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Large-Scale digital preservation initiatives and collaborations as a strategy for addressing technology obsolescence in preservation of Africana digital news content

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Abstract:

Working together to produce sustainable content while being mindful of technology obsolescence may support preservation sustainability of Africana digital news content.

This paper demonstrates how Large-Scale digital preservation initiatives (LSDIs) and collaborations can become a solution to technology obsolescence in preservation of born-digital Africana news content as a form of back up with for original content using cloud-based solutions.

Keywords: Africana Digital News content, Technology Obscelence, Preservation and Conservation, Large-Scale digital preservation initiatives (LSDIs)

Introduction

Several academic libraries in Africa have the Africana Section that collects and stores general African literature dating back to the late nineteenth century including; books, papers, letters, newspapers, news recording, notices, and reports, diaries of events, church memoranda, registers, and manuscripts that are important to their country's heritage. The

Makerere University Library (Africana Section), using its legal deposit mandate of acquiring all publication on and about Uganda, evolved a new niche of harvesting “born-digital” news articles on and about Uganda and Africa from local and international news portals for purposes of including them to the Makerere Institutional Repository (MakIR) formerly known as the Uganda Science Digital Library (USDL).

Using institutional repositories to preserve information including "born-digital" news content while increasing their usage is an optimistic trend but it relies on a technology environment and prone to challenges of technology mainly; compatibility and upgrades that may bring about obsolescence; storage space and content security. The rapidly changing technology environment may render a repository obsolete and limit access to digital content. The changing technology environment is also capable of making hugely invested antiquated machines or technology obsolete in a very short time. In addition to financial consequences of obsolescence there is a risk of survival of the preserved digital news content (Namaganda, 2011).

Problem Statement

Born-digital Africana news content is here today because library institutions are committed to harvesting the content through their legal deposit mandate of acquiring all publication on and about Uganda or African at large. The digital content is also here because it is being preserved and conserved by library institutions using repositories. However, the born-digital Africana news content will be gone tomorrow because of the rapidly changing technology environment that may render a repository obsolete and limit access to digital content. This is because preservation and conservation of digital content using repositories is practiced in a software environment which is changing rapidly hence capable of making hugely invested antiquated machines or technology obsolete in a very short time. In addition to financial consequences of obsolesce, this risks the survival of the digital news content. Institutions instead conduct continuous transfer of storage and processing devices to suitable devices, back up files on CD-ROMs and other robust media. The transfer may not guarantee the safety of the digital content (Habibzadeh, 2013; Namaganda, 2011; Becker, 2009; Evans, 2008).

There is a need to strengthen Large-Scale digital preservation initiatives and collaborations as a strategy for addressing technology obsolescence in the preservation of Africana digital news content as a form of back up for original content using cloud computing. Large-Scale digital preservation initiatives and collaborations have the ability to bargain and attain secure and cost effective back up using the cloud while guarding against the financial consequences of technology obsolesce and the risks that they bring to the survival of digital news.

Aim of the paper

To demonstrate how Large-Scale digital preservation initiatives (LSDIs) and collaborations can become a solution to technology obsolescence in preservation of born-digital Africana news content as a form of back up for original content.

Literature Review

Preserving African Born-digital News Content

Born-digital information materials are materials created and used in digitals form. They range from emails, blogs and websites, tweets and social media contents, pictures and videos, news and other business portals, to research and academic publications, organisational documents, court rulings among others. This content is becoming the backbone of an information society which has a tendency of convincing; and as thus the survival actions of questioning, thinking and understanding required instantly is the major cause of born-digital information materials (British Library 2012-2016). On the other hand, the purpose of preservation is to ensure protection of information of enduring value for access by present and future generations (Conway, 1990: 206).

Preservation is one of the major core functions of libraries and archives and over the years, these institutions have established formal preservation programs for both traditional materials and now for the born-digital information materials. These programs include regular allocation of resources for preservation, preventive measures to arrest deterioration of materials, remedial measures to restore the usability of selected materials and the incorporation of preservation needs and requirements into the overall library strategic plans (Becker, 2009). Digital preservation is widely understood as the series of managed activities necessary to ensure continued access to digital materials for as long as necessary. Successful preservation requires planning, care and coordination over time (Digital Preservation Coalition, 2008). The concept of digital preservation encompasses materials that begin and end its life in digital form as well as material that is converted from traditional to digital formats (O'Toole, 1989).

Digital newspaper collections are a key historical record of human activities. The Makerere University Library (Africana Section) is a legal deposit centre with the mandate of acquiring all publication on and about Uganda. In recent years, the library evolved a new niche of harvesting "born-digital" news articles on and about Uganda and Africa from local and international news portals for purposes of including them to the Makerere Institutional Repository (MakIR) formerly known as the Uganda Science Digital Library (USDL). The USDL is a digitization projects that was initiated in Makerere University Library in 2004 through collaborative linkages with Tufts University, University of Tennessee, Knoxville and the University of Bergen, Norway. USDL was created using Dspace as a preservation strategy to guarantee permanent access to scholarly materials, digitize cultural heritage materials and provide wider and easier access to these materials, conserve the originals, possibly add value to images and collections, and provide opportunities for income generation (Namaganda, 2011).

The major challenge of digital preservation is that materials are vulnerable to deterioration and catastrophic loss, and even under ideal conditions, they are short lived relative to materials in traditional formats. This makes for the time frame for decisions and actions to prevent loss in a matter of years and not decades. The additional challenge for born-digital news materials is the problem of obsolescence in retrieval and playback technologies driven primarily by market forces (Evans, 2008). Another challenge is the absence of established standards, protocols, and proven methods for preserving digital information although in recent times, there are guidelines for digital newspaper preservation readiness (Skinner, 2014). Digital library research has focussed on architectures and systems

for information organisation and retrieval, presentation and visualisation, and administration of intellectual property rights. As a consequence, digital preservation remains largely experimental and replete with risks associated with untested methods. In the same way, digital preservation requirements have not been factored into the entire planning of preservation programs (Levy, 1995).

When making a true reflection of the challenges of digital preservation and the consequences they bring to the materials, there is no doubt that we need to think of the development of "digital vellum" to preserve old software and hardware so that out-of-date files could be recovered no matter how old they are. In other words, we do not only preserve the digital content, but also preserve the technology as well (National Archives of Australia, 2011).

Technology obsolescence in preservation and conservation of digital content

Nature and fashion are changing the world everyday in different ways including technology. Technology is changing fast and what seems to be nearly perfect today can be not good enough tomorrow. It is very hard to imagine that the good old technology that played analogue audio news content and was around for nearly a century was misplaced almost overnight on arrival of digital equipment. Although there could be a rebirth of the old technology, it is usually in a lukewarm fashion of keeping the market semi-alive for sometime but the truth is, there are more convenient options today. This is evident when using the analogy of CD's and DVD's that are slowly but surely giving way to more convenient media as USB flash drives, SD cards and mobile phones (with both storage and playback functions) that are rendering the CD's obsolete (Day, 2006). In preservation and conservation of digital content, this is an ongoing challenge because digital materials including key historical documents could be lost forever because programs to view them will become defunct. Having digital content in the highest possible quality and being able to use it on future-day equipment is a must because obsolete technology impairs access to dependent digital materials (National Archives of Australia, 2011).

On the other hand, maintaining obsolete equipment capable of playing old formats for preservation purposes is equally recommended. Some digital news content especially in audio and video have limited life and start deteriorating within 10 years. Although the content may appear in the highest possible quality, it is unlikely that some formats will still be playable after another 100 years hence the need to maintain obsolete equipment. Well maintained old equipment often sourced from reliable sources could be modified by changing parts to compatible modern-day ones and adding modern functionalities (Verheul, 2006; Ohio State University Library, 2013).

How LSDIs and Collaborations are a solution to technology obsolescence in preservation of born-digital content

Due to the expensive nature of preservation projects characterized by not-for-profit services such as open access, the next generation trend by libraries in Africa is use collaboration as a strategy of addressing technology obsolescence in order to mobilize resources, sustain or maintain wider access and sharing of information. Many research libraries and archives have begun or are about to begin Large-Scale digital preservation initiatives (LSDIs). The main players in LSDIs are cultural institutions, commercial

companies such as Google and Microsoft, and non-profit groups including the Open Content Alliance (OCA), and the Million Book Project (MBP). The primary motivation of these groups is to expand access to heritage and scholarly resources.

The existing motivations of LSDIs have been expanded to include digital preservation and are very effective in addressing challenges of digital preservation especially technology obsolescence. More often born-digital news content is processed and preserved for public consumption. This brings in the concept of collaborative consumption hence purchasing the time accessible to an item as opposed to purchasing the item to own. Time for access is purchased from institutions with the capacity to attain permanent preservation and storage provided by cloud-based solutions. This capacity is achieved through LSDIs that have a pool of resources and is able to bargain cost effective strategies (NetHosting, 2011).

Cloud computing is entrusting digital information materials to information systems that are managed by external parties on remote servers "in the cloud". The cloud is used as a metaphor for the internet. The technology for preservation becomes a service delivered over the internet hence "Software as a Service" (SaaS). This involves taking SaaS (cloud services such as servers and storage) and moving them outside an organisations' firewall on shared systems. Webmail, Google drive, Drop box, Onedrive, iCloud are clear examples of SaaS. There is a certain amount of risk of potential loss of data and often the need for the source archival material to be re-encoded into a lighter, user acceptable format because the solutions are usually provided by third parties and commercial organisations (Ryan, 2011).

Cloud computing has become an efficient facilitator of sharing information and ensuring permanent storage of digital materials. On the other hand, LSDIs have the capacity to envisage the challenges of digital preservation and address them through collaborative resource mobilisation and bargaining with third parties and commercial organisations to address challenges of technology obsolescence.

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