Malawi), Co-I Wato (Kenya) and Co-I Solomon (Ethiopia) were present in the event. Members of the Malawi National Steering Committee and Director General of the Ethiopian National Archives and Library Authority (ENALA) hosted the event and took active part in the discussions on both days. Other members of the National Steering Committee such as Mr. Garoma Daba, Librarian and Head of the Knowledge Management Division of the African Union; and a representative of the Institute of Ethiopian Studies were also present.

Day 1 (Tuesday, 15th January) began with a welcome address by the country Co-I Dr. Solomon Teferra followed by a welcome address by the host Dr. Yikunamlak, Director General of the Ethiopian National Archives and Library Authority (ENALA). This was followed by a presentation by of a senior member of staff of ENALA, Ms. Mulumabeth, who introduced the audience to ENALA and its various services, etc.

Presentations: This was followed by:

1. A presentation by Prof. Gobinda Chowdhury, PI of the NetDiploma project, where he explained the key objectives of the project, activities and achievements so far. He outlined the key objective and plan for the workshop which was to explore and understand the key cultural, human, governance and management challenges facing memory institutions in Africa for digital information management and access. The aim of the workshop was to discuss the cultural, legal, human resources/capacity, and management issues as enablers and barriers for linking the services of the memory institutions in order to build the future Digital Public Library of Africa (DPLAf). A broad outline of the DPLAf was developed after the Northumbria event of NetDiploma (in March 2018) (available on the website: www.northumbria.ac.uk/netdiploma) and further discussed and modified through a series of discussions among the project team, the steering committee members, and the 2-day workshop held in Malawi in September 2018.
 - A presentation by the country Co-I Mr. Richard Wato (Kenya) explaining the networking activities and developments in relation to the NetDiploma project that have taken place in Kenya since his last report at the NetDiploma event in Malawi in September 2018. Mr. Wato discussed some critical challenges with regard to institutional policies and dilemma surrounding the open access to digitised content that need to be addressed. However, he also pointed out that various recent initiatives and laws in Kenya with regard to the rights to information access will be instrumental for building the DPLAf.
 - A presentation by the country Co-I Dr. Paul Lihoma (Malawi) explaining the networking activities and developments in relation to the NetDiploma project that have taken place in Malawi since his last report at the NetDiploma event in Malawi in September 2018. In his presentation, Dr. Lihoma highlighted the key challenges and enablers with regard to the policies, resources and management facing the content providers in Malawi that need to be addressed in order to achieve the vision of the DPLAf. He also gave a demonstration of a variety of digitised content held at the National Archives of Malawi that include text, images, audio and video.

- A presentation by Dr. Garoma Daba from the African Union where he discussed the current status of the African Knowledgebase (AKB) service (<http://akb.africa-union.org/auc/>) recently developed and managed by the Library and Knowledge Management Division of the African Union (<http://library.africa-union.org/>). He pointed out that although the AKB focuses on providing access to reports on and from Africa, the model may be useful and lessons learnt while developing this service may be useful to build the DPLAf, which is the long term goal of the NetDiploma project.

Group discussion: The second half of the day comprised intensive brainstorming and group discussion. The group discussion was facilitated by PI Prof. Gobinda Chowdhury, UK Co-I Prof. Julie McLeod, and Ethiopian Co-I Dr. Solomon Teferra. The group discussion focussed on the following issues facing the content providers – national libraries, national libraries, research institutions and universities – in Africa that need to be understood and addressed in order to fulfil the vision of the DPLAf:

1. legal and ethical issues
2. resource and capacity issues
3. management issues

The following key points emerged in the course of the group discussion:

10. The state of the digitisation of content varies amongst various content providers in the partner countries, e.g.
 - a. A large amount of content (amounting to more than 19 million pages) has been digitised at the Kenyan National Archive but they are not accessible to anyone because of the lack of resources – ICT, financial and human – and access/use policies
 - b. A variety of content types have been digitised – including text, manuscripts, photographs, text and films – at the National Archives of Malawi; and some documents, largely text, have been digitised at the National Library of Malawi but those cannot be accessed because of the lack of resources – ICT, financial and human – and access/use policies
 - c. A large volume of content has been digitised at the Institute of Ethiopian Studies (IES) but those cannot be accessed because of the lack of resources – ICT, financial and human – and access/use policies
 - d. Archival and cultural heritage content at ENALA have yet to be digitised.
11. A catalogue of hard copies and of digitised content is available, although often not with full and standardised metadata, and such catalogues can be searched through in-house systems of the content providers – national libraries and national archives in the partner countries.
12. There is a lack of legal and ethical framework in relation to access and use of digitised content held at various institutions in the partner countries. Also there is a concern that if all the content is made freely available on the Internet, it may disadvantage the content providers – national libraries, national archives, research institutions, etc. – in that they might lose control of the content, and this may have implications for their long term existence and role in the management of indigenous content, records and archives.
13. ICT infrastructure and capacity – both at the supply (content providers) and demand (user) side vary significantly amongst the partner countries and specific institutions. It was pointed out that the content providers lack the modern ICT infrastructure required for digitising

content and making digitised content available online. A number of concerns were raised with regard to ICT access and use for the users which included:

- a. Lack of access to broadband network which varies significantly amongst the partner countries, and amongst regions – cities and remote areas – within each country
 - b. High cost of internet access in some partner countries which could prohibit or limit the use of digitised content available through the internet, especially at the individual user level
 - c. Variation in the availability of ICT devices and mobile phones amongst people in different partner countries, and amongst different cross sections of society in each country, which will have implications for mobile access to, and use of, content
 - d. Lack of appropriate software/tolls and capabilities required for handling content in multiple languages in each partner country
14. Lack of resources – financial and human – is a key challenge for every content providing institution.
- a. Government funding is often the only source which is not adequate for running the current level of service, let alone investing in digitisation and online services. Most of the digitisation activities so far have been funded externally through grants and aid.
 - b. Lack of adequate number of staff, and more so for professionally qualified staff, and staff with adequate ICT skills is common amongst content providing institutions in all the partner countries. For example, it was revealed that less than 5% of the staff at ENALA are professionally qualified.
 - c. In some countries, for example in Ethiopia and Malawi, there is a shortage of university courses offering professional qualifications in librarianship, archives, records management etc.
15. User skills: It was revealed that user skills required for accessing and using digitised content, vary significantly in the partner countries, and amongst the cross sections of society and geographical regions – city vs. rural areas - with regard to:
- a. Literacy skills
 - b. ICT skills
 - c. Language skills, especially English language skills and skills in multiple languages that are spoken in each partner country.

Day 2 (Wednesday 16th January)

The day started with a presentation from the Science and Technology Innovation Commission of Ethiopia on the newly developed National Digital Library of Ethiopia (<http://library.stic.et/>). This service provides access to digital content on science and technology education that is openly available anywhere on the web and services like Youtube. The target audience for this service comprises school students and teachers in Ethiopia. The service model was discussed, and it appeared that this could be a good example, and perhaps a good partner, for the future DPLAf.

Key points arising from day 1 were discussed in more detail through two group discussions. Group 1 focused on metadata, data sharing/access policies, and ICT facilities; and Group 2 focused on human resources, financial resources/business models, and user literacy/training. Each group was facilitated by the three project Co-Investigators, while the project PI moved between the two groups to monitor, and from time to time, take part in the conversations. The group discussions lasted for three hours, and while discussing the specific issues, each group was encouraged to identify the key enablers as

well as the key challenges associated with each topic (metadata, human resources, etc.). At the end of the discussions, each group was asked to make a brief presentation identifying the key points which were noted to be:

3. **Capacity building:** Lack of professionally qualified staff for managing and providing appropriate services, especially digital information services, in libraries, archives and other institutions having indigenous content and data, was noted to be a major challenges. It was also revealed that the lack of professional training facilities and CPD (continuing professional development), poor pay and recognition often cause frustration and low morale amongst the staff members of the national libraries, national archives and other content providers.
4. **Lack of awareness and skills in related areas:** It was revealed that there is a general lack of awareness and skills in areas that are related to digital information access and use, such as data governance and IP issues, advanced software and information retrieval techniques that can be used to govern access to, and use of, digital content for specific use/purpose/audience. This includes organisational leaders being less aware and knowledgeable about ICT issues and including ICT development/facilities in their strategic planning.
5. **Lack of clear policies for information access, sharing and re-use:** It appeared that the content providers and their respective governments have yet to develop clear policies and governance for information and data access, sharing and reuse. It was clear that specific policies have to be developed for making digitised content to be used for specific purposes such as education and research, commercial applications, etc.
6. **Software and language issues:** In addition to the lack of adequate ICT infrastructure and support that were identified in the course of the group discussion on day 1, it was revealed that each African country has several spoken and written languages (for example, there are as many as 80 languages in Ethiopia alone and many of them are in non-Roman scripts), which make it difficult to develop specific software and applications for search and retrieval, OCR and automatic indexing, etc.
7. **Metadata and tagging:** It was revealed that there are no clear policies and mandates for metadata and tagging of digitised content, and hence some work is needed to adopt/adapt an appropriate metadata standard and apply it to tag the digitised content in order to make it easier to index, and thus to facilitate better search and retrieval of the digitised content. With so many languages there is a need to prioritise about which language(s) to use in any DPLAf and to be able to transliterate from Amharic to English. It was also revealed that a lack of courses and policies for building professionally trained human resources would be a problem for development/adoption of metadata standards and tagging.
8. **Capturing and digitising intangible cultural heritage information:** Ethiopia has a strong oral tradition, especially in rural areas. It is important to think about the different formats in which to share, repack and make such information available to the present and future generations. It was revealed that there are no formal mechanisms to capture intangible cultural heritage information in Africa such as oral tradition and storytelling, indigenous music, dance, drama, art and design, etc. Although it was revealed that there is an urgent need to capture and digitise such intangible cultural heritage content which are at the risk of being lost.
9. **Business models governing access to digital content:** It was revealed that varying practices exist in the partner country institutions for providing access to content and services. For example, it was revealed that access to content as well as the internet is free at ENALA for all users, whereas a small membership fee is charged for such access at the national library and national archives in Malawi. However, it was revealed that there are no specific business

models or policies for supporting/promoting access to, and use/reuse, of digital content for specific business/commercial applications, and for content that have commercial value/potential.

10. **Representation/Lobbying:** It was revealed that professional bodies are either non-existent or too weak/invisible to represent content service providers and lobby for adequate funding support, policies and infrastructure.
11. **User training:** Although it is widely recognised that user training in digital literacy and information skills are essential in every partner country and institution, it was revealed that there are no formal mechanisms nor any plans to provide such training.
12. **Marketing:** Although there is a recognition of the value and market demand for indigenous and cultural heritage information, archives and government records, there are no marketing policies or plans for promoting the use of such content at any level – institutional or government level.

Outcomes

Based on the presentations and the group discussions held at the Addis Ababa workshop, the project team came up with a four-stage approach for providing access to, and use of, cultural heritage, archival and government information resources through the Digital Public Library of Africa (DPLAf):

4. **Discovery:** The first step should be to make all the catalogues of the cultural heritage archival and government information resources available online. Collection and content level access based on content type, descriptor/keyword, etc., where available, should be provided both in English language and local/original source language. This will require minimum resources and efforts at the specific institution level, but this will improve access at both national and international level which will increase demands for indigenous content and government records.
5. **Access:** Online access to specific content may be provided where the specific information access policies of the respective content providers permit this (e.g. identified digitised content that falls within the open access policies). Content and data may be linked, at collection and/or specific item level, through the use of appropriate metadata standards. Additional work will be required at the institutional and national level for developing appropriate policies and adoption/adaptation of appropriate metadata standards and staff training, etc.
6. **Use:** Downloading and use of the content discovered through the DPLAf, in whole or in part, should be based on the information use and governance policies of the respective content providers (national libraries, national archives, research institutions, etc.). Various access and governance policies specifying the terms of access to, and downloading of, different types of digital content need to be developed and implemented through the DPLAf metadata and design architecture.
7. **Re-use/Re-purpose:** Re-use or re-purposing of information and data held in various African organizations – national libraries, national archives, research institutions, etc. – in part or in full, in various contexts and applications should be based on the specific governance policies of the respective institutions. Specific access policies and business models governing the terms of access need to be developed to establish rights for re-purposing and commercial use of digital content, and implemented through the DPLAf metadata and design architecture.

Appendix 4

NetDiploma Workshop 4: Kenya

NetDiploma Workshop 4: KNADS, Nairobi, Kenya

Date: 4th and 5th September 2019

Venue: KNADS, Nairobi, Kenya

A two-day workshop was held at the Kenya National Archives and Documentation Services (KNADS) in Nairobi, Kenya on 4th and 5th September 2019. The workshop was attended by 31 people from a variety of organisations in Kenya and members of the project team (see the table below).

LIST OF PARTICIPANTS

NO.	NAME OF PARTICIPANT	ORGANISATION
1.	Francis Mwangi	KNADS
2.	Richard Wato	KNADS
3.	Naftal Chweya	KNADS
4.	Professor Gobinda Chowdhury	Northumbria University
5.	Dr. Paul Lihoma	Malawi National Archives
6.	Dr. Solomon Teferra Abate	Addis Ababa University
7.	Julius Mwahunga	Kenya National Commission for UNESCO (KNATCOM)
8.	Esther Munga	Cabinet Office, Kenyan Government
9.	Henry Nyabuto	KNADS
10.	Collins Mutimba	Kenya Association of Records Managers and Archivists (KARMA)
11.	Dorothy Kuru	KNADS
12.	Teddy Onyango	Kenya Association of Records Managers and Archivists (KARMA)
13.	Henry Ndungu	Office of the President (OP), Kenyan Government
14.	Victor Kabata	KNADS
15.	Anthony Muiruri	KNADS
16.	Mary Musau	KNADS
17.	Sarah Mbuthia	KNADS
18.	Joyce Wandia	Commission on Administrative Justice (CAJ), Kenyan Government
19.	Emily Ndungi	Kitui County Government
20.	John Munyifu	Kenya Association of Records Managers and Archivists (KARMA)
21.	Baron Silas	KNADS
22.	Margaret Ochari	KNADS
23.	Marcella Bosiburi	KNADS
24.	Johnson Wachira	Kenya Institute of Curriculum Development (KICD)
25.	Peter Njoroge	Kenya Institute of Curriculum Development (KICD)
26.	Lawrence Monda	National Museums of Kenya (NMK)
27.	Dorothy Kuru	KNADS
28.	Abdi Shisia	KNADS
29.	Mary Mugwe	KNADS

30.	Tabitha Kathini	KNADS
31.	Peterson Kithuka	KNADS

Members of the project team – PI Chowdhury and Co-Is from the partner countries, viz. Co-I Lihoma, (Malawi), Co-I Wato (Kenya) and Co-I Abate (Ethiopia) were present in the event. Member of the Kenya National Steering Committee and Director of the Kenya National Archives and Documentation Services (KNADS) hosted the event and took active part in the discussions on both days. Other members of the National Steering Committee, for example, from the National Commission for UNESCO in Kenya, and Kenyan government ministries/departments were also present and took active part in the workshops and discussions.

Day 1 (Wednesday 4th September) began with a welcome address by the country Co-I Mr. Richard Wato followed by a welcome address by the host Mr. Francis Mwangi, Director of KNADS who highlighted the importance of the NetDipoma project for digital access to government and indigenous information in general, and for KNADS in particular. He pointed out that like many other African countries, Kenyan government is moving fast towards the use of ICT and mobile technologies to facilitate banking, government services and businesses in Kenya.

Presentations

2. In his presentation Prof. Gobinda Chowdhury, PI of the NetDiploma project, explained the key objectives of the project, activities and achievements so far. He outlined the key objective and plan for the workshop which was to explore and understand the key cultural, human, governance and management challenges facing memory institutions in Africa for digital information management and access. The aim of the workshop was to discuss the cultural, legal, human resources/capacity, and management issues as enablers and barriers for linking the services of the memory institutions in order to build the future Digital Public Library of Africa (DPLAf). A broad outline of the DPLAf was developed after the Northumbria event of NetDiploma (in March 2018) (available on the website: www.northumbria.ac.uk/netdiploma) and further discussed and modified through a series of discussions amongst members of the project team, the steering committee members, and two 2-day workshops held in Malawi and Ethiopia in September 2018 and January 2019 respectively.
3. In his presentation, the country Co-I Dr. Paul Lihoma (Malawi) explained the networking activities and developments in relation to the NetDiploma project that have taken place in Malawi since his last report at the NetDiploma event in Malawi in September 2018. In his presentation, Dr. Lihoma highlighted the following key developments that demonstrate the continued partnership building and activities taking place in Malawi for facilitating digital access to indigenous and cultural heritage information in the country. Dr. Lihoma reported that the NetDiploma Project has drawn significant attention of various stakeholders, and it continues to register remarkable progress towards access to digital government records and cultural heritage information held at various memory institutions in Malawi. Some of the key developments, and achievements of the NetDiploma project, include the following:
 - **Country's President is aware of the project:** Every month, Cabinet Ministers submit their reports to the President. When the NetDiploma started, the relevant Minister described

the project, its goals and benefits to the country in his report to the President. Such a mention is a great achievement in itself.

- **Establishment of networks of local institutions and continued activities:**
 - Since the beginning of the NetDiploma project, and especially after the NetDiploma workshop in Malawi in September 2019, a network of local institutions was established. Members of the network participated in the first workshop and since then the member institutions continue to cooperate in a number areas.
 - The Malawi National Commission for UNESCO organised a follow-up workshop in December 2018. The workshop attracted participants from the heritage institutions, media and universities to discuss preservation and wider sharing of digital information. The Minister opened the workshop, which attracted wider media coverage.
 - Formation of a local association aimed at preserving, publicising and sharing of audiovisual and other information for research, was agreed. A draft constitution of the proposed association is undergoing review processes.
 - **Publicity of the Project to the African Ministers' forum:** During the annual African Ministers conference on Libraries and Information in Durban in 2018, the minister from Malawi mentioned the NetDiploma as one of the projects that promote regional cooperation by noting that Kenya, Ethiopia and Malawi were involved in the NetDiploma project representing the African continent. He further noted that results of the NetDiploma would benefit Africa as a whole.
 - **Establishment of new projects**
 - **Digital Malawi Project:** During the NetDiploma workshop in Malawi, the E-Government representative informed the workshop about the World Bank sponsored Digital Malawi Project, which she said was in line with the NetDiploma goals. Further discussions led to the introduction of the **National Archives** into the Digital Malawi Project. A series of meetings **finally led to incorporation of the National Archives into the World Bank sponsored Digital Malawi project.**
 - **EDRMS Project: The National Archives has been identified as a lead institution to ensure that the public service should adopt an Electronic Document and Records Management System** as a way of modernising government operations, managing public records systematically and promoting security and wider access to records in line with the Access to Information legislation.
 - **Processes are underway to recruit an EDRMS Technical Advisor to work** alongside the National Archives in rolling out the EDRMS project
 - **Screening of Digitised Historical Footage by the National Library Service:** As a result of networking and closer cooperation through the NetDiploma workshop in Malawi, **the National Library Service has secured funding from the Rei Foundation to support digitisation of historical footage material** held by the National Archives and National library Service. The digitised content will be screened at the National Library Service to students and the public.
4. **A presentation by the country Co-I Dr. Solomon Abate (Ethiopia)** explained the networking activities and developments in relation to the NetDiploma project that have taken place in Ethiopia since the beginning of the project in 2017, and especially since the workshop in

Ethiopia in January 2019. Some of the key initiatives, triggered by the NetDiploma project and workshop include:

- AAU (Addis Ababa University) Digital library (<http://www.aau.edu.et/library/resources/digital-library/>)
- Ethiopian Digital Public Library by the Ministry (<http://library.stic.et/home>)
- Automation of documentation management by ‘Save the Children’
- Automation of heritage management by ARCCH
- Knowledge management platform of the African Union (AU)
- Services of the Ethiopian National Archives and Library Authority Library (NALA)

Overall, the NetDiploma project workshop motivated young professionals in the promotion and use of digital cultural heritage information in Ethiopia. The NetDiploma project triggered a new initiative for the development of National Digital Information Access by NALA, INSA and AAU to undertake the following activities:

- ▶ Preliminary survey of existing national activities
- ▶ Policy analysis and stake holder identification
- ▶ Needs Assessment
- ▶ Project formulation

The NetDiploma project also triggered interests in higher education; for example, the NetDiploma project partner from the IES (Institute of Ethiopian Studies) has decided to pursue his PhD study towards digital information services.

5. **A presentation by country Co-I Mr. Wato (Kenya)** discussed some critical challenges with regard to institutional policies and dilemma surrounding the open access to digitised content that need to be addressed. He discussed some government initiatives for digital government services, such as the Open Government partnership (OGP), Kenya Open Data Initiative (KODI), and the Access to Information Law, that can be used as a backbone for further developments in digital access to indigenous and cultural heritage information in Kenya.

Panel discussion

A panel discussion followed the presentations where the participants were invited to ask questions, and share their own experience in the context of access to cultural heritage and indigenous information in Africa in general, and Kenya in particular. This resulted in very lively and informative discussions lasting for three hours, where participants from various organizations, like the National Commission for UNESCO, Kenyan National Commission on Administrative Justice (CAJ), Kenya Institute of Curriculum Development, National Museums of Kenya, and various government departments/ministries discussed and shared their experience with some ongoing initiatives, such as the success of the *Huduma Centres* in providing digital government services to people in Kenya. Challenges associated with some ongoing activities and initiatives at various institutions, especially digital skills and behavioural issues of information service providers as well as the end users with regard to access to government information, and cultural heritage information were also discussed.

Day 2 (Thursday 5th September 2019)

Presentations and panel discussions on day one led to the development of a shared understanding of some key ongoing activities vis-à-vis challenges associated with access to digital cultural heritage and government information in Kenya. A group discussion was held to address the key issues in depth.

Three groups were formed, each comprising between 10-12 people, to discuss the key enablers and challenges associated with access to government and cultural heritage information in Kenya. Groups were formed such that there were people in group representing multiple organisations (see the participants' list).

Each group was given two hours to discuss the key enablers and challenges associated with three major themes: (1) technology and infrastructure, (2) policies and governance; and (3) resources.

At the end of the groups discussions, each group was invited to make a presentation highlighting the key outcomes of the discussions in their group. Each group was given between 30-40 minutes to make the presentations. The key points were noted, combined and presented in the following table.

Theme	Key enablers	Key challenges
Technology and infrastructure	Initiatives already taken by ministries of ICT/e-Government, e.g. the <i>Huduma centres</i> for providing e-Government services	Rapid obsolescence of ICT; some ICT facilities in government offices and memory institutions are outdated
	Improved internet connectivity in the cities as well as remote areas	Limited network/internet connectivity esp. in rural/remote areas
	Growing awareness of ICT and mobile technologies	High cost of internet access
	Availability of e-Government services, e.g. for issue of passports, driving licenses, etc.	Online security issues/concerns
	Rapid mobile penetration throughout the country	Lack of expertise/capacity in ICT and infrastructure in most government offices and memory institutions
	Steady growth in internet access especially among the city population	Lack of standardization for data formats
	Mobile connections in the rural areas even in places with no electricity (use of alternative energy sources for ICT and mobile phones)	Lack of data storage and curation facilities
	Government subsidies in some areas of ICT, e.g. in the price of mobile phones and network costs	People in regions/provinces have different priorities, e.g. food, water, health, sanitation etc., as opposed to ICT and information access/use
		ICT devices and technology are expensive as a whole

		Power failure: electricity is not available round the clock, or it is unreliable
		Mobile phones are used for business/banking or entertainment, and not for access to information or knowledge
		Lack of digital skills amongst people of all sections
		Lack of literacy & reading/writing skills
		Marginalisation: poor and remote communities can't afford and use ICT for access to information
Policies/Governance	Access to Information law passed in many African countries, including Kenya	No clear policies on availability of, or accessibility to, internet for everyone
	Ministry of ICT is championing ICT policies	Lack of policies on privacy and data protection
	Government initiatives towards building digital cities	Lack of policies to provide and support online access for people with disabilities
	Laptop project that aims to provide laptops in schools and various other institutions	Lack of policies for promoting culture and heritage
	Devolutions leading to data management policies at local/regional levels	Access to oral tradition (information transferred through oral communications) need to be included in the Access to Information Laws
		An online dictionary of proverbs and colloquial phrases may be developed
		Lack of policies for capturing indigenous and community knowledge
		Lack of awareness of people w.r.t. access to information
		Culture of secrecy in government offices
		Lack of conflict between Access to Information Law and rules for restricted access to some information
		Lack of an implementation framework (e.g. for the Access to Information law)
		Lack of a quality assurance framework for information

		Uncoordinated activities of various stakeholders in the digital information space
		Electronic records management is not a priority (despite having the Access to Information law)
Resources	Some skills are available for ICT and digitisation, etc. through the e-Government initiatives and the <i>Huduma Centres</i> in Kenya	Lack of priorities for ICT development in specific government sectors and especially in the memory institutions
	Information officers have been appointed in some government offices	Lack of financial resources is a key challenge
	Some digital skills training facilities are available for government office staff	Sustainability of government initiatives on digitisation and digital services is affected by lack of resources and movement of people (loss of skills)
	Growing human capital in general and in ICT in particular	Lack of context-specific ICT and digital skills training
		Lack of recognition of skills and excellence of staff/people
		Lack of champions with technology and people/communication skills

The participants left the NetDiploma project workshop with a great degree of enthusiasm, a better understanding of the key challenges that call for ongoing networking and collaborative activities to promote access to cultural heritage information in African countries in general, and Kenya in particular.