CONTENTS

44TH ANNUAL CONFERENCE OF THE INTERNATIONAL ASSOCIATION OF SOUND AND AUDIOVISUAL ARCHIVES (IASA)

IASA / BAAC JOINT CONFERENCE
OPEN DOORS: NEW IDEAS, NEW TECHNOLOGIES

Vilnius, Lithuania
6 – 10 October 2013

The 2013 conference is exploring the tools, the people, legislation, ideas and technologies that enable constant, open and unmediated access and discussing the consequences of such openness on the collections, collection owners, and managers. What does Access for All mean to our mission and curators and careers for the world's sound and audiovisual heritage?

Open Doors: New Ideas, New Technologies, the 2013 conference theme, is pertinent to today's environment of information availability, where openness is the expectation. But does "Open Doors" mean unlimited entry rights? Is that appropriate when we offer open access? Is complete openness always ethical, or even legal? Or are constraints to access just a limit on the individual's right to information? Are archivists gatekeepers, or facilitators? Where does ultimate responsibility lie, with the collections owners, users or managers? How do we manage a variety of access conditions, from closed to open? Can an online description be a breach of confidence? Are the users' rights paramount?

No matter what kind of Openness we need for our particular archive archivists must manage access. Is technology the solution to the growing management problem, or does technology create a new burden? In the face of innovative technology, new possibilities and the ever looming budgetary constraints, we need to be open to new ideas and gain the knowledge to evaluate new solutions for our collections and archives.

Let's all head to Lithuania… with an Open mind!

Please find all conference information on the conference website at http://www.2013.iasa-web.org/.

For any further information or questions please contact the Organising Committee and the conference administrator through enquiries@iasa-conference.com.

International Association of Sound and Audiovisual Archives

Internationale Vereinigung der Schall- und audiovisuellen Archive

Association Internationale d'Archives Sonores et Audiovisuelles

Asociación Internacional de Archivos Sonoros y Audiovisuales

iasa

I remember attending the IASA 40-years celebration in the Garden of the "Iliou Melathron" at the Numismatic Museum in Athens during the 2009 conference in Greece. That year the conference planners organized an exceptional overview of IASA's history through the words and preferences of previous editors. It was my second IASA conference and I was just beginning to understand the scope of the organization, the breadth of knowledge represented by the membership, and IASA's long, rich history. I remember being a newcomer thankful to have found friendship in a community of peers and mentors. I also vividly remember being shown the variety of ways in which editors contribute to the voice and direction of the association. Each previous editor brought a unique perspective to the editorial duties, which shaped the discourse throughout the association and, in turn, the profession. I contributed my first two articles to the IASA journal that year. Many things have changed in my career since that day in Athens except my love of the written word and its ability to communicate across time and space. These words that are printed here in this journal—shared with us by our colleagues—these are the backbone of our profession. These are the legacies that we leave behind for those who follow to revisit or to be introduced to the concepts, issues, and best practices—the memories—of our profession. I cannot say enough how thrilled I am to carry the torch in IASA's 10th editorship term. I have enormous shoes to fill (read about the previous editors in an article by Grace Koch published in issue 34 of the IASA Journal in December 2009). I encourage you all to participate as authors and contributors to the IASA Journal. As you shape the nature of our profession through your day-to-day efforts, remember that words work, too. Contribute your words to the profession, share your ideas, and join in the discourse.

Although this issue is coming out later than scheduled, mostly due to the logistics of changing editors mid-stream, the content is timely and current. Retha Buys and Ilse Assmann explore the challenge of exploiting public broadcast collections in the face of complex copyright dilemmas. Aditi Deo offers an ethnographic study of community archives in India, exploring vernacular musics at the intersection of power and technology. Tanya Clement introduces a new software project, ARLO (Adaptive Recognition with Layered Optimization), and a yearlong project, HiPSTAS (High Performance Sound Technologies for Access and Scholarship), to test and improve the software for public consumption. Kara Van Malssen reports on emergency preparedness and a disaster relief project for audiovisual collections that she and others mounted in New York City after Hurricane Sandy devastated the region. Aaron Rosenblum, Gordon Burr, and Catherine Guastavino report on the results of their survey to determine the best practices in use among archives, heritage institutions and commercial organizations involved in the preservation and digitization of legacy grooved audio formats. Aditi Worcester explores the implications of technology in India, the reach of the Internet, and the impulse by communities to develop sustainable local content. Tom Adami, Anwar Hassan, and Craig Kadoda discuss the intricacies of United Nations missions and their development of an oral history project to build a memory bank at the United Nations Mission in Sudan.

In the coming issues, I hope to encourage new voices to find their place in the journal. I also hope to continue to grow the readership. If you have suggestions or new ideas, please feel free to share them with me at editor@iasa-web.org. Also, though it has been raised before, I intend to revive the discussion of adding an element of peer-review to the process of publishing the IASA journal. Many of our colleagues in the sciences and in academics would be more willing to publish with IASA if the journal offered refereed acceptance. If you have thoughts on the subject of including a peer-reviewed section, please send me a note. I want to hear from the membership on this topic before I make any formal proposals. IASA is an important mouthpiece in the world of audiovisual archives. It is the international association for our profession. Moving to a hybrid peer-review model can help to include more members in the publishing process, and it will encourage submissions from more of our colleagues.

I hope you all enjoy this issue of the IASA Journal and that you find value in the words and ideas contained in these pages. I am excited to see you all soon in Vilnius. Consider contributing to the next issue. I look forward to hearing from you.

Bertram Lyons
Editor IASA

[Technical note: a few of the images presented are screenshots and high resolution versions for print publication were not available.]

Dear IASA friends and colleagues,

The 2013 IASA annual conference being held jointly with the Baltic Audiovisual Archives Corporation (BAAC) *Open Doors: New Ideas, New Technologies* in Vilnius, Lithuania 6-10 October is drawing closer. While our much loved annual event is always a forging of alliances, a renewal of old friendship and the building of many strategic partnerships, it is most importantly a meeting of the minds and ideas that can influence the future direction of our profession and industry. So I would like to reflect a little on the conference theme and what it might mean.

Open Doors: New Ideas, New Technologies expresses an interest and concern that many of IASA's members share—"What new technologies are there and how will I have to use them?" Yet in learning, coordinating, and even standardizing the new technologies and incorporating them into our work, it is critical to think about how we allow them to change our work, or even how they permit us to change. When writing about technology and how it has changed society, we are faced with something of a dilemma. It sometimes looks to the casual observer that the rapid changes in technology determine the sort of society we are today (technological determinism). A proper examination might lead us more rightly to believe that society creates technologies, which enable us to create the society we have today. The same thing applies to the sound and audiovisual archive, which is a small part of society created to serve its needs; we create the technology that we then use creatively to build the society in which we live.

This distinction is important to understand how we interact with technology. Although by and large we manage collections that are dependent on technology, we can nonetheless make innovative choices about how we use that technology and how we apply it to the technical problems that confront us each. How we manage the technical challenges is not determined by the technology, but the approach we take to resolving those challenges in turn shapes the technology we use. The recognition that there is no single path or technical truth is what makes IASA conferences so valuable. Regardless of whether we are trying to open the doors to petabytes of commercially produced audiovisual data or whether we are controlling access to a small but significant collection of field tapes, the debate about our approaches sheds light on it all, and the open door discussion means we can bring social, technical, ethical, and managerial viewpoints to be debated in one forum.

In order to have IASA better serve its members we have been pursuing incorporation. Indeed we will be discussing some minor changes at the conference that are necessary to comply with the incorporation laws. Nonetheless, I am very pleased to let you know that the incorporation of IASA has been completed. IASA is now incorporated as a not for profit, internationally recognized limited liability company under the laws of England and Wales. Our company number is 08458337, and if you type that number into the search box found at http://www.companieshouse.gov.uk/info, you can view our status as a company. Aside from protecting our members and office bearers from personal liability, being registered makes it easier for other organizations, research and funding agencies, and the like to grant official recognition. Though it enables us to better cooperate and coordinate with others, the fact that we are incorporated is not an end in itself. There is a need for IASA's members to interact with others on our behalf, and to creatively and innovatively shape the international dialogue to our benefit.

Since the last President's letter we have been very fortunate in finding a new editor. Bertram Lyons has stepped into the breach and has brought together the latest Journal. Bertram is a certified archivist and works as a folklife specialist and digital assets manager with the American Folklife Center at the Library of Congress in Washington DC. Since 2002, he has served as archivist (and now consulting archivist) at the Alan Lomax Archive / Association for Cultural Equity in New York. He is a member of the Society of American Archivists (appointee to the Membership Committee and steering committee member for the Oral History Section), the International Association of Sound and Audiovisual Archives, and the Association of Recorded Sound Collections. Lyons publishes regularly on archival principles and practices and he presents research at professional and academic conferences. He received his Master's degree in Museum Studies and American Studies from the University of Kansas. Aside from that he is a

much published and entertaining writer whose work can be found widely on the net. It is the first time that the appointment of IASA's editor has been announced in the New York Times.

The role of treasurer remains unfilled, and this is a vitally important task that cannot easily be carried by myself or by the board in addition to our existing tasks. It is my experience in three IASA boards that open doors go both ways. We give some of our time and our personal resources, but we get so much more in return. The person who would fill the role of treasurer would preferably be residing in a country whose banking system works with Euros. However, with today's Internet banking, the treasurer could be anywhere in the world with an Internet connection, and we would be open to developing processes and systems that would enable it to work. Your geographical location should not determine your ability to become involved! An organized individual who would like to take this task on, who would enjoy getting to know the membership and revel in the inner fabric of a well-run organization, would yield great personal and professional benefits from this opportunity.

I encourage you to become involved more deeply in IASA, and I look forward to seeing you all in Vilnius.

Sound regards,
Jacqueline von Arb
President

COPYRIGHT VS ACCESSIBILITY: THE CHALLENGE OF EXPLOITATION

Retha Buys (SABC Radio Archives, Johannesburg, South Africa)
Ilse Assmann (formerly SABC Media Library, Johannesburg, South Africa; now Head MAM/Library & Archives, M-Net, Johannesburg, South Africa)

1. Introduction

In his book, *An Introductory History of British Broadcasting*, Andrew Crisell muses that the reason for the instant success of broadcasting (or radio for that matter) was that:

> "…broadcasting was the first genuinely live mass medium since 'theatre' because it was instantaneous: its messages were received by its audience at the very moment they were sent; they were not fixed messages in the form of printed texts and photographs or recordings of sounds or moving images. From 1922 radio transmitted live sound to a private, domestic audience, and from 1936 television provided the same kind of audience with live sound and live moving pictures."[1]

South Africa was no different and, in terms of radio broadcasts, did not lag far behind the rest of the world. The South African Broadcasting Corporation (SABC) was formally established as the country's public broadcaster by an Act of Parliament in April 1936, with approximately 750,000 listeners. Provision for television was made in the draft Bill, but at the time television was considered impractical and too expensive.[2] Television did not become a reality in South Africa until 1976, which gave radio (and in particular, Springbok Radio as the first commercial broadcast service in South Africa) the perfect opportunity to develop and become the so-called 'theatre of the mind' in every sense.

Springbok Radio was born when the SABC accepted that commercial funding was needed to cover the costs of, amongst others, equipment and salaries. It is interesting to note that the SABC Board had for many years resisted a commercial station, but by the mid-1940s it was clear that sooner or later commercial radio would have to be considered.[3] Springbok Radio was introduced in 1950 as a bilingual (English and Afrikaans) commercial service with a commitment to promote local music and talent.[4]

Springbok Radio was immediately a resounding success. By 1952, Springbok Radio was the main source of advertising revenue, and the first national market research survey of radio stations done in 1952 showed that Springbok Radio had 632,000 adults listening to it on an average day. At the height of its popularity, it had an audience of over two million. For thirty-five years, Springbok Radio ruled the airwaves by catering for a wide spectrum of listeners, through dramas, children's programming, sports, news, request programmes, serials, and competitions. It enabled radio personalities to become hugely popular, since this was the era of the radio star.[5]

And then came television …

Springbok Radio closed down in 1985, almost ten years after the launch of television, without much of its content being preserved by the SABC and very little documentation surviving the closing of the station.

1 Crisell, Andrew, ***An Introductory History of British Broadcasting***, (London: Routledge, 1997), 4.
2 "Radio Broadcasting in South Africa," accessed 18 September 2012, http://myfundi.co.za/e/Radio_broadcasting_in_South_Africa.
3 SABC, "The SABC…informing a nation…inspiring the future," SABC Corporate Heritage Profile, 2011.
4 "Radio Broadcasting in South Africa."
5 "Radio Broadcasting in South Africa."

The Springbok Radio Preservation Society (SRPS), formed by enthusiastic Springbok Radio collectors, centralised most of the material gathered over the years by various collectors. It also kept the memory of Springbok Radio alive via a website, www.springbokradio.com, and a web stream. The almost cult-like following of Springbok Radio resulted in a unique relationship between the Society and the SABC through which the Society approached the SABC to ensure that the collection would find its way back to the SABC. The collection and the exploitation of the content were handed back to the SABC in terms of an agreement between the SABC and the SRPS in 2012.

Exploitation of the material, fuelled by the belief of the SABC Radio Archives that any Old Time Radio (OTR) material is only as valuable as the ears it reaches and the memories it awakens, faces numerous challenges, of which copyright is the greatest—especially regarding commercials and signature tunes. The SABC Radio Archives has been struggling to find copyright information relating to the collection for many years. Today, SABC is still on this quest.

This paper will seek ways of enabling exploitation when little or no information exists regarding copyright. How do we make the past available for today with little or no information and resources?

2. Background

2.1. OTR

Old Time Radio or the *Golden Age of Radio* has become synonymous with the period of radio broadcasting before television replaced radio as the primary home entertainment medium. One can simply do an Internet search on OTR to see how it has expanded over the years. To understand the rise of this movement, it helps to understand nostalgia. Rob Sheffield, as quoted by Goodreads Inc., states that "the times you lived through, the people you shared those times with—nothing brings it all to life like an old mix tape. It does a better job of storing up memories than actual brain tissue can do. Every mix tape tells a story. Put them together, and they can add up to the story of a life."[6]

The exploitation of the Springbok Radio collection is driven by this OTR phenomenon. Margaret Logan says the following about Springbok Radio: "Destined to become a legend in the memories of many listeners, Springbok Radio became a familiar presence in private homes, and also in public and work places such as cafes, supermarkets, factory production lines, hairdressing salons, exhibitions, and show grounds. Springbok Radio would go to lengths to record programmes, and comedy programmes such as *Men from the Ministry* and *Father Dear Father* were recorded in front of audiences on luxury ocean liners at sea and in mining towns in South West Africa (now Namibia)."[7]

Logan feels that Springbok Radio's success may have "something to do with the fact that despite an exclusively white English and Afrikaans-speaking management and staff, Springbok Radio became a household name for first-language English and Afrikaans speakers categorized as non-white, African language speakers and immigrants."[8] The announcer on duty played an enormous role in this success through wisecracks, telling jokes and entertaining anecdotes, and light-hearted chatter. And even the unavoidable advertisements and infectious jingles helped to make Springbok Radio memorable. Many of those advertisements and jingles lived on in listeners' memories, to be recalled decades later.

And that is why it is important to bring listeners the memories of Springbok Radio: it is about the stories, the memories, and the reasons for the memories.

6 Rob Sheffield, quoted in Goodreads, http://www.goodreads.com/quotes/tag/nostalgia.
7 Margaret Elaine Logan, "The Whiteness of South-African English Radio Drama: A Postcolonial Study of the Rise, Decline and Demise of a Dramatic Sub-Genre," (MA diss., University of South Africa, 2009).
8 Logan, "The Whiteness of South-African English Radio Drama."

When asked on the Springbok Radio's Facebook page why people still needed to listen to Springbok Radio, the responses were interesting:

> "Kind of like thumbing through old photo albums" —Gikas Markantonatos
>
> "Takes me back to my childhood before TV when my brother and I would lie in our bunk beds and listen to *Squad Cars*" —Hari Conidaris
>
> "Often the stories are much more exciting compared to watching TV! My imagination adds so much more to the story"—Richard Briscoe[9]

Owens Lee Pomeroy, as quoted on the Mama's Empty Nest Blog, summed it up beautifully: "Nostalgia is like a grammar lesson—you find the present tense, but the past perfect!"[10]

2.2. The collection

The Springbok Radio collection currently holds 527 hours of catalogued material and 4,283 hours of un-catalogued programmes. The backlog or un-catalogued material contains LPs, cassettes and mostly ¼-inch tapes, while the permanent, or catalogued, collection is mostly preserved on CD-R. The master ¼-inch tapes are always kept as first generation copies. The programmes in the collection comprise dramas, serials, documentaries, music and variety programmes, programmes for children, as well as quiz programmes. Springbok Radio is best remembered for its stories, both English and Afrikaans, and the genres of these stories vary from detective stories like *Inspector Carr Investigates*, to comedy such as *The Men from the Ministry*, to science fiction, such as *SF 68*.

At first the station re-broadcast material from foreign authors, especially from the UK, Australia, and the US—for example *The Men from the Ministry, Address Unknown, Friends and Neighbours,* and *The Avengers*. According to Pumamouse, the originator of the OTR website www.pumamouse.com, which also carried the Springbok Radio story for many years, many of the Australian serials broadcast in South Africa were adapted from material originally broadcast in the US. These included the popular *Superman* (which was broadcast from 1950–1967), and other children's serials such as the *American Lone Ranger* and *Hopalong Cassidy*. Evening programmes, such as the original *The Creaking Door* series, broadcast from 1952, were also imported. Monday evening's play-hour, originally entitled *Lux Radio Theatre*, and *Wednesday's Radio Playhouse* were both greatly indebted to American and Australian plays during this period. According to Margaret Logan more than sixty per cent of all drama programmes on Springbok Radio were initially imported, mainly from Australia.[11]

Soon the potential of Springbok Radio was recognised by producers, actors, and sponsors. The cultural boycott during the Apartheid years (which saw the majority of British and American writers banning the use of their work in South Africa), and the need to extend successful serials like *The Men from the Ministry,* contributed to more local content being produced. This, in turn, created opportunities for local authors, actors, producers, and sponsors to make their mark. Local production houses, such as Sonovision Studios and Olympia Recording Studios, among others, played a huge role in the creation of local content. From these studios popular

9 "Springbok Radio Revisited," Springbok Radio Revisited, accessed September 2012, https://www.facebook.com/pages/Springbok-Radio-Revisited/158865447538194?ref=hl.

10 "Mama's Empty Nest," Mama's Empty Nest, accessed September 2012, http://mamasemptynest.wordpress.com/2011/07/30/nostalgia-lesson-past-present-and-future.

11 Logan, "The Whiteness of South-African English Radio Drama."

programmes such as *High Adventure* and *Squad Cars* saw the light and gave Springbok Radio a definite local flavour. Springbok Radio was restricted to texts that were out of copyright, and the situation at the time resulted in extra work that benefited local scriptwriters in particular, and actors, producers, and production houses in general.[12]

Owing to the commercial nature of Springbok Radio, external companies sponsored radio programmes, and sponsorship agreements determined the broadcasts and recording of programmes. This practice lasted until about 1976 and complicated the ownership of broadcast material considerably, as it added another stakeholder in the ownership and rights of specific programmes. In some cases, for example *Jet Jungle*, or the *Skip Show 21,* the title of the program was directly linked to and registered by a company, with the result that these programmes can still not be used without permission from the original sponsors.

The commercial nature of Springbok Radio and the re-use of ¼-inch tapes for recording other material seemingly resulted in very little of Springbok Radio surviving. The SABC Radio Archives was established only in 1964—almost thirty years after the establishment of the corporation—and focussed on the preservation of the public broadcast programmes. A call made to listeners during the 1990s, and more recently through social media, brought the SABC Radio Archive into contact with Springbok Radio collectors who had recorded the material and with producers who happened to have kept their productions. The SRPS did most of the groundwork to collect the material, but new finds are still made. Although an agreement is now in place with the SRPS, and Springbok Radio material has found its way back into the SABC Radio Archives, it remains a time-consuming and delicate process to build trust relationships with collectors to the extent they are willing to part with or share their collections.

The preservation of the material is a challenge in itself, since much of it, coming from private collectors, is in a very bad state: firstly because of poor recording quality, but also because of the degeneration of carriers. It is therefore critical for the material to be digitized and stored in an accessible manner, not only for future exploitation purposes, but also so as not to repeat the mistakes of the past regarding the safekeeping of this broadcast cultural gem.

3. The challenge of exploitation

The question may arise as to why it is important to exploit Springbok Radio. Firstly the current demand is great enough to justify the trouble, and secondly an ongoing interest in the collection may keep Springbok Radio and what it had to offer alive for generations to come.

In his article, *The Long Tail*, Chris Anderson's reasoning that material not part of the mainstream may at long last be accessible in the digital domain is of interest regarding the exploitation of the Springbok Radio collection. Technology provides the means to get the material out there without the limitations of mainstream media. Anderson is also of the opinion that exploitation in the digital era requires less of a one-size-fits-all product and enables niche market targeting more than ever before with less effort, less costs, and at less risk.[13] The Centre for Popular Memory, situated in Cape Town, stated on an earlier website that "through the use of digital technology we now have the means to effectively fulfil our wishes of accessibility—this means that the fragile, but extremely important stories of the past which inform the present, can be available for use in schools, urban and rural centres, and across the globe through the worldwide web... This process also ensures that our audio recordings are digitally preserved for future generations."[14]

12 Ibid.
13 Chris Anderson, "The Long Tail," ***Wired Magazine***, October 2004, Issue 12.10.
14 "Digital Access," Centre for Popular Memory, accessed September 2012, http://www.popularmemory.org.za.

The Springbok Radio collection does find value in digital exploitation of material by means of a bi-weekly audio stream consisting of a package of the programmes that loops every six hours. But even in the digital era, exploitation of the Springbok Radio collection is not a simple matter. Challenges remain in the form of access (specifically referring to technology), funding and resources, and especially copyright.

Access to the Springbok Radio collection is of utmost importance. Recently, after the official handover of the archives from the SRPS to the SABC and media coverage of the event, requests for the material skyrocketed. Listeners want to remember. The continued interest in the Springbok Radio collection can and will benefit from digital technologies, but even if access can be expanded, copyright is by far the biggest challenge in exploiting the Springbok Radio collection.

3.1. Copyright

In South Africa the Copyright Act no. 98 of 1978 governs copyright. The Springbok Radio collection is specifically influenced by copyright in literary or musical works, sound recordings, and copyright in broadcasts, as well as matters pertaining to moral rights and assignment of licenses. The basis of South African copyright law stipulates that copyright belongs to the author or creator of a work up until fifty years after his or her death.

In principle, three types of ownership impact Springbok Radio and the exploitation of its content, namely:

- imported programmes, of which the copyright obviously lies with the original creators thereof,
- adaptations of literary works, but also of foreign serials, which brings the issue of format licensing to the fore, and
- locally commissioned programmes.

In the case of imported programs, contractual permission should be obtained from the companies or individuals who own the copyright of the programme/s. It is not always clear whether ownership resides with a company or an individual, since, in the case of much of the older material, contracts no longer exist, or never existed.

Regarding adapted works, chapter 1, paragraph 6 of the Copyright Act states that permission is needed for re-broadcast thereof. This entails not only permission from the original creator/s of the work, but also of the person/s who adapted the material for broadcast purposes. Chapter 12 of the Act stipulates that, in the case of literary adaptations, programmes may be archived but only rebroadcast with permission from the original creator of the work.

Adapted and format-licensed programmes agreements were usually verbally agreed, based on friendship amongst the authors, artists, and producers; very few formal agreements were concluded on the conditions and ownership of these programmes.

For commissioned programmes, ownership seems relatively simple. However, chapter 9 of the Copyright Act states that permission should be granted for recording of material and that royalties should be paid to relevant copyright owners and participants in case of re-broadcast thereof. Contracts stipulate the conditions of recordings and payment of royalties. Once again the non-existence of contracts complicates the matter.

Of particular interest to the exploitation of Springbok Radio is chapter 21 of the Act, which states that ownership of copyright in commissioned works lies with the one who commissioned it, and if a work was created during employment at a certain company then copyright belongs to the company. For Springbok Radio, quite a number of programmes were commissioned by the SABC; therefore, to the best of our knowledge, the copyright thereof belongs to the SABC. But that only deals with commissioned programmes, not

with format licensed programmes or adaptations. Another point of interest is assignment of copyright of licensing to another party by means of inheritance or any other means, which further adds to our challenge.

According to Sizwe Vilikazi of the SABC's legal department, "with Springbok Radio being an old radio station, one of the difficulties faced while exploiting and re-using some of the content is that there are no acquisition contracts, so it is not known how that content was acquired, whether it was licensed or commissioned content. The safest way in dealing with this type of content is first to consult all the available and traceable interested parties to ascertain what rights, if any, do they hold in this content."[15] Denise Nicholson, a Copyright Services consultant at the University of the Witwatersrand, is also of the opinion that commissioned works generally belong to the person who commissioned the work.[16]

The biggest challenge is therefore with format licensing. If recordings were based on a programme of which copyright belongs to another party and no contract exists (since many of these agreements were verbal and based on friendship), it becomes very hard to decide if exploitation of locally produced recordings should consider the holder of the format license. The general feeling is that the locally produced recording should not pose a problem, since decisions can be based relatively safely on the knowledge that some form of agreement existed, and that parties involved usually had the love of radio as motivator. At face value this would not hinder further exploitation of the material at no cost, but there remains a risk that a license holder might dispute the exploitation of the material, which could pose serious problems.

Ethical issues regarding the collection versus the law are also important. An interesting fact is that most of the material in the collection that has been handed back to the SABC have been obtained illegally by the collectors by means of home recordings. Even though collectors can be challenged, a blind eye is usually turned, and collectors drawn into partnership rather than hostility.

3.2. Exploitation

What exactly then is the challenge regarding Springbok Radio and copyright? It is the lack of documentation.

Very few contracts and/or agreements survived the era, if they ever existed. The SABC has access to a couple of contracts with artists who performed in productions, but other than that no formal sources exist to search for copyright details of programmes. Taking the law into account, one can easily step on toes when exploiting material, which is what the SABC would prefer to avoid. For the most part the SABC Radio Archive is dependent on people's memories regarding agreements pertaining to production, but without proof it is very difficult to challenge a claim made regarding copyright.

It is also not known what the contracts stipulated regarding the re-broadcast of material, exploitation, or the level of involvement of production houses. A couple of questions need to be asked before any of the material can be exploited:

- Was the production commissioned by the SABC? *If yes, what was the agreement between the SABC and relevant parties?*
- Is the production an adaptation of a literary work? *If so, who does the copyright and the copyright of the adaptation belong to?*
- Is the production a re-broadcast of foreign material? *If so, who owns the copyright?*
- Is the production based on another programme? *If so, who owns the format license?*

15 Sizwe Vilikazi, [Interview], 26 September 2012.
16 Denise Nicholson, [Interview], 26 September 2012.

Quite often ownership of copyright cannot be established, which leaves the collection with some orphan work status. In order to ensure that such works do not remain untouched, the EU is currently debating this issue, proposing that laws should be changed in order to make possible the legal exploitation of works where copyright cannot be established or copyright owners cannot be located or contacted. This debate might have a positive impact on South African copyright law and practices.

According to Denise Nicholson, "in terms of the SA copyright law, it is not lawful to reproduce material, unless the copyright term has expired (lifetime of the author plus 50 years to the end of the year in which the author died)." If it is deemed necessary, disclaimers should be added to these works. The disclaimers should state that "several attempts have been made to get permission without success, inviting anyone who knows the rights holders to come forward to negotiate licences or charges relating to the material."[17]

The question therefore arises: Does protection of the individual's rights outweigh the universal right to access? The SABC Radio Archives strongly believes that the material needs to be exploited, but that all risks must be considered when doing so. Extensive research needs to be done for each case to ensure that everything has been done to establish rights. However, time is of the essence. A balance needs to be found between time spent on finding the almost impossible and taking a leap for the benefit of the users.

4. The way forward

Various suggestions are currently under consideration regarding copyright and access. Firstly, after all resources have been exhausted, or relative surety exists regarding the ownership of copyright, an account should be opened to cater for claims should these arise and an agreement not reached. Secondly, partnership with other archives should be established in order to share information they might have regarding copyright issues, which includes the Springbok Radio collection. Such cooperation increases the chances of successfully unravelling the puzzle. Thirdly, it is simply courteous and best practice to always try to involve and get the blessing of license holders. Thus buy-in from stakeholders is critical. If they understand the importance of the collection and the exploitation thereof, the necessary resources might become available more easily, and Springbok Radio could be kept alive for a long time to come.

Accessibility to Springbok Radio content is not only with the intent of long-term exploitation, but primarily to satisfy the current desire for nostalgia. Achieving accessibility can be severely hindered by ownership or copyright issues, and requires the archivist to become a detective, continuously investigating, following up on leads, verifying evidence, and distilling facts from myth until the picture is complete. In this context, the SABC Radio Archive has accepted the challenge in terms of the current demands by listeners to gain access to OTR for 'old time's sake' and to ensure that Springbok Radio will retain its value as a historical and cultural resource in the future.

In a world full of challenges, Old Time *anything* reminds us in general of good times in the past, and gives hope for the now. That is why the SABC Radio Archives will continue its efforts to overcome the challenges of exploitation in a bid to make Springbok Radio accessible to its listeners. In so doing, the SABC Radio Archives are contributing to the broad mandate of the SABC as the South African public broadcaster.

17 Nicholson, 2012.

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DIGITAL COMMUNITY ARCHIVES FOR VERNACULAR MUSICS: CASES FROM INDIA[18]

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Archives, Derrida tells us, are a notion, a malleable genre.[19] The word has been used to signify varied assemblages of people, spaces, bureaucracies, and technologies, engaged in identifying and preserving documents of history and memory.[20] With digital technologies, this malleability is remarkably amplified as the notion has expanded from closed collections associated with authority to decentralized ones that allow for variable access. In recent times, archives have been called upon to accomplish a wide range of conceptual work. They manifest equally frequently as curated projects, as accidental accumulations, as retroactive identifications, and as nascent ideas. They describe institutions, collections, websites, embodied repertoires, and popular memories. The proliferation of digital technologies for documentation and dissemination in the past decade has resulted in the emergence of new kinds of informal practices of vernacular music archiving among cultural heritage communities.

This article draws upon ethnographic research in small towns in north India with local small-scale initiatives to archive oral vernacular musics—musics described as folk and tribal. It explores the varied ways in which digital audiovisual archives of vernacular musics may materialize and circulate in the present day. Such community-based initiatives present curious alternatives to formal audiovisual archives, emerging through located relationships between people, musics, and technologies. My concern is with tracing the evolving relationships between communities, archivists, and musics through the mediation of digital technologies, examining how contextual technological practices may contribute to archival forms. Methodologically, my approach is informed by actor-network theories[21] that view both human and non-human actors as agentive participants in social constitutions. Such an approach is especially productive in understanding how material changes associated with new technologies are integrally linked to social practices. Further, I suggest that such archives may be fruitfully viewed as gestures of community members towards claiming multivalent subjectivities—as cultural mediators and as technological experts. Archiving functions in these contexts as an aspirational practice[22]—a mode of reification of precariously located vernacular identities and the coalescence of communities through technological modes around the notion of music in particular, and culture in general.

1. Cultural heritage communities and archives: changing relationships

The term 'archive' most recognizably invokes notions of formal institutions, often associated with authority and entrusted with the task of preserving official documents of history. As an institutional practice, the audiovisual archiving of vernacular musics cannot be separated from histories of colonial regimes and ethnological documentation of colonial people as a mode of governance. Globally in the past few decades, formal audiovisual archives, along with other kinds of cultural institutions, have actively begun to develop more equitable models that attempt to repair the violence in such histories. Discourse on equitable archiving has encouraged archives with holdings of vernacular musics to collaborate with cultural heritage communities in various man-

18 This article is based on ethnographic fieldwork conducted in 2011–2012 in the states of Rajasthan, Gujarat, and Maharashtra in India. The research was supported by the European Research Council funded project Music, Digitisation, Mediation: Towards Interdisciplinary Music Studies at the University of Oxford and headed by Professor Georgina Born.

19 Jacques Derrida, ***Archives Fever***, (Chicago: University of Illinois Press, 1995).

20 Marlene Manoff, "Theories of the Archive from Across the Disciplines," in ***Libraries and the Academy***, Vol. 4:1, 9–25, (Baltimore: The Johns Hopkins University Press, 2004).

21 John Law and John Hassard, ***Actor Network Theory and After***, (Wiley-Blackwell: Oxford, 1999).

22 Arjun Appadurai, "Archive and Aspiration," in ***Information is Alive***, (Rotterdam: V2 Publishing, 2003).

ners: repatriating archival holdings, developing new collections, and developing new modes of dissemination, among other manners. Digital technologies for replication and dissemination are fundamental to the development of such new models.[23]

Simultaneous to such attempts on behalf of institution-based archives, technologies for documentation and dissemination have also stimulated informal and dispersed activities among vernacular communities. I refer to such initiatives as community archives. In contrast to a neutral stance assumed by official archives, such initiatives often express a deeply subjective, emic relationship to the musics. That is, those engaged in building the archives believe that they are insiders among the people who customarily practice and patronize the music: that they are archiving their own music. A second idea implicit in the model of the community archive is that the contents of the archive may be located and shared among members of the community whose music is being archived; that is, they intend as much to be archives of the community as for the community. (To what extent they realize both claims, is a question for another day.)

Such community archives that were part of my research were based in two distinct musical regions in northern India: Rajasthan—a region renowned nationally and internationally through its vernacular culture including the musical practices of hereditary practitioners; and the Adivasi (tribal) region at the cusp of the two states of Gujarat and Maharashtra where oral culture is closely linked to tribal identities in the context of gradual erosion of tribal languages. In spite of their self-proclamation as insiders, the initiatives were often part of national and transnational networks of influence, demonstrating a spectrum of relationships between archivists and musics. For the cultural organization Lokayan Sansthan in the small city of Bikaner in north Rajasthan, the impetus to archive local musics was partly rooted in its collaboration with a metropolitan media project, the transnationally connected Kabir Project based in Bangalore. Given the Kabir Project's interest in mystical music, Lokayan's recent work focused largely on documenting such practices from the Bikaner region. The Manganiar Lok Sangeet Sansthan in the tourist town of Jaisalmer was established by Khete Khan, himself a Manganiar musician. The Manganiars are a widely known hereditary musician community in northwest Rajasthan, having been extensively researched and documented by national and international scholars. For Khete Khan, his institution was an explicit attempt to present the music and cultural forms of his community from an emic perspective. At the same time, however, the institution was part of the Archives and Community Partnership program conducted by the New Delhi-based Archive and Research Center for Ethnomusicology from whom it received technological and institutional support. The archive at the Adivasi Academy in the small village of Tejgadh in Gujarat was part of its museum centered on regional tribal cultures. The museum-archive was shaped by complex non-local influences, most crucially, the vision of its founder, language scholar Dr. Ganesh Devy, and the participation of professional vocalist Prachi Dublay who helped to collect and then transcribed the tribal songs. At the same time, it was developed with an explicit philosophy of reclaiming a tribal voice that had been silenced by colonial and postcolonial histories. The music collection was being developed and managed, quite autonomously, by Naran, Vikesh, and Neepa—three members of the tribal Rathwa community, all of whom had completed diploma courses in Museum Studies offered at the academy.

2. Vernacular music archiving in local technological contexts

In addition to their local commitments and wider connections, what crucially shaped these archives, however, was the particular techno-social fabric peculiar to small

23 See Anthony Seeger, "New Technology Requires New Collaborations: Changing Ourselves to Better Shape the Future," in ***Musicology Australia*** 27:1, 2004, 94–110, or Caroline Landau and Janet Topp-Fargion. "We Are All Archivists Now: Towards a More Equitable Ethnomusicology," in ***Ethnomusicology Forum,*** 21:2, 2012, 125–140.

towns and villages in most parts of India. Small-scale local initiatives for archiving vernacular musics had emerged in spurts in the 1980s along with the popularity of cassette technologies that allowed for decentralized recording. In the past decade, the ubiquity of digital technologies in these contexts for music recording, consumption, and dissemination had provided a new impetus. Integral to the technological practices were electric breakdowns, technological delays, cheap digital media devices, and grey music economies—a context that Ravi Sundaram[24] describes as 'recycled' or 'pirate' electronic modernity, and that is akin to Brian Larkin's[25] discussions of the fractured access to technological infrastructures in Nigeria. Digital music consumption appeared primarily in the form of cheap multimedia devices that have rapidly pervaded India in the past decade: mobile phones, memory cards, USB drives, and mp3 players. The modes of music circulation were largely through a grey economy centered on digital music downloads and through informal exchange of music between consumers. The music that circulated on these cheap devices was predominantly commercial music produced in mainstream Hindi and local vernacular music industries, but also increasingly, informally-made recordings of local live music concerts.

Such local technological contexts inflected the small-scale and resource-scarce character of the archives that emerged. Archivist Marlene Manoff[26] points out that the ease of collecting and organizing information that digital technologies offer is in itself an incentive to archive. The apparent affordances of technologies, however, are always embedded in the sociality of their usage. For the archivists in my narrative, their archives consisted of recordings made on inexpensive audio recorders and camcorders and stored, often with minimal annotations, on computer hard discs and external hard drives. Such documentation, moreover, was integrally linked to its decentralized dissemination through offline and online modes. Indeed, the possibility to introduce the digital files into informal networks of music circulation was imagined as a key component of the archiving assemblages. For instance in 2012, the archive in Tejgadh produced a set of CDs of selected tribal songs from their collection. Vikesh, one of the archivists, explained that they had handed some sets to drivers of shared shuttle vehicles in the region, presumably to be played in the vehicles as they transported passengers. He also expressed hope that regional vendors of digital music would rip these CDs and thus circulate the music in wider networks of local grey economy and non-economic exchanges. In Bikaner, there was an additional hope that such archiving could be partly translated into commercial projects produced in the vernacular music studios, allowing for live music repertoires to enter local markets for commercial popular musics.

The centrality of sharing to archival imaginaries of community archivists was predicated necessarily on unclear notions about ownership over vernacular musics and their recordings. Debates in recent years about the proprietary nature of vernacular musics (as representative of intangible cultural heritage) center on varied conceptions of their status: their perception as heritage and hence part of a public domain; their invocation as cultural property and hence owned by customary communities of practice; and their inclusion within legal regimes as the intellectual property of individual performers. Archives are often at the cusps of these questions as they grapple with providing access to what is regarded as heritage while also respecting the intellectual property rights of communities and performers. If several established archives that I encountered during research attempted to address questions of copyrights in archival recordings, awareness and concern of legal aspects were minimal in informal initiatives. This particular stance threw into sharp relief varied conceptions of the nature of proprietary relationships in traditional cultural forms.

24 Ravi Sundaram, ***Pirate Modernity: Delhi's Media Urbanism,*** (Routledge: Oxon and New York, 2009).
25 Brian Larkin, ***Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria,*** (Durham, NC: Duke University Press, 2008).
26 Marlene Manoff, "Theories of the Archive from Across the Disciplines."

Especially among community archivists, local live music traditions were viewed as embedded in customary social structures. In all three locations of my research, archivists expressed that the vernacular musics being documented belonged as much to the performers as to the community as a whole—including archivists. Performers were variedly remunerated for their recordings; however, archival recordings of vernacular musics were not seen as within copyright regimes that ensured performers' rights over replication and circulation. Further, in one instance, the archivists also accessed local gray markets to search for informally (and often illegally) made recordings of live music concerts to be included in their archive. The inadvertent disregard for intellectual property considerations, while it clashed with legal regimes, reflected both the 'recycled' technological imaginary that I discuss in the previous section as well as oral knowledge practices that rely on circulation as a mode of preservation. Such unregulated circulation under the pretext of community ownership also assumed a social homogeneity that conflated local hierarchies.

On the other hand, such claims to belonging also rendered community archives as sites of contestation where investments in musics were negotiated. For instance, the case of the archive for Manganiars in Jaisalmer: Khete Khan aimed to build a repository of emic knowledge that would be locally available, recording interviews with master musicians, music lessons, and religious ceremonies. Through the archive, he attempted to claim agency over the knowledge about the Manganiar community; the success of his archive, however, was difficult to ascertain. On the one hand, Khete Khan's technical and research skills were limited in developing an archive that could be used effectively as a resource; given his limited literacy in English, managing and organizing the digital files on his computer were a challenge. On the other hand, not all Manganiar musicians appeared to agree with his conviction about a community archive. Rather, for most Manganiar musicians, it was easier to accept an external institution as a central archival space. Further, I heard elsewhere that Khete Khan's access to technologies, and his claim to cultural expertise had led to his partial marginalization within the community.

3. Technologies and new subjectivities

Amidst such complexities, for Khete Khan and other archivists, the practice of archiving was a personally meaningful project. This meaning laid partly in the potential to share and disseminate holdings through the platform of the Internet. Within an expanding archival imaginary, parts of the collections in all three initiatives were being developed as curated online archives. Given their wider national associations, such intentions of addressing online audiences were not surprising. However, it also begged the question of what such online circulation may accomplish for archivists. Arjun Appadurai has stated: "[Electronic] archives viewed as active and interactive tools for the construction of sustainable identities are important vehicles for building the capacity to aspire among those groups who need it most."[27] I suggest that in presenting music archives online, archivists aspired to assert vernacular identities centered in the idea of culture as well as to connect with an (imagined) digital community of sympathetic and interested audiences. In the process, the practice of archiving served as a performative assertion of their location as cultural mediators between local communities and wider audiences and as global digital subjects.

Nowhere was this point more poignantly demonstrated as in the case of the Adivasi Academy archive in Tejgadh. Academy founder, Dr. Ganesh Devy, has described the condition of tribal communities in the region through the metaphor of aphasia, a neurological disorder that causes loss of speech and language skills.[28] According to him, the loss of languages and oral culture has resulted in tribal communities being rendered, literally, speechless. The recording of sound in these regions in such political context represents a

27 Arjun Appadurai, "Archive and Aspiration," in *Information is Alive*, (Rotterdam: V2 Publishing, 2003), 25.
28 Ganesh Devy, *A Nomad Called Thief: Reflections on Adivasi Silence*, (New Delhi: Orient Longman, 2006).

conquering of this aphasia—a recovery of communicative abilities. Circulating and sharing the recordings outside the community completes the communicative act. For archivists at the academy, providing access to the music through online modes and thereby acquainting the world with the uniqueness of tribal culture was vital to archiving. It was an assertion of cultural identities marginalized from mainstream society—identities around which a larger political community may coalesce.[29] However, as important as the possibility for self-representation in this context was the direct engagement with technologies as a mode of acquiring coevalness with mainstream society. Archiving, here, emerged as a multivalent practice that served not only to achieve the immediate goal of music documentation but also to redress inequities perceived by cultural heritage communities through technological modes.

4. Conclusion

In this paper, I have attempted to lay out the forms of community archives for vernacular musics through ethnographic research with a range of such initiatives in India. The emergence of such grassroots archives, I suggest, is embedded in the technologies that are part of local socialities. The notional nature of the archive that I refer to at the beginning of the paper entails a multiplicity of manners in which they may materialize; the specific manners of materialization are contingent upon local meanings of technologies. The technocultures of community archives present strong contrasts with those of most formal institutions that often aspire to standardization in preservation technologies as well as institutional policies for access and dissemination. On the other hand, as is evident in the three initiatives that I discuss, given the possibility to maintain music collections simultaneously in multiple places, more established archives may connect with community-based initiatives in search of collaborative partnerships.

Such dispersed initiatives, however, beg another key question: how, within predominantly normative conceptions of archiving, may one understand intersections between musical investments, technological practices, and the crafting of new subjectivities? This question needs to be answered crucially with the recognition that the kinds of grassroots archives that I discuss are responses to colonial and neo-colonial histories of the very practice of archiving. Indeed, the community archivists I met often aimed to reclaim the possibility to self-represent their musics and cultures. In the vein of Appadurai's implication in connecting archives to the capacity of communities to aspire, I suggest that the production of community archives for vernacular musics is perhaps less about material aspects of archives management—collection, preservation, and dissemination—as it is about the generative roles that archiving may play in communities.

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INTRODUCING HIGH PERFORMANCE SOUND TECHNOLOGIES FOR ACCESS AND SCHOLARSHIP

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1. Introduction

In August 2010, the Council on Library and Information Resources (CLIR) and the Library of Congress (LoC) issued a report titled *The State of Recorded Sound Preservation in the United States: A National Legacy at Risk in the Digital Age*. This report explains the fact that preserving and accessing sound collections in the humanities is a complex problem. Our sound heritage continues to deteriorate on legacy formats making digitization of the utmost importance, but preservation and access cannot be solved through digitization alone. As Mark Greene and Dennis Meissner remark in their 2005 article "More Product, Less Process," "processing is not keeping up with acquisitions, and has not been for decades, resulting in massive backlogs of inaccessible collections at repositories across the country."[30] The same is true of unprocessed and therefore inaccessible archives of spoken word sound collections that hold important cultural artifacts such as poetry readings, story telling, speeches, oral histories, and other performances of the spoken word. The subject range and number of digitized and born-digital recordings like these that libraries and archives receive for processing is daunting, and it will only increase.

Observing the general dead air in this audio access and preservation soundscape, CLIR's *Survey of the State of Audio Collections in Academic Libraries* and CLIR's report with the LoC, *National Recording Preservation Plan,* cite copyright legislation reform, organizational initiatives for shared preservation networks, and improvements in the processes of discovery and cataloging as the areas where research and development for increasing access are most needed. They call for "new technologies for audio capture and automatic metadata extraction"[31] with a "focus on developing, testing, and enhancing science-based approaches to all areas that affect audio preservation"[32] to help relieve these dark backlogs of undescribed, even though digitized, audio collections. At the same time, Greene and Meissner and the 2010 CLIR report make it clear that audio preservation is contingent on audio use: if scholars and students do not use sound archives, our cultural heritage institutions will be less inclined to preserve them.[33] So too, in order to discern the minimal level of processing needed to create access, Greene and Meissner ask, "What is the least we can do to get the job done in a way that is adequate to user needs, now and in the future?"[34]

In order to identify user and infrastructure development needs and therefore increase access to (and preservation of) significant digitized spoken word sound recordings, the School of Information (iSchool) at the University of Texas at Austin (UT) and the Illinois Informatics Institute (I3) at the University of Illinois at Urbana-Champaign (UIUC) are hosting a year-long Institute in Advanced Technologies in the Digital Humanities funded by the National Endowment for the Humanities called High Performance Sound Technologies for Access and Scholarship (HiPSTAS), the first meeting of which took place in Austin in May 2013. Including

30 Mark A. Greene and Dennis Meissner, "More Product, Less Process: Revamping Traditional Archival Processing," in *The American Archivist* vol. 68, issue 2, 2005, 208–209.
31 A. Smith, *et al.*, *Survey of the State of Audio Collections in Academic Libraries*, (Washington, DC: Council on Library and Information Resources, 2004), 11.
32 Brenda Nelson-Strauss, *et al.*, *The Library of Congress National Recording Preservation Plan*, (Washington, DC: Library of Congress, 2012), 15.
33 Council on Library and Information Resources and the Library of Congress, *The State of Recorded Sound Preservation in the United States: A National Legacy at Risk in the Digital Age*, (Washington DC: National Recording Preservation Board of the Library of Congress, 2010), 16.
34 Mark A. Greene and Dennis Meissner, "More Product, Less Process: Revamping Traditional Archival Processing," 240.

twenty humanities junior and senior faculty and advanced graduate students as well as librarians and archivists from across the U.S. interested in analyzing large collections of spoken word audio collections, the first meeting comprised expert panels and workshops for the participants. The year-long work will include support for use case studies, limited software development, and a final meeting to assess implementation needs. The objectives of the Institute are threefold: (1) to perform an assessment of user requirements for large scale computational analysis of spoken word collections of keen interest to the humanities; (2) to complete an assessment of infrastructure needed for short term (sandbox) and long term (sustainable) access and deployment of supercomputing resources for visualizing and mining large audio collections for humanities users; and (3) to produce preliminary results using these supercomputing resources within an example dataset of interest to the participants.

In particular, this paper will give an introduction to the HiPSTAS project by discussing the impetus for the HiPSTAS project, the ARLO (Adaptive Recognition with Layered Optimization) software we are using for access and analysis, and the basic user requirements that were identified from introducing the participants to ARLO.

2. Background and related work

Current processing workflows that depend on the constant presence of a person who must listen to each recording one-by-one in order to provide discoverable metadata require human resources that are simply impractical. Even though we have digitized hundreds of thousands of hours of culturally significant audio artifacts and have developed increasingly sophisticated systems for digitization, management, and delivery of sound, there is little provision for the kinds of analysis that let one discover, for instance, how prosodic features change over time and space or how tones differ between groups of individuals and types of speech, or how one poet or storyteller's cadence might be influenced by or reflected in another's. There are few means by which a librarian or archivist can discern the genre, the composition, or the quality of an audio file on a large scale. Currently, with analog recordings, a librarian or an archivist must rely on unconfirmed legacy labels on old, dusty boxes and must listen, in real time, to each recording to confirm or describe its contents in descriptive metadata. Listening to an analog recording might destroy it, but listening to each digital recording in order to create metadata is still prohibitive since it requires precious human resources. The same is true of born-digital recordings "made in the field," which can be rushed or produced in such volumes that accompanying metadata is lacking. Yet, to date, there are no widely used technologies specifically designed to augment metadata creation for spoken word collections. Finally, there are no opportunities for those interested in spoken word texts such as speeches, stories, and poetry to use or to understand how to use high performance technologies for accessing and analyzing large collections of sound.

At this time, there are a few free open-source audio and video content management systems that enhance access for end users to audio and video in well-designed environments that work well with repository infrastructures. While Murkurtu has been built with indigenous communities to manage and share digital cultural heritage, the Avalon Media System at Indiana and Northwestern and the Oral History Metadata Synchronization project (OHMS) out of the University of Kentucky are both open source systems specifically designed for managing large collections of digital audio and video files that enable users to curate, distribute and provide online access to their collections for purposes of teaching, learning, and research. There are still other systems that allow users to segment or to create clips and playlists for audio organization such as the Stories Matter Project at Concordia. Finally, there are other professional tools such as Kairos, a lightweight content management framework specifically designed for editing metadata, transcoding (or ripping) and creating derivatives, and synchronizing changes across audio and video files; and GLIFOS (used at the Briscoe Center for American History and the Benson Latin American Collection), which uses a rich-media wiki designed much like Avalon and OHMS to automate the production, cataloging, digital preservation, and access, as well as the delivery of rich-media over diverse data transport platforms and presentation devices. With these tools, archivists and librarians can

link together diverse materials that all relate to a single event, but these are collections that have already been processed, even minimally, with metadata.

This is the day and age when computer performance—in terms of speed, storage capacity, and advancements in machine learning—has increased, however, to the point where it is now possible to automate some aspects of how we discover and catalog large audio collections. The very popular Digging into Data challenge is a testament to the wide array of perspectives and methodologies digital projects can encompass. In particular, the first (2009) and second (2011) rounds of awards include projects that are using machine learning and visualization to provide new methods of discovery. Some analyze image files ("Digging into Image Data to Answer Authorship Related Questions") and the word ("Mapping the Republic of Letters" and "Using Zotero and TAPoR on the Old Bailey Proceedings: Data Mining with Criminal Intent"). Others provide new methods for discovery with audio files by analyzing large amounts of music information—the "Structural Analysis of Large Amounts of Music" and "the Electronic Locator of Vertical Interval Successions (ELVIS)" project—and large scale data analysis of audio, specifically the spoken word (the "Mining a Year of Speech" and the "Harvesting Speech Datasets for Linguistic Research on the Web" projects).

The HiPSTAS project is about leveraging this research and development in the sciences and social sciences and with music and natural language in order to apply it to the problem of creating descriptive metadata for large and important spoken word collections in the humanities such as poetry, folklore, and oral history collections. For example, analysis of the spoken word is related to the work that scholars have done for decades on features of music and bird song that include pitch, tempo, and accent. J. Stephen Downie and Michael Welge developed a system for comparing different music retrieval systems (MIR) for which they received funding from the National Science Foundation. The I3 group also collaborated on NEMA (Networked Environment for Music Analysis), which brings together the collective projects and the associated tools of world leaders in the domains of music information retrieval, computational musicology, and digital humanities research. Examples of how NEMA could be used for music analysis helped in understanding how ARLO could be used in the HiPSTAS Institute for analyzing spoken word audio. The NEMA system, for instance, can be used for genre and mood classification as well as composer identification (corresponding to identifying genre, mood, and author in spoken word audio); for similarity retrieval where similarity is measured on prosodic features of pitch, tempo, and accent or the key or tone of music; and structural segmentation evaluation that identifies the key structural sections in music such as a change in verse, movement, or the addition of a chorus (which can correspond with segmenting stanzas in a poem or sections of spoken audio that contain a story).

3. ARLO (adaptive recognition with layered optimization) software

A significant part of the HiPSTAS Institute includes introducing participants, all of whom had never used advanced machine learning technologies for accessing and analyzing sound, to the ARLO (Adaptive Recognition with Layered Optimization) software. Developed for classifying bird calls and using spectral visualizations to help scholars classify pollen grains, ARLO has the ability to extract basic prosodic features such as pitch, rhythm and timbre for matching, discovery (clustering), and automated classification (prediction or supervised learning), as well as visualizations for spectral matching. The original implementation of ARLO for modeling ran in parallel on systems at the National Center for Supercomputing Applications (NCSA) at the University of Illinois, Urbana-Champaign. As part of HiPSTAS, the I3 team has implemented ARLO on the Texas Advanced Computing Center's Stampede system, one of the largest computing systems in the world for open science research. Subsequently, the I3 team has developed ARLO to take advantage of parallel processing on the super computing system and developed ARLO's interface (and documentation) to allow the HiPSTAS participants to test the machine learning system in real time.

The machine-learning algorithm ARLO uses to find events in audio is called "instance based learning" (IBL). In IBL, the machine memorizes a number of examples and matches them

against new examples to predict events. To find a match in an audio stream is to find it in a certain number of positions per second, which is part of the supervised discovery parameters chosen by the user. ARLO finds matches by taking each known example and "sliding" it across new audio files looking for good matches. The spectrograms used in ARLO show the amount of energy in different frequency bands over time. For example, the spectrograms shown in the figures below are based on a two dimensional matrix of energy which is represented by numerical values. Each row of pixels is a frequency band presented across an X-access of time. The frequency band functions much like an inner hair cell in the human ear as it responds to sound waves. The color of each pixel represents the numerical value of energy of a particular frequency for that point in time or how much the hair tremors. The energy value represents the total energy a hair cell (tuning fork) has at a given time, which represents the sum of potential energy (the deflection of the fork or hair) and kinetic energy (based on the speed of the movement). The spectrogram shows a map of that energy relationship at any point in time with a heat-based color scheme. The lowest values are black (cool), and then blue, green, red, yellow, and the points with the highest or most intense energy values are white.

Figure 2 shows three voices saying the same three-word phrase—"some such thing"—reading from Gertrude Stein's novel *The Making of Americans*. From left to right is a computer-generated voice, Gertrude Stein, and then Gregory Laynor, an experimental artist who sings the novel from start to finish. It is easy to see through the visualization the differences between the regulated computer voice on the left, Stein's more dramatic emphasis (on "some") and de-emphasis (on "such") of the words, and Laynor's sung version in which the words tend to bleed into each other. Figure 3 shows an excerpt from Ezra Pound's Canto XLV recorded in Washington, D.C., 1958 (top) and at Harvard University, Boston, Massachusetts, 1939 (bottom) from the PennSound archive. The recordings produced almost twenty years apart sound almost identical but similar words (in this case "usura") appear differently in the spectrogram due to differences too subtle for the human ear. Figure 4 shows an example of Pound's choice to use the word "design" in the first reading, and "delight" in the second reading of the same poem. Figure 5 shows the once hidden recording of Robert Frost reading "Stopping by Woods on a Snowy Evening" among other poems on Side B of folklorist William A. Owens' recordings within the Oral History of the Texas Oil Industry Records at the Dolph Briscoe Center for American History at the University of Texas, Austin. Currently a user can only discover the recording because a diligent archivist included that fact in the metadata. Figure 6 shows an excerpt from a 2007 interview with Larry Aitken, the tribal historian from the Leech Lake Band of Ojibwe conducted by Dr. Tim Powell when he was director of the Center for Native American studies at the University of Pennsylvania. The second image has been tagged by a user to show the different ways that English, spoken Ojibwe, drum-beats, and chanting are visualized. With enough such examples, ARLO can be trained to automatically identify these different genres.

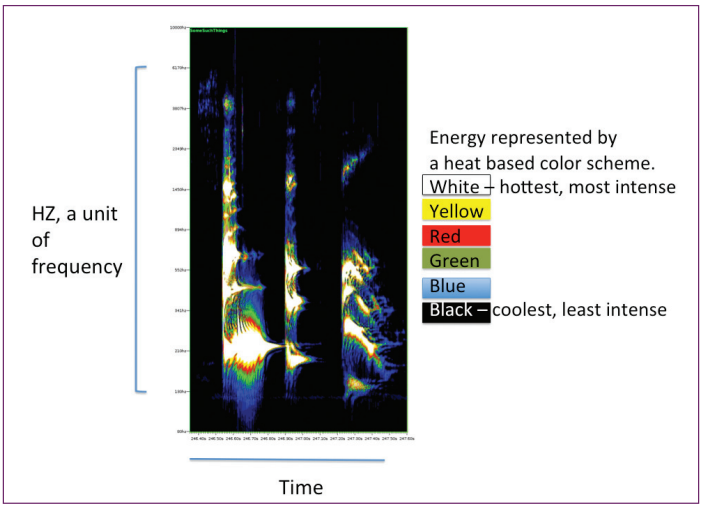

Figure 1: In this visualization of a woman speaking, each row of pixels is a frequency band presented across an X-access of time.

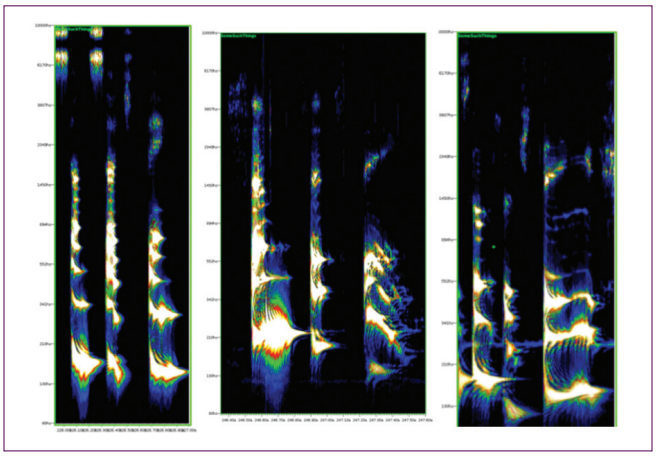

Figure 2: Spectogram created with ARLO of three voices speaking the same words "some such thing," reading from Gertrude Stein's novel The Making of Americans. From left to right: computer-generated voice, Gertrude Stein, and Gregory Laynor, experimental artist.

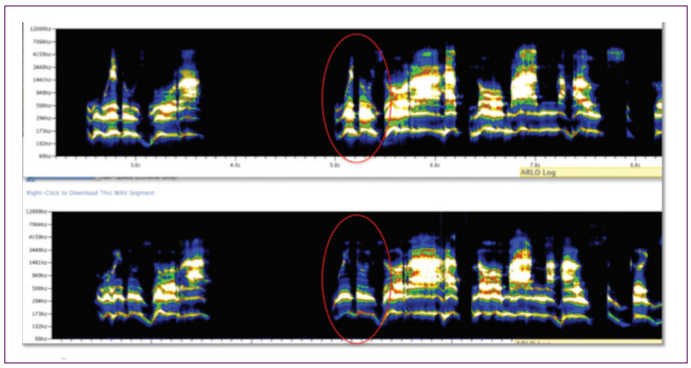

Figure 3: From the PennSound Collection, Ezra Pound's Canto XLV recorded in DC, 1958 (top) and Harvard, 1939 (bottom). The recordings sound the same but similar words appear differently in the spectrogram.

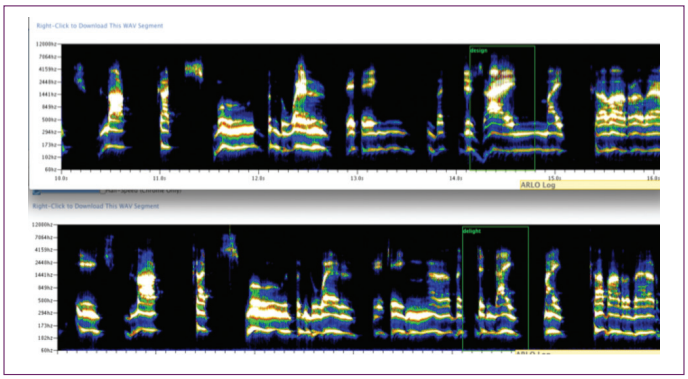

Figure 4: From the PennSound Collection, Ezra Pound's Canto XLV recorded in DC, 1958 (top) and Harvard, 1939 (bottom). This example shows Pound's choice to use the word "design" in the first reading, and "delight" in the second reading of the same poem.

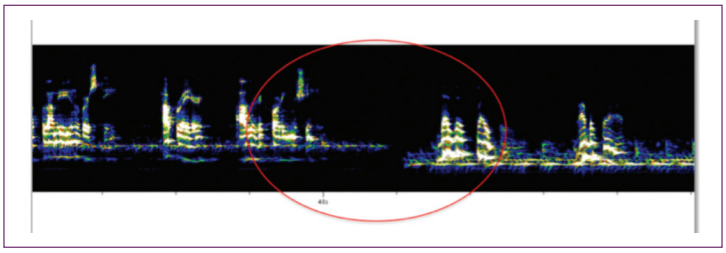

Figure 5: From the William A. Owens Collection, Dolph Briscoe Center for American History, University of Texas at Austin. July 1939 Iowa City, Iowa. Robert Frost reading "Desert Places" poems on Side B. of William A. Owens' folklore recordings. Shifts in speakers and in genre such as shown here are easily discernible by ARLO.

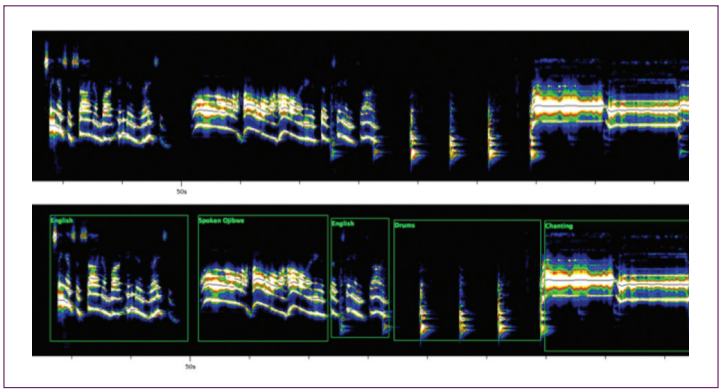

Figure 6: The above two figures show an excerpt from a 2007 interview with Larry Aitken, the tribal historian from the Leech Lake Band of Ojibwe conducted by Dr. Tim Powell when he was director of the Center for Native American studies at the University of Pennsylvania. The second image has been tagged by a user to show the different ways that English, spoken Ojibwe, drum beats, and chanting are visualized.

The development work on ARLO for HiPSTAS has included limited interface development for humanities users, such as the ability to analyze longer files, adding short keys for play, stop, and fast-forward, as well as infrastructure development that allows multiple users to use multiple collections and to perform exploratory discovery (clustering) and automated classification (prediction or supervised learning) processes as well as visualizations on collections of interest to them. This initial development was essential for the May 2013 Institute meeting for identifying user and technological infrastructure needs.

4. User needs

HiPSTAS participants were professionals and graduate students accustomed to working daily with large audio collections such as PennSound's poetry archive, which includes approximately 30,000 files of recordings; the 600,000 digital collections objects and growing in the American Folklife Center (AFC) of the Library of Congress; the 30,000 hours of oral histories in the StoryCorps collection; and the 3,000 hours in the American Philosophical Society's Native American Collection, which includes recordings from more than fifty tribes across Native America. Other collections of interest to the participants included collections of speeches of such luminaries as Ralph David Abernathy, Jesse Jackson, and Martin Luther King, Jr. in the Southern Christian Leadership Conference recordings currently archived at Emory University; 700 recorded readings and lectures in the Elliston Poetry at the University of Cincinnati; and thirty-six interviews in the Dust, Drought and

Dreams Gone Dry: Oklahoma Women and the Dust Bowl (WDB) Oral History Project out of the Oklahoma State Libraries. The participants had never, before the HiPSTAS Institute, had access to data mining, visualization, and supercomputing resources for analyzing these collections.

Already, as a result of the first meeting, we have a base understanding of minimal and more complex user needs. For analysis, users want to tag or note laughter, silence, emotions, applause, pauses, and feedback noises, as well as shifting speakers, languages, and dialects. They want to use ARLO to understand how these sometimes-subjective aspects of speech map to patterns of tempo and rhythm, pitch, tone or timbre, and sound dynamics. For access purposes, users want to use ARLO to automatically mark (a) information about speakers including the number of different speakers on a track and when the speaker changes, the genre of the speech (such as a monologue, poetry, an interview, elicitation, and the presence of music), as well as, in some cases, to train the software to identify the speaker and the language being spoken; and (b) information about the performance or recording including breaks in tracks between interviews or performances, the location of dead space or "drop offs," as well as areas of the recording that are damaged or seem to contain unintelligible "noise."

A final project result is greater literacy in sound analysis, visualizations, and infrastructure development for the humanities. Increased visibility for sound collections and scholarship that incorporates sound artifacts means that more scholars and students will, as Charles Bernstein suggests, encourage treating sound as texts and data for study. Participants want to learn more about how to use the parameters of digital sound that affect sound visualization (to which ARLO can give them access) such as damping ratios, gain, frequencies, spectra, and pitch energy. Understanding what the users of sound collections want to do and can do with software like ARLO is only a first step. Johanna Drucker cautions that "[s]oftware and hardware only put into effect the models structured into their design" and advises that if humanities scholars want digital humanities tools with "the subjective, inflected, and annotated process central to humanistic inquiry, [humanists] must be committed to designing the digital systems and tools of our future work."[35] Accordingly, the HiPSTAS institute has two primary outcomes: (1) to produce new modes of access to and analysis with large scale audio collections using advanced technologies such as classification, clustering, and visualizations; and (2) a broadened engagement in the work of digital infrastructure development through contributing to recommendations for the implementation of a suite of tools for collecting institutions interested in supporting advanced digital scholarship in sound.

5. Conclusion: future work

This initial year of HiPSTAS is the first step in our attempt to create open source software that may be used by any institution interested in using advanced technologies for accessing and analyzing spoken word sound collections. Taking advantage of the advanced computing resources that are part of Stampede is essential for assuring the kind of powerful infrastructure that high performance computing on sound files requires. At the end of this first phase of the project, there will be an initial public release of ARLO for use with the collections in the project including PennSound, the Folklore Center Archives at the Briscoe American History Center, and other collections that the participants will have the opportunity to make publicly available. This release will include documentation for users and developers. Eventually, with more funding and additional research, we will release an open access software bundle that other libraries and archives can use to setup their own systems, to share computational resources, and to share data across collections and institutions. We will also make available through the project website use cases developed by project participants who shepherd and use the sound collections that are part of the project as well as any resulting scholarship from documented usability studies that reflect how users interact with sound collections in the ARLO environment.

35 John Drucker, "Blind Spots," in *The Chronicle of Higher Education*, April 3, 2009, 5.

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THE RECOVERY OF EYEBEAM ART+TECHNOLOGY CENTER'S MULTIMEDIA COLLECTION FOLLOWING SUPERSTORM SANDY, A CASE STUDY

Kara Van Malssen (AudioVisual Preservation Solutions, New York, USA)

Acknowledgements

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Many thanks also to Eyebeam for being generous and open in sharing the lessons learned from this experience. And a special thanks to Pat Jones, Roddy Schrock, Marko Tandefelt, and Jonathan Minard. Jonathan Minard's documentary on this experience, *Recovering Eyebeam's Archive,* can be seen at http://www.deepspeedmedia.com/recovering-eyebeams-archive/.

A longer version of this case study can be found at http://www.avpreserve.com/wp-content/uploads/2013/05/RecoveringTheEyebeamCollection.pdf.

1. Introduction

This case study describes the recovery of 1,300 flooded media items at Eyebeam Art+Technology Center in New York City following Superstorm Sandy in October 2012. It is intended to help organizations learn from the disaster recovery experience of one organization, with the hope that by internalizing some of the lessons that Eyebeam learned, readers may become better prepared when faced with a future disaster. An additional goal is that it will serve as a reminder to stewards of cultural heritage materials that disaster preparedness is an ongoing task; there is no starting and stopping point. Disaster plans need to be created, tested, revised, tested, and revised again. Unfortunately, with pressing day-to-day duties, disaster planning becomes an out-of-sight, out-of-mind task, and often descends to the bottom of the to-do list. This is simply unacceptable. Disaster preparedness is a fundamental component of basic collection management. By avoiding it, or only focusing on it temporarily when a disaster strikes close to home, we are simply not doing our jobs.

For audiovisual materials, short-term disasters like floods and fires serve as a reminder of the long-term disaster that is taking place before our eyes, namely, the obsolescence of playback equipment. The content on physical containers urgently needs to be migrated to the digital file-based domain. An added benefit is that once these materials become digital, simply by following IT practices, backing up and creating geographical separation of copies, content will be protected from disasters.

Retroactively pouring money and resources into a disaster recovery effort is the expensive option, and almost certainly guarantees a degree of loss. Why not put our resources into preparing for the eventual disaster? When the time comes, we can breathe a sigh of relief and get to work retrieving content from those disaster recovery data centers.

2. The disaster

2.1. 0 hours

On 29 October 2012, "Superstorm" Sandy took aim at the New York City region. Despite urgent warnings from local and national government, including mandatory evacuations and the closing of the subway system, personal and institutional disaster plans were sporadically put into effect, and many people even chose to ride out the storm in their coastal homes.

Sandy made landfall on the southern New Jersey shore at the exact hour of high tide. The storm surge topped New York City's barriers, inundating numerous neighborhoods, including the gallery district of West Chelsea in Manhattan.

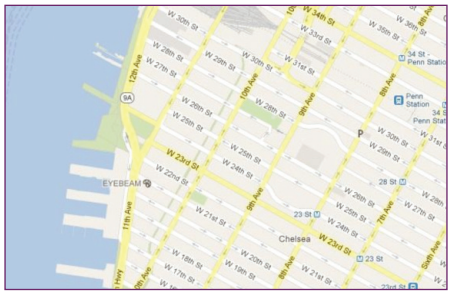

Figure 1: West Chelsea, Manhattan, from Google Maps.

2.2. 12 hours

Eyebeam Art+Technology Center is a non-profit dedicated to "exposing broad and diverse audiences to new technologies and media arts."[36] Eyebeam hosts residencies and fellowships for artists and technologists to create and exhibit their work, collaborate, and learn from master classes and from each other.

Eyebeam is situated between 10th and 11th Avenues on West 21st Street, about one block from the Hudson River. They knew they were in a flood-prone area, so when Sandy was preparing for landfall, staff, residents, and fellows made some minimal preparations by covering equipment with plastic sheeting and moving computers off the floor. Unfortunately, these efforts were not enough. Three feet of a toxic mixture of saltwater, sewage, and other contaminants submerged everything on the ground floor of the building. Over $250,000 worth of equipment—computers, lighting, and servers—was destroyed.

Amongst the damage was the majority of Eyebeam's media archive: fifteen years of videotape and computer disks containing artworks, documentation of events, and even server backups—essentially Eyebeam's entire legacy. Altogether, about 1,300 items were flooded and in urgent need of decontamination for eventual recovery.

3. First Response

3.1. 72 hours

On Thursday November 1, three days after the flood, Marko Tandefelt, Eyebeam's Director of Technology and Research, sent out an urgent plea for assistance via Twitter:

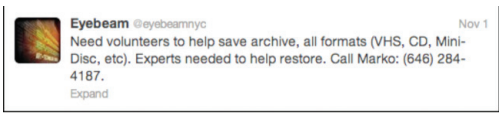

Figure 2: Tweet from Marko Tandefelt, Eyebeam's Director of Technology and Research, November 1, 2012.

With lower Manhattan still without power and public transit, Erik Piil, Digital Archivist at Anthology Film Archives, traveled by bicycle to Manhattan's west side on Thursday afternoon

36 Eyebeam, accessed August 2013, http://www.eyebeam.org/about.

to assess the situation. The need for immediate action was urgent, as building restoration crews were preparing to demolish dry wall and power wash the floors. Erik notified AudioVisual Preservation Solutions, and Chris Lacinak, Josh Ranger, and I arranged to meet him at Eyebeam the following morning.

3.2. 96 hours

Figure 3: State of the collection on Friday morning.

When we arrived Friday morning, having traveled several miles by bicycle with gloves, masks, and a few other supplies in hand, the demolition crews were already at work. Eyebeam was still without running water or power and the only lights, powered by generators, were for construction crews. Plaster chunks and other particulate were raining down on exposed tapes and disks. A large room on the 2nd floor was identified as a safe, (albeit not well-ventilated) holding space that could be used for storage. Tables, desks, shelves, and metal shelving units were cleared, cleaned, and covered with plastic to make way for the wet media objects. With the help of a few additional volunteers who had arrived, within an hour, all 1,300 media items had been moved.

4. Planning cleaning and stabilization

In order to stabilize the still wet media objects quickly and effectively, a large-scale recovery operation needed to be initiated. More help was required, and calls for volunteers were put out on social media, along with e-mails to the NYU Moving Image Archiving and Preservation (MIAP) and Eyebeam alumni lists. Volunteers began to trickle in. With Eyebeam staff busy handling other pressing tasks, the volunteer archival recovery team, lead by AVPreserve and Erik Piil, set to work designing a scalable and adaptable workflow that could accommodate any number of available volunteers.

4.1. Supplies

Without traffic lights, public transit, or open shops, Manhattan below 34th Street was an eerie post-apocalyptic ghost town. Obtaining necessary supplies required a time-consuming journey to the nearest hardware store, several miles away. Marko was willing to make the trip and had the authority and means to purchase the necessary supplies—a critical component to initiating recovery. We quickly assembled an order, which included gloves, masks, paper towels, microfiber towels, isopropyl alcohol, distilled water, lidded plastic bins, jewel cases, Q-tips, notepads, flip-chart paper, garbage bags, buckets, Sharpies, pens, paper tape, gaffer tape and more.

Marko returned several hours later with everything except the most crucial element: distilled water. We had only 4 gallons, certainly not enough for the whole effort. It quickly set in that finding distilled water where there is a water shortage is very challenging; people need water for drinking and cleaning themselves!

We managed to get by with the water we had, and asked volunteers to bring a gallon on their way if possible. Fortunately, the next day, Chris Lacinak drove twenty-four gallons in from Brooklyn, which lasted through the cleanup operation.

4.2. Designing the cleaning process

Media items were still wet with floodwater and needed to be cleaned as quickly as possible. Corrosion from salt was already visible on metallic parts. The diversity of media types meant different processes had to be developed for groups of media with shared physical characteristics (e.g., optical discs, analog video, DV formats, and data tape). Given the number of items and resources available, there was no way to do detailed work on each item in the initial effort. The goal was to prevent further damage from contamination by removing the water from the media and associated containers, and air-drying them. The processes needed to be designed to maximize the impact of treatment per item while administered by volunteers with mixed levels of knowledge of conservation and media handling.

Figure 4: Salty Mini DV tape prior to cleaning.

The processes were documented on large flip-chart paper and taped to the wall for easy reference. Throughout the operation, we conducted tests, modified methodologies, and updated these posters based on their results. For example, initially, most tape formats were to be submerged in distilled water in order to remove the saltwater. However, after tests revealed that submersion was promoting the removal of oxide from the exposed areas of MiniDV tapes, the process was modified, documented, and communicated to volunteers.

4.3. Space

Eyebeam made a number of the second floor office spaces available for the recovery operation. The five rooms in use each had a specific function.

4.3.1 Cleaning rooms: Three cleaning rooms were equipped with a clean water container for washing and a dry container for expelling water and dirt. Clean water containers were frequently emptied and refilled with fresh distilled water. Flooded items were delivered in "dirty" bins and removed in "clean" bins (each labeled as such). The three cleaning rooms were divided into the following areas:

- Central space: The largest cleaning area, used for all formats except MiniDV.
- MiniDV room: A space devoted to the detail-oriented work of cleaning MiniDV tapes.
- Optical disc room: When there were enough volunteers, an additional space was devoted specifically to optical discs, greatly increasing productivity.

4.3.2 Supplies room: One office was allocated to supplies, making it easer to locate them, to monitor inventory, and to prevent loss.

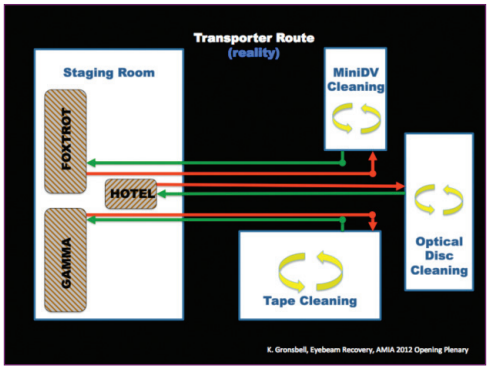

Figure 5: Cleaning workflow. Illustration by Kathryn Gronsbell, created for the AMIA 2012 conference.

4.3.3 Media storage room (waiting/drying room): The largest room served as the media storage room for items waiting to be cleaned as well as those returning from rewashing. To prevent expansion and contractions damaging to magnetic tape, as well as to avoid mold growth in the damp environment, the thermostat was set to 58°F to avoid fluctuation of heat and humidity, even after the power and heat came back on in the building. We also kept a dehumidifier/air purifier running in this room to remove excess moisture and to help remove particulate.

4.4. Workflow

Cleaning proceeded table by table in the media storage room. Tables typically contained a mix of media types, with no intellectual or technical groupings. Items from a table were loaded into a "dirty" bin, and taken to the cleaning rooms. Volunteers cleaned according to the media type. Once the "clean" bin was full, the media was taken back to the media storage room to be set out to dry.

Meanwhile, the table was cleaned and prepared for the media's return. Tables and shelves were given names based on the NATO Phonetic Alphabet. After all the dirty items were removed from a table, the plastic sheeting was removed, the table was cleaned, and brown craft paper was laid down. The paper was labeled with the table name and the time that drying began, such as, "Charlie Nov. 4 1:30PM". The media was given at least 48 hours for air-drying.

Table names also provided identifiers for media items, associated cases, and label inserts. The naming convention started with the first letter of the table name, followed by a number, e.g. C14. Numbers were incremented sequentially, and needed to be carefully documented to avoid duplication. Items with multiple pieces had their identifier applied to each component, so after drying they could be easily put back together. For example, if a CD was labeled A2, you could be certain the case was on the Alpha table. Rigid adherence to this identifier system was one of the most important aspects of the effort. As tapes, cases and paper inserts were necessarily separated from one another for drying, identifiers were needed to bind them back together, otherwise no one could know what was on that tape and whether it should be prioritized for preservation.

5. Roles and teams

Cleaning and drying of 1,300 media objects of various formats and their associated containers, can quickly and easily become chaos. At Eyebeam, volunteers came and went as their availability allowed, and there was little consistency from day to day, or even between morning and afternoon of the same day. The transport, cleaning, and drying process had to be efficient and consistent; designated roles and associated responsibilities were of utmost importance for success.

The following roles, which are essential in any recovery operation of this type, were put in place:

Overall coordinator: Responsible for oversight of the entire operation and could unlock/lock the door, make decisions about prioritization or liaise with content experts, and could authorize use of space. This role was fulfilled by Eyebeam resident Jonathan Minard.

Figure 6: Happy volunteers after the last item had been cleaned and laid out to dry. Taken on Sunday evening, November 4, 2012, by Jonathan Minard.

Operations coordinator: This role was responsible for placing volunteers into the right positions training supervisors so that they could delegate to and train others. This was the "go-to" role for any questions about the recovery process, as well as any media-specific issues. Kara Van Malssen (author of this document) largely fulfilled this role, with the support of Chris Lacinak.

Transport crew: This group was in charge of cleaning and prepping tables, transport of dirty and clean media, and setting media out to dry. A team supervisor was instrumental in managing naming conventions and keeping track of what media has been moved, and to where. We tried to have three people in this group when operating at full capacity.

Documentation crew: This group was responsible for labeling media and related labels and cases that had been separated for drying. One documentation person per cleaning station was required at all times.

Cleaning crew: The largest group, these people were responsible for cleaning the media and their cases according to specific instructions for each media type. These volunteers had to be patient and able to perform detail-oriented but monotonous tasks.

Content experts: These were current and former staff that could identify priority materials. Fortunately, a few former staff and residents were able to stop by on the second and third days of cleaning to help with prioritization and identification of duplicate and commercial items.

Media conservation experts: Conservators designed the cleaning procedures for each media type, tested results, modified the process as needed, and provided oversight to cleaning of various media types. In this scenario, Erik Piil and Chris Lacinak provided critical guidance in this area.

Quality assurance and control: Although this was a function fulfilled by other roles described above, it is important enough to point out as a distinct role and need. This served as a mitigating factor in managing the constantly revolving door of volunteers.

An important factor contributing to the success of the effort was the lack of ego amongst the recovery crew. Recovery of flooded archival material is not a luxurious operation. Tasks were rather tedious and repetitive; the conditions dirty. There was no working bathroom and

no power the first day. The constant revolving of people required volunteers to be extremely flexible and patient.

6. Managing risks

Figure 7: Volunteers cleaning and labeling cassettes.

Considering our context, a volunteer workforce with limited knowledge of the organization and often no expertise in the process, it is remarkable that there was minimal negative impact. We were mindful of a number of continuous risks, and worked to mitigate those:

Dissociation between media and label info: As mentioned previously, one of the great risks to the intellectual value of an item arose when a tape and its container or label were separated from one another. This often happened in a matter of seconds, as items were separated and moved down the cleaning assembly line. The employment of a documentation person to keep a hawk-like eye over the cleaning process was essential in order to avoid constant dissociation.

Lack of knowledge transfer: There was a good chance that an entirely new workforce would appear each day. Critical knowledge would leave with outgoing volunteers and often not be transferred to incoming volunteers. If only a few volunteers returned, training and overseeing an entirely new group of people took up a lot of time, posed a fresh set of risks, and reduced productivity.

Lack of supervision: When there is no supervision, supplies get lost, tapes are cleaned incorrectly, labels and media items are dissociated, and identifiers repeated. We quickly found that each area—transport, cleaning, and documentation—needed a supervisor who understood the process well, was organized, and could train and delegate to others. Volunteers who fulfilled the supervisory roles on numerous days were instrumental to the effort's overall success.

Not enough people: Fewer volunteers greatly reduces productivity and efficiency, as one person must perform multiple tasks. Most mistakes were made when there were fewer volunteers, especially in the absence of dedicated documentation crew.

Loss of morale: With so much work to do and in less than optimal conditions, it is important to make sure that people take breaks, eat and drink. Free pizza provided by Eyebeam on our second and third day of work helped tremendously.

Passage of time: By day 3, media left out to dry—exposed tape media, optical disks without cases—were getting dusty. For the few VHS tapes that did not have cotton buds placed between the tape and parts of the housing, contaminant deposits began to form around the tape edges (see photo), which needed to be brushed off.

Safety and security: Having a safe and secure room is crucial. Inevitably, a lot of activity occurs after a disaster, and many people come and go. Some level of security is essential to ensure things do not go missing, accidentally or intentionally.

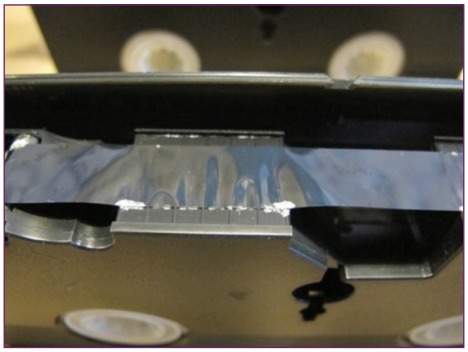

Figure 8: Contamination forming on a dried tape. Most VHS tapes had Q-tips placed between the tape and the plastic surface to prevent the tape from sticking and adhering to it while drying. By accident, a Q-tip was not placed under this tape. As a result the tape stuck, and deposits formed around the edges.

Lack of supplies: Gloves and masks, essential items for working with this kind of contamination, were constantly running out. Distilled water became a precious commodity. Supplies had to be carefully monitored so that, when needed, someone could make the long trek to the store to purchase more.

Avoiding mold growth: Maintaining a cool, dry temperature and ventilation is of utmost importance. The lack of ventilation combined with the restoration of the building's heating system and wet tapes could have easily created a fertile breeding ground for mold, causing damage to tapes and health and safety hazards for volunteers. To mitigate this risk, we kept the storage room at approximately 58°F and continuously ran a dehumidifier.

7. Preparedness takeaways

When working to recover valuable collections from a disaster, the trained archivist cannot help but think of the essential principles of the profession, and how these could be applied in the future to help better prepare collections. Collection management principles inherently consider disaster preparedness, and by applying some fundamental measures collections will stand a better chance of withstanding the next threat. Here are just a few of the things that stood out to us during the recovery at Eyebeam.

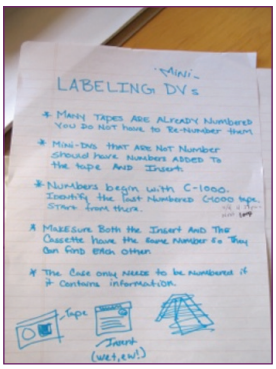

Figure 9: Instructions for labeling mini DV tapes during recovery.

7.1. Storage

When storing physical media, such as video and audiotape, following a few basic storage principles goes a long way. Media should not be stored in basements, directly under a roof, or near windows or positioned directly below leak-prone areas, such as a bathroom or kitchen. Temperature and humidity should be cool and dry, or at minimum, controlled so there is a lack of fluctuation.

Most importantly, understand the building and geographic surroundings. If you are near a body of water, as Eyebeam is, do not store valuable collections on the ground floor and especially not in basements. If you are in a hurricane or typhoon-prone area, ensure that your roof is sound.

7.2. Intellectual control

Intellectual control of an archive is a goal that collecting institutions strive for but often struggle with. It is not uncommon for an organization to have an unclear picture of its holdings. Maintaining an item-level inventory of a collection is helpful for a variety of day-to-day operations, but it becomes a critical identification and prioritization tool in a disaster scenario, in addition to being important for insurance purposes. Not having intellectual control places at risk the ability to effectively allocate limited resources towards salvaging the most important parts of the collection. Lacking this, you may be working with something of no value at the expense of your most important item.

Eyebeam did not have an inventory of its archival holdings leading up to Sandy. An accessible inventory (since there was a lack of power and internet during the first few days, a printed, laminated inventory would have been necessary) with indication of priority items would have been priceless. Knowing which items were most valuable to Eyebeam would have allowed us to prioritize those requiring immediate attention.

7.3. Deaccessioning

Disasters drive home the fact that deaccessioning is a good thing. As mentioned above, with no inventory or institutional knowledge, our volunteer recovery team was unable to make prioritization decisions. So when confronted with ten copies of what appeared to be a commercial DVD, we had no choice but to treat each one as if it were unique. Volunteers could not judge whether these were simply replaceable, commercial items, or if they were perhaps art objects. Most likely, they were simply overstock that could have been thrown away.

Again, cleaning and treating items that simply do not need to be is a waste of resources, and jeopardizes those items more urgently in need of care. When a flood topples shelves and mixes everything together, and there are no identifiers or inventory to indicate which are priority, one has no way of knowing when something should be thrown away. Getting rid of items can be a challenge, but spending time cleaning things that do not need to be is even a bigger one.

7.4. Labeling

For media such as video, audio, and data tape, which are machine dependent and have multiple parts, having labels with identifiers on all components is critical, especially when items are separated from their container labels. Dissociation of media and their labels could be inadvertent, such as when the water tossed the media off their shelves, or intentional, such as when things have been laid out to dry after cleaning. Though we established an identifier system during recovery at Eyebeam, items that were previously labeled with identifiers on the tape, case, and insert were valuable, saving time and greatly simplifying the recombination of separate parts.

7.5. Communications

Disaster planning guides nearly always call for the creation of a "telephone tree." This concept needs to be updated for contemporary communications mechanisms, for a few reasons as you never know which communication system may be down in an emergency. It is important to have all phone numbers (including mobile for text messaging), email addresses (all associated with a person, considering your company mail server could be down, but Gmail is still functioning), Facebook, Twitter and other social media accounts for all critical staff and support personnel. Furthermore, these need to be reviewed and updated periodically, as common communications mechanisms evolve. During Sandy, we found that text messaging and Twitter worked well, while telephone and many mail servers were out of commission.

8. Outcomes, next steps, and the need for digital preservation

After three days, more than 1,300 media items had been cleaned and stabilized. In the following two weeks, those items, plus another 600 that were not damaged, were inventoried by more dedicated volunteers, producing the first comprehensive inventory of the media collection at Eyebeam. The inventory was created in a Google Spreadsheet to enable simultaneous cataloging. Data entry guidelines and controlled vocabularies were established to ensure useful and uniform entries.

The inventory is a critical tool moving forward, serving two primary purposes: to help prioritize for the migration of flooded media items' content to stable, file-based storage, and to serve as the foundation for establishing a managed archive.

In situations like this, prioritization plays an enormous role in the overall long-term recovery effort. While much of the content can likely be saved and transferred, it will ultimately require costly specialized restoration. It is essential that the most important items be treated first. Therefore scarce resources can be properly allocated so that only unique items will be prioritized for restoration and migration. In many cases, the artists themselves hold a copy of the work, meaning it may be easier to obtain a copy from them, rather than seek expert recovery services.

The inventory also can be used to help estimate costs and storage requirements. These estimates are valuable for fundraising through grant applications. Funds are currently being raised to support the restoration of the damaged material and to establish the new archive.

8.1. Establishing the archive

The vulnerability and instability of a single copy of a piece of media becomes readily apparent in a disaster. Unlike paintings, sculptures and textiles, the content contained on the media is not inextricably bound to its physical state; it is the content not the carrier that holds value. The good news is content can be migrated to the file-based domain, and in that world, disaster preparedness becomes more attainable. Files can and must be replicated, backed up, and stored in geographically separate locations. If one copy is damaged or destroyed, another can replace it.

Long-term preservation of audiovisual, multimedia, and digital content requires more than just good storage, however. To truly be preserved, the content must remain accessible. This means that content needs to be findable in a digital environment, understandable to those who might use it, accessible in a common format, and readable using contemporary technologies. An archive is not simply the collection and storage of data; it is a system of people, policies, and technologies managing content over time to ensure it remains accessible through ever-changing landscapes.

New funding will support the development of a digital archive initiative at Eyebeam. The archive will be founded upon new institutional policies and practices for the collection of artists' works and their documentation; technologies to provide the backbone of a stable digital infra-

structure; and methods of providing access to artists, researchers, and the public in new and innovative ways. These approaches, along with partnerships with other institutions, will help enable the establishment of a sustainable digital archive. This is the silver lining in this story. As Executive Director, Pat Jones states in Jonathan Minard's documentary, *Recovering Eyebeam's Archive*, "We are coming back, as our neighbors are, and hopefully we'll be stronger and we'll be learning from this experience, and we'll also be putting more emphasis on the importance of our archives and looking to see if we can make better use of them and make them available to a wider public than they have been in the past."[37]

By so generously and openly sharing its story, Eyebeam is provoking conversation about the critical need for long-term digital preservation planning, which hopefully will inspire small arts and heritage organizations and others currently holding ad hoc collections to take the necessary steps to ensure that the content in their care has enduring value. In an age of rapidly advancing technologies and increasingly frequent disasters, there is no time to waste.

37 Jonathan Minard, "Recovering Eyebeam's Archive," Deepspeed Media, November 2012, accessed August 2013, http://www.deepspeedmedia.com/recovering-eyebeams-archive/.

SURVEY: ADOPTION OF PUBLISHED STANDARDS IN CYLINDER AND 78RPM DISC DIGITIZATION

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Abstract

This paper reports on a survey used to determine the best practices in use among archives, heritage institutions, and commercial organizations involved in the preservation and digitization of instantaneous and commercial 78rpm phonographic discs and cylinder recordings. After reviewing the literature on audio preservation and digitization, a 51-question online survey was designed. In addition to demographic information, the survey addressed three main areas of inquiry: use of, and adherence to, published standards; digitization procedures; and physical storage conditions. Specifically, the variables investigated include: types of equipment in use in digitization, transfer facility selection, formats for digitized recordings, practices associated with digitization, and the skill-level and number of staff performing physical preservation and digitization. Twenty-nine respondents, including audio archivists, librarians, audio engineers, project managers, and consultants at institutions across North America and Europe, were recruited from a list based on member directories of prominent national and international audio preservation associations and by invitations sent to archival audio listservs. Most respondents were aware of published standards but reported following them to greater or lesser degrees. In many areas, the results show widespread adoption of standards with practices that meet or exceed published guidelines. In other areas, respondents reported using alternative technical practices that are not in adherence to published standards. The results may be of interest to the library and archival professions, standards-creating organizations, and the commercial recording industry, all of whom will benefit from a better understanding of whether and how current standards are being met, and what standards and practices are in use in the field.

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1. Introduction

At least since the late 1950s, engineers and archivists have voiced concern over the physical degradation of cylinders, 78s, and instantaneous discs held in library and archival collections.[38] In recent decades it has become clear that the original cylinders and discs, along with the subsequently developed physical media (both analog and digital) are ultimately doomed to failure, and their contents must be transferred to file-based digital formats in order to survive in the long term.[39] However, the simple realization that digitization is a necessity did not lead directly or immediately to standardization of digitization practices for archival audio.

38 See George Boston, ***Survey of endangered audiovisual carriers 2003***, (Paris: United Nations Educational, Scientific and Cultural Organization, 2003) and A. G. Pickett & M. M. Lemcoe, ***Preservation and storage of soundrecordings : a study supported by a grant from the Rockefeller Foundation***, (Washington: Library of Congress, 1959).

39 Dietrich Schüller, "Preserving the facts for the future: principles and practices for the transfer of analog audio documents into the digital domain," in ***Journal of the Audio Engineering Society, 49***(7/8), 2001, 618-621.

In 2001 Virginia Danielson reported that archivists overseeing audio collections were "plagued by the view that we have no established standards for preservation and therefore should not proceed with projects." The same year, Dietrich Schüller warned that before mass digitization projects take place, certain "principles and prerequisites" must be met or agreed upon, arguing that to digitize without set standards may lead to lost data, greater expenditures, and further degradation of media caused by additional playback. In 1998, George Boston stated in a UNESCO report that there were "no official standards for the preservation of these materials."[40]

In more than a decade since the statements of Danielson and Schüller, universities, governments, and industry groups have published guidelines, recommendations, and standards for the digitization of archival audio, and many collections have been partially or completely digitized. In that time, there has also been a consistent counterargument that for certain media, especially early instantaneous and mass-manufactured disc and cylinder recordings, there is little time to worry about standards before the media, already near the end of their lifespans, suffer critical failures.[41]

While previous studies have been carried out to ascertain the extent and condition of audio collections[42], and recent publications address the many steps yet to be taken to ensure the longevity of our audio heritage[43], a literature review revealed no major study to determine adherence to or acceptance of published standards for preservation and digitization of archival audio. As a result, the present research was carried out to measure adoption of published standards and best practices in the field of archival audio digitization, and to offer a framework for collecting similar data in the future.

A survey was designed to measure practices throughout the digitization process at institutions engaged in the preservation of instantaneous and commercial discs and cylinder recordings. The data from the survey was analyzed, and a limited selection of results is presented below. The authors believe this data will be of use to the developers of past and future standards, such as the technical committee of the International Association of Sound and Audiovisual Archives (IASA) and to governmental organizations engaged in preservation planning, such as the U.S. National Recording Preservation Board (NRPB) and the Federal Agencies Digitization Guidelines Initiative (FADGI).

2. Literature review

Because of the rates of change in audio technology, data storage, and communication technology, documents published as recently as the late 1990s fail to reflect the current archival and digital audio scenarios. Regarding digital audio in general, the present literature review includes only documents from the last two decades. In terms of standards documents and reported practices, the review is limited to the last decade and the collected survey data concerns only digitization projects carried out between 2005 and 2010.

Because of the need to keep the survey to a reasonable length for completion by busy archivists and engineers, the number of variables tested is much smaller than the total num-

40 George Boston, ***Safeguarding the documentary heritage: A guide to standards, recommended practices and reference literature related to the preservation of documents of all kinds***, (Paris: United Nations Educational, Scientific and Cultural Organization, 1998).

41 Kevin Bradley, "Critical choices, critical decisions: sound archiving and changing technology," paper presented at the Researchers, Communities, Institutions, Sound Recordings Conference, Sydney, Australia, 2004.

42 A. Smith, D. R. Allen, & K. Allen, ***Survey of the State of Audio Collections in Academic Libraries***, (Washington, D.C.: Council on Library and Information Resources, 2004).

43 R. Bamberger and Sam Brylawski, ***The state of recorded sound preservation in the United States: a national legacy at risk in the digital age***, (Washington, D.C.: Council on Library and Information Resources, 2010), and Brenda Nelson-Strauss, Sam Brylawski, A. Gevinson, & National Recording Preservation Board (U.S.), ***The Library of Congress National Recording Preservation Plan***, (Washington, D.C.: The Library of Congress, 2013).

ber of variables covered by the sometimes quite exhaustive published standards. Variables were selected based on perceived importance to the overall process, as well as upon the relative ease of collecting quantitative or concise qualitative data. Below are the published recommendations for the variables tested by the portion of the survey being reported on at present.

2.1. Sources of digitization recommendations and standards

The standards and practices found in this review have been sponsored, supported or published by a wide array of library, archival and audio groups, including IASA, the Association for Recorded Sound Collections (ARSC), the Association of Research Libraries (ARL), the Council on Library and Information Resources (CLIR), the Library of Congress (LC), and Library and Archives Canada (LAC). Some documents are authored by committees, others are single-author reports and still others are part of broader digitization documentation portals on the Internet.

While there are many publications on the topic, two audio digitization standards and best practices documents appear to be in greatest usage in the field. These are the IASA Technical Committee publication TC-04, or *Guidelines on the production and preservation of digital audio objects: Standards, recommended practices, and strategies* (now in its second edition, published in 2009), and the *Sound Directions* report published by Harvard and Indiana University in 2007, which relies heavily on the first edition of TC-04.[44]

2.2. Technical standards

2.2.1. Signal chain and equipment

In the same report cited above[45], Dietrich Schüller argued that "only the most advanced equipment" is to be used in digital transfer of analog media. However, documents reporting on completed and ongoing digitization show that, while quality and accuracy are a priority, even relatively well-funded cultural institutions do not always use the "most advanced" equipment in the digitization signal chain. This seems especially true in the analog portion of the signal chain, where "most appropriate" and "most advanced" may not be synonymous.[46] With few exceptions, the published guidelines suggest the use of modern turntables featuring finely-adjustable playback speed rather than the phonographs available at the time the discs were recorded. In published reports, Stanford University is the only institution found to have used antique equipment in the capture of archival audio, during a cylinder digitization project.[47] It is recommended that transfer engineers keep multiple sizes of styli and to select a stylus matching the characteristics of the disc or cylinder being transferred.[48]

The analog-to-digital converter (ADC) is often cited as the key piece of equipment in the digitization signal chain, and specifications for ADCs in archival digitization have been discussed

44 R. Bamberger and Sam Brylawski, ***The state of recorded sound preservation in the United States: a national legacy at risk in the digital age***.

45 Dietrich Schüller, "Preserving the facts for the future: principles and practices for the transfer of analog audio documents into the digital domain."

46 Michael Casey & Bruce Gordon, ***Sound directions: Best practices for audio preservation***, (Bloomington: Indiana University, 2007); V. Danielson, "Stating the Obvious: Lessons Learned Attempting Access to Archival Audio Collections," ***Folk Heritage Collections in Crisis***, 4-14, (Washington DC: Council on Library and Information Resources, 2001); and J. Farrington, "Cylinder Preservation and Digitization Project," ***Notes-New York Music Library Association, 64***(1), 121, 2007.

47 Stanford University, "Technical information," (California: Stanford University, 2002), accessed August 2013, http://ccrma.stanford.edu/groups/edison/.

48 International Association of Sound and Audiovisual Archives, ***IASA-TC04 Guidelines on the production and preservation of digital audio objects: Standards, recommended practices, and strategies***, (Aarhus, Denmark: International Association of Sound and Audiovisual Archives, Technical Committee, 2009).

extensively in the literature.[49] Two models of ADC are cited in use in the literature, both in *Sound Directions*: the Prism AD-2 and Benchmark ADC-1.[50]

2.2.2. Bit depth and sampling frequency

All of the reviewed documents discussing bit depth recommend 24-bit encoding for archival audio transfers.[51] The literature is nearly unanimous in suggesting that 48kHz is the minimum sampling frequency that qualifies as high fidelity, with 96kHz being preferred for archival digitization.[52] The highest combined resolution recommended in the literature review is 192kHz/24-bit.[53] In published reports of completed projects, the lowest sampling frequency reported in use is 44.1kHz, for a cylinder digitization project.[54]

Within institutions, the technical parameters used in preservation are shown by the literature to be elastic. In 2001, Harvard University reported that the "Music from the Archives" program was digitizing audio at 88.2kHz/24bit[55], while the 2007 report from Casey and Gordon finds Harvard digitizing at 96kHz/24bit. The time elapsed between reports (six years), the guidelines published in the meantime (including from NRPB and IASA), or perhaps the number of departments and variety of work underway at large institutions may account for this shift.

2.2.3. Equalization

The matter of whether or not to apply equalization during digitization, and what curves to apply, was not considered settled in the literature at the time of the review, and was further muddled by the limited number of commercially available phono pre-amplifiers that do not automatically impose a pre-defined equalization curve.[56] With the publication of the NRPB *State of Recorded Sound Preservation* report, the consensus seems to be tilting towards flat transfers.[57] However, this report was published after the present survey was conducted, and while the contributors to the report may have previously exerted influence in the field, the published report could not have influenced the survey respondents. In reports of work completed, *Sound Directions* was the only document found listing equalization parameters, and in this case the signal was split to allow encoding of both an equalized and a flat version.[58]

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49 Michael Casey & Bruce Gordon, ***Sound directions: Best practices for audio preservation***; International Association of Sound and Audiovisual Archives, ***IASA-TC04***; Dietrich Schüller, "Preserving the facts for the future: principles and practices for the transfer of analog audio documents into the digital domain"; and K. C. Pohlmann, "Measurement and Evaluation of Analog-to-Digital Converters Used in the Long-Term Preservation of Audio Recordings," paper presented at the ***"Issues in Digital Audio Preservation Planning and Management"*** roundtable discussion, Washington, DC, March 10-11, 2006.

50 Michael Casey & Bruce Gordon, ***Sound directions: Best practices for audio preservation***.

51 Michael Casey & Bruce Gordon, ***Sound directions: Best practices for audio preservation***; International Association of Sound and Audiovisual Archives, ***IASA-TC04***; National Recording Preservation Board, ***Capturing analog sound for digital preservation,*** (Washington, D.C.: Council on Library and Information Resources and Library of Congress, 2006); and K. C. Pohlmann, "Measurement and Evaluation of Analog-to-Digital Converters Used in the Long-Term Preservation of Audio Recordings," paper presented at the ***"Issues in Digital Audio Preservation Planning and Management"*** roundtable discussion, Washington, DC, March 10-11, 2006.

52 Ibid.

53 Elizabeth Cohen, "Preservation of audio," ***Folk heritage collections in crisis***, (Washington DC: Council on Library and Information Resources, 2001), 20–27.

54 J. Farrington, "Cylinder Preservation and Digitization Project," ***Notes-New York Music Library Association, 64***(1), 121, 2007.

55 V. Danielson, "Stating the Obvious: Lessons Learned Attempting Access to Archival Audio Collections," ***Folk Heritage Collections in Crisis***, (Washington DC: Council on Library and Information Resources, 2001), 4–14.

56 Michael Casey & Bruce Gordon, ***Sound directions: Best practices for audio preservation***; International Association of Sound and Audiovisual Archives, ***IASA-TC04***; and Dietrich Schüller, "Preserving the facts for the future: principles and practices for the transfer of analog audio documents into the digital domain."

57 R. Bamberger and Sam Brylawski, ***The state of recorded sound preservation in the United States: a national legacy at risk in the digital age***.

58 Michael Casey & Bruce Gordon, ***Sound directions: Best practices for audio preservation***.

2.2.4. Storage format

In all the reviewed standards and field reports, the Wave (WAV) and Broadcast Wave (BWF) file formats are suggested or reported in use as master preservation files (Bradley, 2004; Casey & Gordon, 2007; IASA, 2009; Schüller, 2001).[59]

In figure 1, shown below, reported practices are listed as they appear in the original publications. In the case of format, this leads to a column listing a mix of digital audio stream type such as PCM and file format wrappers such as WAV and BWF. While these formats are all interrelated—all WAV and BWF files utilize a PCM stream; BWF is a sub-format of WAV—the lack of specificity in the original publications makes it difficult to determine exact practices and, therefore, to measure adoption of published standards. For instance, an institution listing only PCM could be using AIFF or other PCM-based formats besides WAV or BWF. The survey results reported later in this article are intended to offer more uniform data on format choice in digitization projects.

Organization/ Researcher	Year	Bit Depth	Sampling (kHz)	EQ during transfer	Format
ARL / LC / Fleischhauer	2007	24	96	N/A	WAV
ARSC	2009	24	96	N/A	BWF
NRPB / Pohlmann	2006	24	96 or 192	Yes/No*	PCM
CLIR / Cohen	2001	24	192	N/A	
LAC	2008	24	96	N/A	BWF
NRPB / LC	2006	24	96	Yes, if known; otherwise, no	PCM
IASA	2004/2009	24	48+	Yes/No*	BWF

Figure 1: Published standards or recommendations (published previous to survey).
*In these documents, arguments are made in favor of both options.

Institution / Researcher	Year	Bit depth	Sampling (kHz)	Converter	Turntable	EQ	Format	Referenced standard
Harvard / Danielson	2001	24	88.2	N/A	N/A	N/A	N/A	N/A
Harvard / Gordon	2007	24	96	Prism AD-2	Technics SP-15	N/A	BWF	IASA TC-04
Indiana / Casey	2007	24	96	Benchmark ADC-1	Technics SP-15	Y/N*	BWF	IASA TC-04
UCSB / Farrington	2007	24	44.1	N/A	N/A	N/A	WAV	N/A
Stanford	2002	16/24	44.1/48	N/A	Antique phonograph	N/A	N/A	N/A

Figure 2: Best practices listed in use in published field reports.
*Simultaneous encoding of equalized and flat signal

59 Kevin Bradley, "Critical choices, critical decisions: sound archiving and changing technology"; Michael Casey & Bruce Gordon, *Sound directions: Best practices for audio preservation*; International Association of Sound and Audiovisual Archives, *IASA-TC04*; and Dietrich Schüller, "Preserving the facts for the future: principles and practices for the transfer of analog audio documents into the digital domain."

3. Methods

3.1. Survey

A web-based survey consisting of fifty-one questions was created based on the practices addressed in the literature. The survey was broken down into four sections: demographics, digitization practices, adherence to internal and external standards, and physical storage conditions. Of these, only a subset is addressed in the present report. All questions were optional, and all binary (yes/no) questions featured a "Don't Know" option. Not all respondents answered all fifty-one questions, so results reported below are often for subsets of the respondent group, with the total number of answers received cited in each case. Some questions included an "Other" category with a free-format text response area. Responses to open-ended questions and responses in "Other" fields were coded for analysis. All respondents were presented with the survey in the same order. No compensation was offered for completing the survey.

A list of sixty potential respondents was developed from the published membership lists of IASA and ARSC. One or more individuals identified within each institution were sent direct recruitment e-mails. In addition, an open invitation was distributed to the e-mail discussion lists of ARSC and the Society of American Archivists.

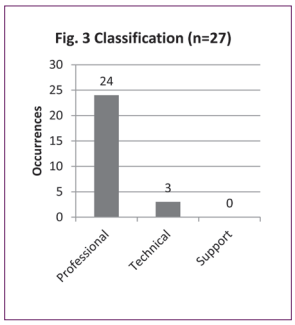
3.2. Respondents

Twenty-nine respondents completed surveys that were collected over four weeks in February and March of 2010. Twenty-eight responded via the web and one answered via telephone. Twenty respondents listed their age (mean = 50; range = 31-67, *SD* = 12.5). Twenty-two respondents represented institutions, six represented audio contractors and one respondent was a private collector. The respondents or their institutions were based in the United States (21), Canada (5), Norway (1), Serbia (1), and France (1). In two cases, two respondents replied from the same institution. While twenty-one respondents reported digitizing items from their collections within the last five years, all twenty-nine respondents indicated direct involvement in the planning or implementation of digitization projects.

Universities were the largest group targeted for recruitment, and they make up the greatest number of respondents (13). Frequencies for the remaining types can be seen in figure 4. Respondents were asked to classify their positions, as seen in figure 3. The three responding as technical staff represented a broadcaster, a museum, and a national library.

3.3. Collections

The first table below (figure 5) shows the number of institutions holding each of the three types of audio recordings defined for investigation, as well as the mean and median collection size for each type, as reported by the respondents. The second table (figure 6) shows the number of items from each collection that has already been digitized. For cases in which collection size was reported as approximate, the given approximation was used in calculating the averages shown. If a range was given, the mean of the range was used in further calculations.



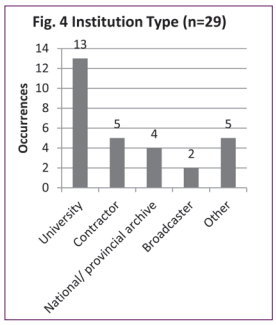


Figure 3: Job classification of respondents.
Figure 4: Institution type. "Other" responses include one each of the following: Museum, record label, private collector, philharmonic, and public library.

Type of Recording	No. Reporting Collection Size	Mean	Median
Commercial 78	18	45,563	14,000
Instantaneous disc	21	16,065	1,000
Cylinder	9	3,802	400
Total responses	22		

Figure 5: Holdings and collection size by media type.

Type of Recording	Responses	Mean	Median
Commercial 78	14	398	150
Instantaneous disc	14	566	113
Cylinder	6	1428	70
Total responses	20		

Figure 6: Digitized portion of collections.

4. Analysis

Descriptive statistics were the primary means of analysis. Occurrences for each question have been analyzed for frequency, and numerical values are averaged across all responding institutions. For qualitative data, categories emerging from the free format responses were identified using the constant comparison method[60] for descriptive purposes.

5. Results

5.1. Standards

Fifteen respondents reported use of external, published standards and seven reported no use of published standards (n=22). In response to an open-ended question of whether enough

60 Barney G. Glaser and Anselm L. Strauss, *The Discovery of Grounded Theory: Strategies for Qualitative Research*, (Chicago: Aldine Publishing Company, 1967).

standards have been published, nine replied "yes" with some qualifications and five replied "no" with some qualifications (n=14). The qualifications generally identified one or two areas of the preservation process as well standardized and several others as insufficiently standardized. Smaller institutions were more likely to cite the unrealistic economic constraints imposed by current standards. When asked, respondents listed the following institutions as sources of standards (figure 7).

Standards Organization	Occurrences
IASA	8
AES	7
ARSC	6
CCI	1
LC	1
NARAS	1
Total responses	16

Figure 7: Institutions consulted for standards.

Among the responses, only two documents were specifically mentioned: IASA TC-04 (8) and the *Sound Directions* report (2). Seven institutions reported using an internal best practices document (n=20). Reported attributes of internal documents generally reflect recommendations found in published standards, but also offered modifications of published standards to meet internal needs.

5.2. Transfer practices

5.2.1. Hardware and software

Turntables reported in use include (by brand): Technics (10, including six SP-15s and two SP-10s), Esoteric/Rek-O-Kut (5), and eight other various models. For cylinder playback: Archeophone (3), Amberola (1), Shaublin (1), and house-built players (2). Fourteen respondents listed the ADC in use. Of these, the only repeated brand was Apogee (3), for both the Rosetta and Mini series converters. The rest were a mix of other brands of professional ADCs, as well as several consumer-grade USB audio interfaces or sound cards.

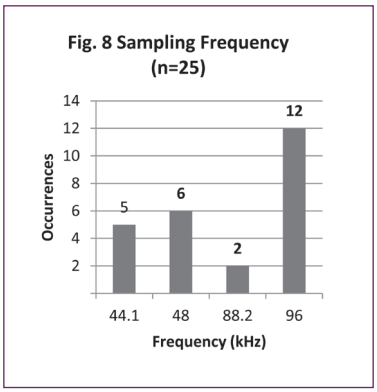
The smallest stylus in use was 0.7mil, the largest 16mil. Seven respondents reported at least five different sizes in use, and six reported ten or more sizes. Elliptical, spherical, conical and Shibita-type stylus shapes were listed. For tracking force, the minimum listed among seventeen responses was 1 gram, and the maximum was 5 grams. While a question was asked about anti-skating adjustment, no clear trend was visible among the nine responses, which varied from an indication of adjustment without direct measurement to a small number of respondents providing numerical values.

Asked whether playback speed is adjusted for each disc, eighteen answered yes, six answered no. For playback speed adjustment of cylinders, thirteen answered yes, five answered no. Reported strategies for determining correct playback speed included: establishing the key of each piece (8), reference to 50Hz/60Hz hum on electrical recordings (3), using the presence of fixed-reed instruments to determine pitch (2), expert opinion of musicologist/musician/producer (2), manufacturer data (2), perfect pitch of the technician (1). Two respondents reported digitizing at standard speeds and only adjusting for pitch digitally on subsequent copies of the master file.

Audio editing software listed in use included WaveLab (10), ProTools (4), Audacity (2), and SoundForge (2). Software mentioned by only one respondent each included Nuendo, Pyramix, Audition, and Peak.

5.2.1.1. Sampling frequency and bit depth

Figures 8 and 9 display sampling frequency and bit depth selection. Twenty out of twenty-five respondents reported using sampling frequency above 44.1kHz, as recommended by the standards. Two of the five respondents working at 44.1kHz were contractors, and one was a private collector. All but one of the five using 44.1kHz indicated working with all three types of recording (commercial discs, instantaneous discs, and cylinders), with the other working with commercial and instantaneous discs. Twenty-one of twenty-six respondents indicated a bit rate at or above 24 bits, as recommended by the standards. Among the five respondents digitizing at 16 bits was one consultant, who was also among those sampling at 44.1kHz.



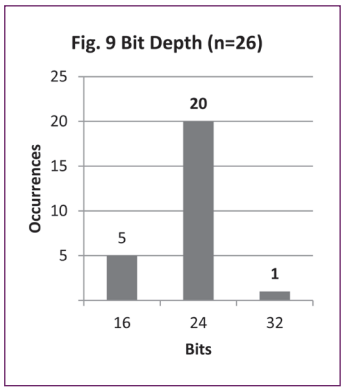


Figure 8: Sampling frequencies reported in use. Values in bold meet or exceed recommendations.
Figure 9: Bit depths reported in use. Values in bold meet or exceed recommendations.

5.2.1.2. Equalization

Response to a question on the application of equalization is shown in the following graph (figure 10). No qualitative data was collected to explain the application or lack of application of equalization. Among the twenty respondents who reported applying EQ either before or after digitization, seventeen consulted published lists of manufacturers' roll-off curves in determining the applied EQ curve.

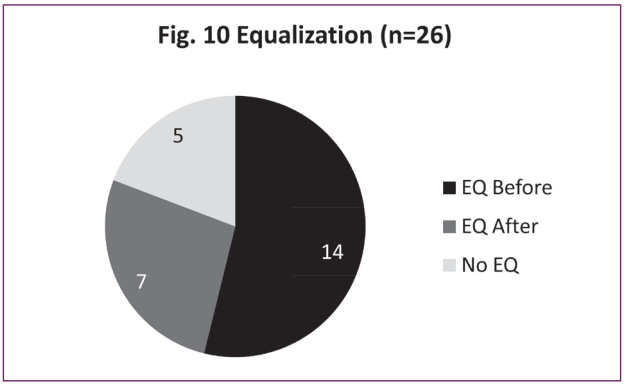


Figure 10: Application of equalization (EQ) before or after digitization.

5.2.1.3. Storage format

Twenty-two respondents reported using either WAV or BWF format (n=25). Of these, eight listed BWF. Use of the BEXT chunk associated with BWF was not measured.

6. Discussion

6.1. Summary of findings

At present, the literature on preservation and digitization of 78s, instantaneous discs, and cylinders offers several sets of standards and recommended practices. Also found in the literature are reports of completed or ongoing digitization projects and national planning frameworks. However, at the time of this research no reports had been published on adoption of published standards. While two joint CLIR and NRPB publications published after the survey was carried out address many challenges in audio preservation, including the deteriorating condition of collections and the need for broader institutional support for preservation projects, neither publication directly measures adoption of published standards.[61]

While there are certainly professionals in the field with extensive anecdotal knowledge of practices in use at a variety of institutions, this information has not been collected, coded, analyzed, and published. The present study provides data that can be used as feedback by authors of current standards and as background information for authors of future standards. Institutions and preservation teams can use the data to determine how their own preservation practices are situated within the field.

In many areas, the results of this study show widespread use of practices that meet or exceed published guidelines (e.g., sampling frequency and bit depth). In other areas, the data does not indicate a clear trend, or insufficient data was collected to determine a trend. In cases where a standard is being met, it is not always clear whether there is a causal link between the availability of the standard and the implementation of suggested practices. Technical best practices are met more closely than many of the expertise-oriented best practices found in the literature, though the measures of expertise included in the survey are the subject of a separate report to be issued at a later date.

6.2. Standards in use

Barely more than half of the total number of respondents reported use of external standards, while only one quarter of the respondents reported using an internal standards document. This is of interest due to the fact that, in the cases of bit depth, sampling frequency, and file format, far more than half of respondents reported practices that are in agreement with published standards. One possible explanation for this is that the practices in widest use helped determine the standards. Most standards have been developed by consultation with panels of experts who are part of a broader community of practice, and these experts come from some of the surveyed institutions. Another explanation is that several practices recommended in the archival literature are not exclusive to the discipline. The indication of the Audio Engineering Society among standards sources points to this explanation, as AES standards are generally aimed at the wider audio community.

61 R. Bamberger and Sam Brylawski, *The state of recorded sound preservation in the United States: a national legacy at risk in the digital age*, (Washington, D.C.: Council on Library and Information Resources, 2010), and Brenda Nelson-Strauss, Sam Brylawski, A. Gevinson, & National Recording Preservation Board (U.S.), *The Library of Congress National Recording Preservation Plan*, (Washington, D.C.: The Library of Congress, 2013).

6.3. Transfer practices

6.3.1.Signal chain / Hardware and software

While many of the turntables reported in use meet published technical requirements, few models of new, hi-fidelity cylinder players exist, which may be one reason for the use of a historical playback device, and for the use of the house-built players. Interestingly, in a market that offers turntables with prices that reach above $100,000.00, with supposed benefits and features to match, the literature shows that two of the world's leading recorded sound archives choose to use the Technics SP-15[62], which is well suited to the task, yet does not fall under the "most advanced" heading suggested by Schüller.[63] While the SP-15 is no longer in production, even a brisk secondhand market and the expense of repairs do not drive the price anywhere near the range of the boutique turntables mentioned above. The survey results confirm this trend towards the selection of what may be "most suitable," or simply within reach, with additional SP-15s as well as other appropriate but not extravagant turntables in use.

For styli, it may be enough to say that several institutions had a large enough variety to adjust to the needs of each recording. Price may be a prohibitive factor for those listing sub-standard turntables and phono pre-amplifiers or performing analog-to-digital conversion via consumer-grade USB interfaces or on-board sound cards.

6.3.2.Sampling frequency and bit-depth

As figure 8 illustrates, nearly half of the respondents digitize audio at 96kHz, which meets or exceeds most recommendations. Taking 48kHz as the recommended minimum, twenty out of the twenty-five respondents are within the scope of the standard. Two of those working at 44.1kHz cited use of standards that call for higher sampling frequency when responding to other sections of the survey. Their use of a sub-standard sampling frequency is unexplained. Because no qualitative data was collected for selection of bit depth and sampling frequency, it is not possible to determine why five respondents digitize at 16 bits. Concerns over digital storage space or use of relatively antiquated digitization equipment may be responsible. That one respondent is digitizing at 32 bits is of interest, as this rate is not mentioned in the literature, and it remains to be seen whether more standards or institutions will move towards 32 bit in the future. The same respondent sampled at 96kHz, rather than the technologically feasible 192kHz, which might be expected to accompany the increase in bit depth.

6.3.3.Equalization

The application of equalization in the digitization signal chain was not a firmly settled issue in the literature at the time of the survey, so the survey data are difficult to interpret in terms of the stated research goals. For critics of equalization in digitization, who seem to have been ascendant in the time following the survey, the results are discouraging, while for proponents of equalization in the digitization process, the results are encouraging.

6.3.4.Storage format

Results for file format are very encouraging in relation to published standards. Some of those listing WAV may in fact be using BWF, as it is a sub-type of WAV. Some of those reporting the use of WAV were also among the respondents who did not cite the use of

62 Michael Casey & Bruce Gordon, *Sound directions: Best practices for audio preservation*.
63 Dietrich Schüller, "Preserving the facts for the future: principles and practices for the transfer of analog audio documents into the digital domain."

external standards. The use of WAV is also common outside the archival audio field, and this may influence the format selection.

7. Limitations

Several limitations of this research should be noted. First, the separation of media into three groups (instantaneous disc, commercial disc, cylinder recording) failed to take into account the distinction between instantaneous and commercial cylinders. It was assumed that cylinder collections would be smaller, with less respondents reporting work with them, and for the sake of expediency all cylinders were treated as equal. In addition, all genres of audio recording were treated as equal. There may be valid reasons for separate practices when digitizing spoken voice recordings as compared to music recordings, for instance. Future researchers may wish to determine whether significant differences exist in the preservation and digitization of different types of recorded content.

While the response rate for the survey was fairly large, the data collection period was limited to one month. A longer data collection period may have resulted in a greater response rate, which would further validate the results and enable inferential statistical analysis to compare practices across sub-groups of respondents. In addition, translation of the survey or further effort in recruiting participants from outside North America would allow for a better understanding of global practices.

Collection of qualitative data was kept to a minimum, to facilitate a more timely analysis. Collection of more qualitative data would no doubt answer several of the questions raised within the results and allow for clarification of unclear responses.

This research faces a drawback associated with any research on technological practices: changes in technology and the publication of new standards limit the value of the research in the future and require the same research to be repeated after only a few years. If the core elements of the current survey are adapted as a result of the lessons learned in this first iteration, a new version could be created with the intention of repetition on a multi-year basis.

8. Conclusion

This research aimed to measure the adoption of recent archival standards in the field via an online survey. The survey tested not only whether institutions were aware of published standards, but also their current actual practices, regardless of their knowledge of published standards. Many respondents were aware of published standards, and many follow them to greater and lesser degrees. Some, through their responses, indicate awareness of standards but operate using alternative or sub-standard technical practices nonetheless. It is hoped that the availability of this research will help those developing future standards understand the effects of their publications, and help those who are implementing published standards to understand their work in the context of other, similar institutions.

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Appendix: Survey questions

Part 1: Demographics

Your age (optional):
1. What is your position title?
2. How is your position classified? (Professional / Technical / Support)
3. Please identify the type of institution that you represent: (University / Historical Archives / Library / Museum / Government Archives / Other)
4. Which of the following types of media are held by your institution? Check all that apply. (Commercially Released 78rpm Discs / Instantaneous Discs / Cylinder Recordings)
4a. How many commercial/mass produced 78rpm discs are in your institution's collection?
4b. How many instantaneous discs (acetate, nitrate or other) are in your institution's collection?
4c. How many cylinder recordings are in your institution's collection?
5. Has any part of your institution's collection of the above media been digitized within the last 5 years? (Yes / No / Don't know)
6. Were you/are you directly involved in the planning or implementation of the digitization program? (Yes / No)
7. Please identify the type of department carrying out digitization. If a collaboration between departments, check all that apply.
(School of Music / Archives / Library / School of Library/Information Science / Other)
8. Who performs hands-on digitization in your institution? Check all that apply.
(Professional Staff / Technical Staff / Support Staff / Student Assistant / Other)
9. How many people have worked on the digitization process in the last year?
10. Please indicate which of the following professions are represented on your institution's digitization team, or were involved in the development of the program? If possible, please enter the number of professionals from each category:
(Librarian / Archivist / Audio Technician / Research Assistant / Research Scientist / Student Assistant / Computer Programmer / Other)

11a. How many of your 78s have been digitized?
11b. How many of your instantaneous discs have been digitized?
11c. How many of your cylinders have been digitized?

Part 2: Digitization

12. Has your institution performed analog preservation transfers (from disc/cylinder to analog audio tape) in the past? (Yes / No / Don't know)
13. If yes, do you plan to digitize the tape transfers, the original discs/cylinders, or both? (Originals / Tapes / Both)
14. In what type of facility do you perform digitization? (Purpose-built digitization studio / Other recording studio / Archival processing area / Office / Other)
15. Was testing carried out to determine the acoustic characteristics of your institution's digitization room? (Yes / No / Don't know)
16. If yes, please specify the types of testing carried out:
17. Please list each type (rather than make/model) of component in your facility's digitization signal chain. (For example: turntable, amplifier, equalizer, A-to-D converter, PC)
18. Are discs and cylinders cleaned prior to digitization? (Yes / No / Don't know)
19. Is a mechanical record cleaner used? (Yes / No / Don't know)
20. What other methods and materials are used in cleaning discs and cylinders?
21. What variety of stylus shapes and sizes are on hand for use in digitization?
22. Please list the maximum and minimum tracking force applied during digitization playback. (Grams)
23. Please list the maximum and minimum anti-skating force applied during digitization playback. (Grams)
24. Is the system set up for monitoring the signal at multiple points in the signal chain? (Yes / No / Don't know)
25. Are grooves on discs and cylinders inspected with a microscope prior to playback? (Yes / No / Don't know)
26a. Is playback speed adjusted for each disc?
(Yes / No / Don't know)
26b. Is playback speed adjusted for each cylinder?
(Yes / No / Don't know)
27. If yes, how is appropriate playback speed determined?
28a. What model of turntable is used for digitization?
28b. What model of cylinder player is used for digitization?
29. What model[s] of analog-to-digital converter is used for digitization?
30. At what bit depth is the audio captured? (16bit / 24bit / 32bit / Other)
31. At what sample rate is the audio captured? (44.1kHz / 48kHz / 88.2kHz / 96kHz / Other)
32. Is any equalization applied to the audio as part of the transfer process?
(Yes, before / Yes, after / No / Don't know)
33. Are published lists of manufacturer rolloff curves consulted in equalization?
(Yes / No / Don't know)
34. What optimal input level is used (in dB)?
35. What software is used for audio capture? Please list all tools used.
36. What is the target preservation format of the digitized audio?
(For example, BWF, AIFF, WAV, etc.)

Part 3: Standards

37. Does your institution observe any published storage and/or digitization standards?
(Yes / No / Don't know)
38. Please list the published physical media storage standards that are observed in your facility.
39. Please list the published audio digitization standards that are observed in your facility.
40. From what sources does your institution seek out digitization standards?
41. Does your institution have an internal best practices document for digitization?
(Yes / No / Don't know)
42. What does it specify?
43. Would you be willing to provide a copy for this research? Specifications will not be identified with your institution in any publication.
(Yes / No / Don't know)
44. Do you believe that adequate standards have been published in this area? Please justify.
45. What types of specifications would you like to see in future standards?

Part 4: Physical Storage

46. At what temperature is/are your institution's collection[s] (78s, cylinders, instantaneous discs) stored?
47. At what humidity is/are your institution's collection[s] (78s, cylinders, instantaneous discs) stored?
48. Does your institution preserve damaged/unplayable discs? (Yes / No / Don't know)
49. Are your institution's 78/cylinder/instantaneous disc collections stored in conditions different from those of your institution's archival paper documents? (Yes / No / Don't know)

Follow-up questions:

Did you consult with other members of your team in completing this survey?
(Yes / No)
Would you be willing to participate in a telephone or in-person interview in connection with this research? (Yes / No)

ARCHIVING INDIA: DEVELOPING SUSTAINABLE LOCAL CONTENT

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When it comes to offering universal access to information in developing countries, efforts and resources have traditionally focused on building the physical and technological infrastructure. After all, it can be a challenge to provide access to information without electricity, Internet connectivity, computers, hardware, and software when most information is created, received, and disseminated electronically or digitally in the first place. But while technology and infrastructure are undoubtedly vital, so is content. Once the systems are in place, what is it that citizens have been offered access *to*?

This paper explores some of the reasons why developing countries may wish to generate, manage and make available locally relevant content to their citizens. Section 1 establishes the definitions of key terms. Section 2 geographically situates the discussion and provides an overview of select local-content generation initiatives already in place in India. Section 3 highlights two case studies. The first, Citizen Archivist Project (CAP), presents innovative approaches to revenue generation and financial sustainability. The second, CGNet Swara, demonstrates an alternative technological approach toward fostering citizen engagement and the longevity of a grassroots project. Section 4 provides a brief summary of key points discussed in the paper.

1. Establishing a vocabulary

Universal access is a term used to describe or demonstrate objectives and policies that governments (and the international organizations and agencies that support their policies) implement to ensure that all their citizens have access to the benefits of a modern economic life. It refers to the ability of everyone, regardless of region or location, socio-economic status, ethnicity, gender, disability, or any other factor, to access necessities.[64] These necessities can include healthcare, primary education, electricity, energy, water, and sanitation—and in today's information society, it may include access to Information and Communication Technologies (ICTs).

At its core, an information society can be understood as one where it is the possession of information (and not of objects, products, or wealth) that facilitates society's transformation and development.[65] It is a society where "everyone can create, access, utilize, and share information and knowledge, enabling individuals, communities, and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life."[66]

Yet, a large part of the world's population continues to be unable to contribute to or benefit from information available online, a significant reason being language incompatibility. It is difficult to say what percentage of websites across the world are in the English language, but a recent estimation has it at around 43%.[67] This makes English the most well represented language on the World Wide Web. Most of the remaining websites belong to what Keniston and Kumar call "major Northern languages like Japanese, German, French, Spanish, Portuguese, and increasingly Chinese."[68]

While there can be no denying that the World Wide Web has made available valuable knowledge, best practices, innovations, and emerging trends from more developed, Western coun-

64 Information for Development Program and International Telecommunication Union, "Module 4: Universal Access and Service", ***ICT Regulation Toolkit***, accessed July 30, 2013, http://www.ictregulationtoolkit.org/en/section.3126.html.

65 Masuda, Yoneji, ***The Information Society as Post-Industrial Society,*** (The World Future Society, Tokyo, IIS, Washington D. C., 1980).

66 ***Building the Information Society: a global challenge in the new Millennium*** (World Summit on Information Society, Geneva, December 2003).

67 Internet World Stats, "Top Ten Languages Used in the Web," accessed July 30, 2013, http://www.internetworldstats.com/stats7.htm.

68 Kenneth Keniston and Deepak Kumar, ed., ***The Four Digital Divides***, (New Delhi: Sage Publishers, 2003).

tries, such access to what Peter Ballantyne terms as foreign content and foreign perspectives has limitations as well. Ballantyne asserts that easier access to globalized knowledge runs the risk of turning citizens of developing countries into "consumers" of distant and potentially irrelevant information.[69] So much so that citizens of post-colonial societies can often be unaware or unappreciative of the value of their own local knowledge, both in the domestic as well as international scenarios.

Situating his discussion in the African context, Ballantyne points out that local content and knowledge is often undermined in favor of global content—which is evidenced in television programming, advertising, the spread of global brands, the use of foreign languages in schools and universities, and even in the reliance on foreign technical assistance, imported software, and applications.

As a result, the information-sharing process moves from being an exchange to more of a unidirectional flow of opinions, values, knowledge, and perspectives. In Ballantyne's scenario, there is no indigenous reciprocity of information from Africa to the West, or indeed from many or most developing countries to the West. So while developing countries do offer *access* or have committed to offering access, it is inevitably *access to other people's knowledge.*

Locally relevant content, on the other hand, puts the community first. It is "the expression of the locally owned and adapted knowledge of a community—where the community is defined by its location, culture, language, or area of interest."[70]

2. Local content initiatives in India

With this background, what kinds of local content could be of interest and value to citizens in India? A preliminary survey reveals a few initiatives in local content generation already in place.

The Akshaya E-Center is one such example. It is a community web-portal initiative of the Kerala State Information Technology Mission focused on the creation, sharing and dissemination of locally relevant content in the state's local language. As part of the initiative, grassroots ICT centers have been set up at the *panchayat* or municipal ward level, and a local entrepreneur runs each center. The initial focus of the centers was to provide e-literacy, the goal being that at least one person from each household would be taught basic computer skills.[71] The scope has expanded to offer rural Internet banking, e-agriculture, computer education, and payment of utility bills. In addition to the physical centers, community web-portals have also been established to include information in local languages about the local area, local administrative and government organizations, ecology, education, health, agricultural developments, infrastructure, and local employment.

Another example is Anukuram TV, a community television initiative started in 2006. Its goal is to empower communities to become producers of local content—and not just consumers. Anukuram combines a TV studio set up with a local cable TV network. TV programs are telecast through a cable channel to all the community households (where a television with cable connection exists) for thirty minutes a day for three days a week.[72] It is a way of engaging people with local issues in the languages that they understand, impacting even the illiterate. It also delivers services in e-Learning, e-Governance, e-Medicine, e-Health and e-Education to rural areas.

69 Peter Ballantyne, ***Collecting and Propagating Local Development Content: The Case Stories, Research Report No.8***, (IICD in association with the Tanzania Commission for Science and Technology; funded by DFID, 2002), www.iicd.org/files/report8.doc.

70 Peter Ballantyne, ***Collecting and Propagating*** .

71 M. S. Kiran and Jo Tacchi, "Introduction", ***Finding a Voice: Themes and Discussions. Research from the Finding a Voice project,*** (The United Nations Educational Scientific & Cultural Organization, New Delhi, India, 2008).

72 Kiran and Tacchi, ***Finding a Voice.***

The Gender Resource Center (GRC) is a Government of Delhi initiative monitored by the Department of Social Welfare. Each center is set up by grassroots non-profit organizations targeting women in marginalized groups. The GRC offers these women an organized means of accessing need-based information in a condensed form and in the local language. Through the Media Development Course (MDC) at the centers, the women help create digital stories about local gender-related issues, with a focus on health, legal counseling and aid, non-formal education, and vocational training. The content in turn is disseminated through community screenings of the digital stories and in the community newspaper that they help produce.[73]

Hevalvaani and *Mandakini ki Awaaz Samudayik* are two distinct radio projects that seek to train local volunteers in radio production, helping them build radio studios and develop community listening groups, multimedia centers, and content.[74] *Hevalvaani* has developed two radio programs—*Hamara Gaon* or Our Village and *Yuva Manch* or Youth Forum. Both projects are working to produce radio shows on safe migration and AIDS. Each village that falls under these project sites has a volunteer who is involved in identifying local issues of concern. Community reporters make programs on identified issues and record them on a cassette in the local radio studio. It is distributed to communal receivers in the villages either through a satellite service or carried on foot or by public transport. It is then played on the radio receiver in the village. Listening sessions are followed by discussions where community reporters record feedback or create follow-up programming.

Clearly, this is not a comprehensive list of initiatives in local content generation in India, but it provides a broad idea of the various platforms through which they are taking place— community radio, community television, community media centers, and web portals.

There are several challenges to making such initiatives sustainable. First, how can such projects engage the communities that they seek to increase representation of? What helps make members of these communities feel committed enough to participate and take ownership of the project? Second, what is a viable technological platform, keeping in mind the unique situations in developing countries? Finally, is there a sustainable revenue model to continue projects beyond their pilot phase?

3. Case studies in sustainability

This section explores two initiatives in local content generation that have come up with creative solutions to address some of these challenges. The first initiative, the Citizen Archivist Project, has two unique revenue generation models that have helped sustain their operations in countries in Africa. The second, CGNet Swara, has seized on a creative technological solution to content creation—one that moves beyond computers and community media centers and instead uses mobile phone technology to connect underrepresented communities with mainstream media.

The Citizen Archivist Project (CAP) by Smallbean Inc.[75], a social enterprise based in Boston, Massachusetts, provides training to participants in basic ICT skills so that they feel confident to conduct audio and video interviews of fellow community members, upload those interviews to the CAP website, and showcase their local culture and tradition both locally and internationally.

Smallbean installs a solar-powered technology lab containing refurbished computers, cameras, audio recorders, and connection to the Internet in each of their project sites. They impart

73 M. S. Kiran, "Challenging an asymmetric power relation," ***Participatory Content Creation for Development: Principles and Practices. Research from the Finding a Voice project***, (The United Nations Educational Scientific & Cultural Organization, New Delhi, India, 2008).
74 Kiran and Tacchi, ***Finding a Voice***.
75 Small Bean, "Meet Small Bean," accessed July 23, 2013, http://www.smallbean.org/technology.html.

training in computer and technology skills to a group of volunteers at each site, training them to become citizen archivists. They in turn conduct oral history interviews and document village life. This first batch of students in turn teaches subsequent batches of volunteers, creating a sustainable team of citizen archivists and maintaining a steady flow of local content creation.

To sustain their activities and ensure the longevity of their projects, Smallbean has developed two primary revenue-generation models. The Excess Solar Capacity as A Revenue Generation Option (ESCARGO) project is one.[76] The solar panels fitted on the roofs of the technology labs help generate 1000 watts of energy. Yet, the computer laboratory requires only 300 watts. The excess energy, stored in 12 volt batteries, is offered to members of the community for purchase or rent to light their homes, charge cell phones, or power radios, among other uses.

The other revenue-generating model is Project Repat. Repat (as in repatriate or "to restore or return to the country of origin"[77]) partners with "local artisans and small businesses in Nairobi, Kenya to make unique products out of the millions of t-shirts that American organizations such as Goodwill and Salvation Army unload on the developing world each year."[78] The repatriated shirts are then sold back in the United States. This project has generated enough funds to build a solar-powered computer lab in a Masai village, and for one of their local field partners to fund scholarships for at-risk girls in Tanzania.

CGNet Swara is an experiment in citizen journalism in rural India. It developed from an acknowledgement of the disenfranchised indigenous tribal communities of India (estimated to be a hundred million strong) whose voices are not typically represented in the national media. These communities speak different languages from the ones used by the mainstream press, are primarily illiterate, and live in remote, inaccessible villages without electricity.[79] CGNet Swara is a project designed using mobile phone technology to provide this demographic with a voice.

Users call in on a central number and press 1 if they wish to record a story or 2 to listen to any or all of the last three stories published. Moderators verify and edit the stories before making them accessible. Moderators use a Google SMS channel (a free SMS group service in India) to send out a text message after a news report is published.[80] The message includes the phone number recipients can call to hear the report. Select stories are sent out to the CGNet mailing list. Published stories are accessible both via the phone as well as on the CGNet website, where there is also a transcript available.

Originally, CGNet started as an email discussion group on the Internet. As a result, its members represented only those areas that had Internet access. On the other hand, mobile phones, with a 74% market penetration rate in India, offered a wider user base.[81] In 2012, the Telecom Regulatory Authority of India (TRAI) estimated that the total number of mobile phone users in the country was around 884.37 million.[82] Out of this population, 303.04 million subscribers belong to rural areas. The mobile phone model is also cheaper and accessible—the basic infrastructure is already in place in India, and people need not be literate in order to participate.

76 Small Bean, "Small Bean Citizen Archivist Project," accessed July 23, 2013, http://www.smallbean.org/cap.html.
77 Merriam-Webster dictionary, "Repatriate," accessed July 31, 2013, http://www.merriam-webster.com/dictionary/repatriate.
78 Small Bean, "Project Repat," accessed July 23, 2013, http://www.smallbean.org/project-repat.html.
79 CGNet Swara, "About CGNet Swara," accessed July 23, 2013, http://cgnetswara.org/about.html.
80 Preeti Mudliar, Jonathan Donnar, and William Thies, ***Emergent Practices around CGNet Swara, A Voice Forum for Citizen Journalism in Rural India,*** Author-Prepared Pre-Publication Version, ACM, 2012, research.microsoft.com/pubs/156562/ictd12-swara.pdf.
81 Tim Hume, "Phone journalism gives a voice to rural Indian poor," CNN Tech, 2012, accessed July 23, 2013, http://www.cnn.com/2012/02/22/tech/mobile/india-mobile-citizen-journalism.
82 Vicky Kung, "Rise of 'nomophobia': More people fear loss of mobile contact," CNN Tech, 2012, accessed July 23, 2013, http://www.cnn.com/2012/03/06/tech/mobile/nomophobia-mobile-addiction.

Currently CGNet's primary source of funding is through the Knight International Journalism Fellowship Program, managed by the International Center for Journalists. While generous, it is not indefinite and it is forcing CGNet to think of a long-term strategy.

4. Conclusion

According to the 2011 Census of India the number of English-language speakers in India is somewhere between 2% and 11% of the entire population, depending on the level of fluency. Yet, as highlighted earlier, the majority of websites in the world continue to be in English. In order for India to participate in the information-exchange process, it needs to focus on generating sustainable local content keeping in mind the unique information needs of its citizens.

Thus far, efforts in local content generation have been focused primarily on civic issues such as education, health, governance, gender issues, and current affairs. These are important and crucial to social development. But another area that could benefit from attention is the documentation of India's rich, complex, and diverse cultural heritage—the cultural heritage of a country that is in flux. Contemporary India is simultaneously rural and urban, modern and traditional, insular and exposed, depending on the geographic region. The digital content-generation models examined have been successful in engaging their communities within their limited contexts. They could be adapted on a larger scale for future local content generation projects in different areas in India.

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Kung, Vicky. "Rise of 'nomophobia': More people fear loss of mobile contact." CNN Tech, 2012. Accessed July 23, 2013. http://www.cnn.com/2012/03/06/tech/mobile/nomophobia-mobile-addiction.

Masuda, Yoneji. *The Information Society as Post-Industrial Society.* The World Future Society, Tokyo, IIS, Washington D. C., 1980.

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BEST PRACTICE LESSONS LEARNT: HOW THE EXIT INTERVIEW AND ORAL HISTORY PROJECT AT THE UNITED NATIONS MISSION IN SUDAN IS BUILDING A KNOWLEDGE DATABASE

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Abstract

The United Nations Mission in Sudan (UNMIS) operated in a vast, remote and difficult environment in the Republic of the Sudan from 2005 to 2011. The mandate of the mission was to ensure the Comprehensive Peace Agreement (CPA) signed in 2005 was adhered to and that both sides to the Sudan conflict achieved the best outcomes. The issues affecting the western Darfur region are a separate matter and the African Union/UN Hybrid Operation in Darfur (UNAMID) mission deals with them. As far as information and knowledge management is concerned there were many initiatives to ensure that we could address potential risks that operating in the Sudan context presented. The United Nations Department of Peacekeeping Operations (DPKO) and the United Nations (UN) in general have embraced the concepts of Web 2.0 technology. Social networking and file sharing sites have become de facto systems for many UN bodies. The Public Information Office of UNMIS routinely used YouTube, Twitter, and Facebook to spread its information to the wider world. UNMIS had a high turnover of staff and for long periods there is no Best Practice officer based in UNMIS. To counter that trend it was decided to implement an oral history project consisting of videotaped exit interviews of departing staff. This project provided a wide range of best practice and lessons learnt material that will add value to the ongoing operations of the United Nations Mission in South Sudan (UNMISS). It was necessary to develop audiovisual metadata, a keyword thesaurus, and video recording standards and guidelines as none previously existed for peacekeeping operations that could be applied in the field.

The United Nations (UN) has been 'fighting the peace' around the world since its beginnings in the 1940s. The first ever UN peacekeeping intervention was in the British mandated Palestine in May 1948 and has been there ever since. Generally United Nations Department of Peacekeeping Operations (DPKO) missions are acting upon the collective will of the member states of the UN to try to restore peace and stability in conflict areas. Set up in May 1948, the UN Truce Supervision Organization (UNTSO) has military observers in the Middle East to monitor ceasefires, supervise armistice agreements, prevent isolated incidents from escalating, and assist other UN peacekeeping operations in the region to fulfill their respective mandates (UNDOF and UNIFIL). Since May 1948 there have been sixty-six peacekeeping operations around the world.[83] As of August 2011, DPKO supports fifteen peacekeeping operations globally plus the special political mission in Afghanistan (UNAMA) which is fully directed and supported by DPKO. In Sudan and South Sudan in August 2011, the UN has three fully functioning missions and they are the United Nations Mission in South Sudan (UNMISS), the United Nations Interim Security Force for Abyei (UNISFA), and the African Union/UN Hybrid Operation in Darfur (UNAMID).[84]

In this paper we wish to share the work that was undertaken by staff at UNMIS and soon also to be continued in UNMISS as we transition to the new mission in Juba, South Sudan. Information management, with archiving being a major part of that, has been a great success in many ways at UNMIS during the period 2006–2011. It is our intention to highlight

83 See http://www.un.org/en/peacekeeping/operations/peacekeeping.shtml accessed 10 August 2011.
84 See http://www.un.org/en/peacekeeping/ for more updated and detailed background information on DPKO operations around the world.

the project of exit interviewing which included creating an oral history of the mission and how that fits into the concepts of 'best practice' as defined by the UN and how it also requires specialist audiovisual expertise and how that subsequently relates to the UN's use of social media tools.[85]

1. Background information on UNAMIS, UNMIS, and UNAMID

The Sudan, before South Sudan declared self independence on 9 July 2011, was Africa's largest country. Sudan is and was divided along lines of religion (70 percent Muslim, 25 percent animist, and 5 percent Christian), ethnicity (African and Arab origin), tribe, and economic activity (nomadic and sedentary). Since its independence in 1956, the country has seen constant civil wars; the deadliest conflicts being those between North and South 1956–1972 and 1983–2005, and, more recently, the conflict in Darfur. Over the years, there were many attempts by neighboring States, donors, and the parties themselves to bring peace. One such effort, begun in 1993, was a regional peace initiative under the auspices of the Inter-Governmental Authority on Development (IGAD).[86] The UN closely followed and supported the IGAD initiative over the years.

1.1. United Nations Advance Mission in Sudan (UNAMIS)

To intensify the peace efforts and build on the momentum of the progress made by the Machakos Protocol signing on 20 July 2002 by the parties—including the signing of the Agreement on Wealth Sharing on 7 January 2004 and the Protocol on Power Sharing on 26 May 2004 at the IGAD-led talks—the UN Security Council established a special political mission, UNAMIS. The mission was mandated to facilitate contacts with the parties concerned and to prepare for the introduction of an envisaged UN peace support operation. The UN Secretary-General appointed Jan Pronk[87] as his Special Representative for the Sudan and head of UNAMIS. Pronk led UN peacemaking support to the IGAD-mediated talks on the North-South conflict, as well as to the African Union-mediated talks on the conflict in Darfur, a region in the western part of the Sudan.

1.2. Comprehensive Peace Agreement (CPA)[88]

On 9 January 2005, in an event that marked a turning point in the history of the Sudan, the Government of the Sudan and SPLM/A signed in Naivasha, Kenya, the Comprehensive Peace Agreement (CPA). The CPA included agreements on outstanding issues remaining after the Machakos Protocol and had provisions on security arrangements, power-sharing in the capital of Khartoum, some autonomy for the south, and more equitable distribution of economic resources, including oil. While the parties established the unity of the Sudan as a priority under the agreement, they decided to set up a six and one-half year period during which interim institutions would govern the country and international monitoring mechanisms would be established.

85 For a broad overview, analysis and personal reflections of peacekeeping and the influence of information management see T. Adami 'Future Perfect? Peacekeeping, Peacebuilding and Archives – the UN in Sudan' in ***Journal of the Society of Archivists*** Vol. 30, No.1 April 2009, pp3-26.

86 See http://en.wikipedia.org/wiki/IGAD accessed 19 August 2011.

87 See Jan Pronk's weblog page at http://www.janpronk.nl/ and also for an interview with Jan Pronk see www.youtube.com/watch?v=QJDNghp80J0 Pronk was asked to leave Sudan and UNMIS in controversial circumstances due to his use of a weblog where he made remarks about the Sudan Armed Forces seen by the Sudan government as 'unhelpful'.

88 For a brief overview see http://en.wikipedia.org/wiki/Comprehensive_Peace_Agreement and also http://unmis.unmissions.org/Default.aspx?tabid=515 both accessed 15 August 2011.

1.3. Darfur[89]

Even as the civil war in the south concluded with the signing of the CPA, conflict continued in the Darfur region. According to the UN Secretary-General, "a stable Sudan requires a peaceful Darfur."[90] In this regard, it was essential that the work of the United Nations and the African Union in the Sudan be complementary. AMIS had enhanced its numbers in October 2004, bringing it to a total of 3,320 personnel, including 2,341 military personnel and 815 civilian police, as well as complementary civilian personnel. The mandate of the enhanced mission was to monitor and observe compliance with the Humanitarian Ceasefire Agreement signed in N'Djamena on 8 April 2004, and to contribute to a secure environment for the delivery of humanitarian assistance and the return of refugees and internally displaced persons.

1.4. United Nations Mission in Sudan (UNMIS)[91]

On 24 March 2005, the UN Security Council established UNMIS. The Council decided that the tasks of UNMIS, among others, would be: to support implementation of the CPA; to facilitate and coordinate, within its capabilities and in its areas of deployment, the voluntary return of refugees and internally displaced persons and humanitarian assistance; to assist the parties in the mine action sector; and to contribute towards international efforts to protect and promote human rights in the Sudan. The deployment of UNMIS military elements commenced, enabling the force headquarters in Khartoum and the Joint Monitoring Coordination Office in Juba to achieve an initial operating capability, but a number of factors resulted in delays in the deployment rate of some military and police elements. In the following months, UNMIS continued its deployment at a steady pace, albeit behind schedule, and assisted the parties in implementing the CPA and resolving ongoing conflicts. At the same time, the deployment of UN human rights monitors to Darfur accelerated. In a parallel development, on 28 April 2005, the AMIS force in Darfur was increased by the AU Peace and Security Council to a total authorized strength of 6,171 military personnel and 1,560 civilian police. By September 2006, UNMIS military and police components were close to full strength at 8,727 troops, 695 military observers, 186 staff officers, and 666 police officers.

1.5. African Union/UN Hybrid Operation in Darfur (UNAMID)[92]

African Union efforts to seek a solution to the crisis in Darfur culminated in the signing of the Darfur Peace Agreement (DPA) on 5 May 2006. The Secretary-General said that the DPA, signed after more than three years of conflict, had given hope that the parties might be prepared to lay down their weapons. At the same time, he noted that the Agreement still faced formidable challenges. Following the signing of the Agreement, there was an escalation of clashes between those who supported it and those who did not. On 31 August 2006, the Security Council decided to expand the UNMIS mandate to include its deployment to Darfur, without prejudice to the mission's existing mandate and operations. The Council invited the consent of the Sudanese Government of National Unity, called on Member States to ensure expeditious deployment and requested the Secretary-General to ensure additional capabilities to enable UNMIS to deploy in Darfur.

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89 For further context and background on the Darfur conflict see the Int'l Crisis Group (ICG) page at http://www.crisisgroup.org/en/key-issues/preventing-implosion-in-sudan.aspx or see the history.com page at http://www.history.com/topics/darfur-conflict or the brief overview on the Wikipedia.com page at http://en.wikipedia.org/wiki/Darfur_conflict all accessed 16 August 2011.

90 See http://www.stimson.org/spotlight/finallya-un-mission-in-darfur-the-first-step-in-a-long-difficult-journey/ also http://web.peaceops.com/archives/1042 and the Security Council Report of the 6589th SC meeting 22 July 2011 http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/Sudan%20SPV%206589.pdf.

91 See http://unmis.unmissions.org/ accessed 14 August 2011.

92 See http://www.un.org/en/peacekeeping/missions/unamid/index.shtml accessed 14 August 2011.

In the following months, however, UNMIS was not able to deploy to Darfur due to the Government of the Sudan's steadfast opposition to a peacekeeping operation undertaken solely by the United Nations. The UN then embarked on an alternative, innovative approach of trying to stabilize the region through the phased strengthening of AMIS, before transfer of authority to a joint AU/UN peacekeeping operation. Following prolonged and intensive negotiations with the Government of the Sudan and significant international pressure, the Government accepted peacekeeping operation in Darfur. On 31 July 2007, the Security Council authorized the establishment of the UNAMID.[93]

1.6. Completion of mandate – UNMIS, July 2011

The Mission had focused on the parties' outstanding commitments, including the redeployment of forces, a resolution of the dispute over the oil-rich Abyei region, and preparations for national elections in 2010 and the referendums in 2011, which would decide the fate of Southern Sudan. The referendum to determine the status of Southern Sudan was held on schedule in January 2011, with the overwhelming majority, 98.83% of participants, voting for independence. The Secretary-General welcomed the announcement of the final results, stating that they were reflective of the will of the people of southern Sudan.

On 9 July 2011, the mandate of UNMIS ended following the completion of the six-and-a-half-year interim period set up by the Government of Sudan and SPLM during the signing of the CPA on 9 Jan 2005. On 31 May 2011, the Secretary-General transmitted a letter from the Government of Sudan (GoS) to the Security Council announcing the Government of Sudan's decision to terminate the presence of UNMIS as of 9 July 2011.

1.7. UN Mission in South Sudan (UNMISS)

The Security Council established as of 10 July 2011 UNMISS for an initial period of one year. UNMISS was mandated to consolidate peace and security, and to help establish the conditions for development with a view to strengthening the capacity of the Government of the Republic of South Sudan to govern effectively and democratically and establish good relations with its neighbors. As of early 2012 UNMISS was to establish offices in all ten state capitals and also set-up a presence at designated county level locations referred to as County Support Bases (CSB).

1.8. UN Interim Security Force in Abyei (UNISFA)

A separate referendum to determine whether the future of the area of Abyei lies in northern or southern Sudan was not held in January 2011 as originally planned, as a result of a failure to establish a referendum commission and lack of agreement on who could vote. Renewed fighting broke out in the area at the beginning of March 2011, driving an estimated 20,000 people from their homes, according to the UN Office for the Coordination of Humanitarian Affairs (OCHA). The Security Council, by its *resolution 1990* of 27 June 2011, responded to the situation in Sudan's Abyei region by establishing UNISFA. The Security Council was deeply concerned by the violence, escalating tensions, and population displacement. The operation will monitor the flashpoint border between north and south, and is authorized to use force in protecting civilians and humanitarian workers in Abyei.

93 For more detailed background on the Darfur situation see Ademola Abass, Professor of Law, Brunel University, London, "The United Nations, the African Union and the Darfur Crisis: of Apology and Utopia." Netherlands International Law Review, LIV: 415-440, 2007, 417.

2. The UN and social media networks

On 12 January 2010, Haiti suffered a disaster of unparalleled magnitude.[94] The earthquake that day killed over two hundred thousand people; more than three hundred thousand were injured and a staggering 2.3 million—nearly one quarter of the population—were displaced. The Government lost thousands of civil servants and much of its key infrastructure was destroyed. One hundred and two United Nations staff members perished and many more suffered terrible personal losses. All communication means were broken. It was impossible to fully realize who was missing under the ruins and who was even out of the country. Gathering and disseminating information to staff in Haiti or in their homes on the other side of the globe would have been an impossible task if it was not for social networks that offered the only means of disseminating information to thousands of staff members around the globe without having to target them individually.

The United Nations realized the new role that social networks can play in peacekeeping and since then started taking social networks more seriously. Now almost all United Nations agencies have created official sites on Facebook, Flickr and Twitter with purposes that vary from funding activities and event planning to disseminating information and keeping communication channels open with its staff around the globe. The United Nations is also continuing with an ambitious programme to create its own social network "Peacekeeping Unite," a network that will offer powerful social and professional means of communication between the peacekeeping workers. On 13 September 2011 there was what the UN called a "live global conversation event." The Secretary-General was to publicly take questions from around the world. "Questions from the public will be collected through Twitter (using the hashtag #asktheSG). Questions are accepted in all six official UN languages plus Portuguese and Kiswahili. Questions in Chinese may also be posted on Weibo. There are no restrictions on subject matter."[95] There have also been several Internet social media discussions between senior DPKO/DFS officials and field staff that allowed staff to put questions to senior management on any topic.

In Short the United Nations has boarded the social networking train and is now seeking to maximize the benefits. This approach can be seen when you search social networking sites for United Nations material. You will find many unofficial sites but you can also find official United Nations news sites like "United Nations News Center" and "United Nations Information Center" on Facebook. You can also find pages with stunning photographs and videos about the myriad UN global operations in Facebook on "United Nations Photo" or on the "United Nations Channel" on YouTube, which includes videos on a wide range of global topics including current news, peace and security, social and economic development, human rights, climate change, and more. The United Nations Development Programme (UNDP) shares its photographs on Flickr at "UNDP Photostream." The UN Secretary-General's Spokesperson has a Twitter account to keep his followers and one presumes the media informed. At UNMIS the Public Information Office used YouTube to upload and share its videos on Sudan and the photographs taken by PIO staff were included in the previously mentioned UN photo page on Facebook.

94 See http://earthquake.usgs.gov/earthquakes/recenteqsww/Quakes/us2010rja6.php for detail about the Haiti earthquake of January 2010. Accessed 18 August 2011.

95 See the UN iSeek and Facebook sites at https://www.facebook.com/event.php?eid=260677160618578 and http://iseek.un.org/webpgdept2001_57.asp both accessed 29 August 2011.

Figure 1: Selection of UN social media sites.[96]

UN OFFICE	SOCIAL MEDIA SITES
DPKO – UN Dept of Peacekeeping Operations www.un.org/en/peacekeeping/	Facebook : DPKO support for UN staff in Haiti – http://www.facebook.com/event.php?eid=158405560901077#!/minustahsupport Youtube: http://www.youtube.com/unitednations#p/c/49CE20981558F582 Twitter: http://twitter.com/#!/UNPeacekeeping Picasa: http://picasaweb.google.com/lh/idredir%3Funame%3Djunjimorales%26target%3DPHOTO%
United Nations & Secretary-General www.un.org	Hi5: http://www.hi5.com/friend/group/228387--United%2BNations--front-html Flickr: http://www.flickr.com/groups/unheadquarters/ Twitter: http://twitter.com/#!/UN #asktheSG Myspace: http://www.myspace.com/un_unitednations Tumblr: http://united_nations.tumblr.com Linkedin: http://www.linkedin.com/company/1860?trk=NUS_CMPY_FOL-nhre Blogs: http://wwwundispatch.com http://www.unfoundation.org/blog-multimedia/ http://www.unwire.org/ UN Multimedia News Centre: http://www.facebook.com/un-photo#!/UN.News.Centre Youtube UN News: http://www.facebook.com/unphoto#!/UN.News.Centre?sk=app_57675755167 Facebook UN Photo: http://www.facebook.com/unphoto & / unwebcasts Secreatry-General's webcasts: http://www.un.org/webcast/sg.html livestream: http://www.livestream.com/unitednations S-G's Spokesperson: https://twitter.com/#!/UN_Spokesperson Weibo: http://www.weibo.com/UN [Chinese]
UNMIS – Misión is Sudan UNAMID – African Union / UN Hybrid Misión in Darfur unmis.unmissions.org/ unamid.unmissions.org/	UNMIS at Linkedin: http://www.linkedin.com/groupsDirectory?itemaction=mclk&anetid=149904&impid=&pgkey=anet_search_results&actpref=anetsrch_name&trk=anetsrch_name&goback=.gdr_1313474981686_1 UNMIS on Youtube: http://www.youtube.com/unmistv UNAMID at Flickr: http://www.flickr.com/photos/unamid-photo/ UNAMID at Twitter: http://twitter.com/#!/UN_AUinDarfur UNAMID at Facebook: http://www.facebook.com/UNAMID

96 This table is a very small selection of the myriad UN and UN related social media sites available on the Internet. All sites accessed 16 August 2011.

UN OFFICE	SOCIAL MEDIA SITES
UNDP – UN Development Programme www.undp.org	Hi5: http://www.hi5.com/friend/group/3579364--US%2BCommittee%2Bfor%2Bthe%2BUNDP%2B%2528UND--front-html Linkedin : http://www.linkedin.com/groupsDirectory?itemaction=mclk&anetid=1011747&impid=&pgkey=anet_search_results&actpref=anetsrch_name&trk=anetsrch_name&goback=.gdr_1313474981686_1.gdr_1313474981688_1 Twitter: http://twitter.com/#!/UNDP Facebook: http://www.facebook.com/undp Flickr: http://www.flickr.com/photos/unitednationsdevelopmentprogramme/
OCHA – Coordination of Humanitarian Affairs http://www.unocha.org/ OHCHR – High Commissioner for Human Rights http://www.ohchr.org UNHCR – High Commissioner for Refugees http://www.unhcr.org	Facebook: http://www.facebook.com/UNOCHA and http://www.facebook.com/reliefweb Twitter: http://twitter.com/#!/unocha Youtube: http://www.youtube.com/users/ochafilms Facebook: http://www.facebook.com/unitednationshumanrights Twitter: http://twitter.com/#!/unrightswire and http://twitter.com/#!/UN_NGO Flickr: http://www.flickr.com/people/unhcr/ Twitter: http://twitter.com/UNRefugeeAgency Facebook: https://www.facebook.com/UNREFUGEES Linkedin UNHCR 'BlueKey' Campaign: http://www.linkedin.com/groupRegistration?gid=3794019&csrfToken=ajax%
UNESCO – UN Education, Scientific & Cultural Org www.unesco.org	Flickr: many groups such as the world heritage day: http://www.flickr.com/groups/unesco/ Twitter: http://twitter.com/#!/unescoNOW Linkedin UNESCO's profile: http://www.linkedin.com/company/166588?trk=NUS_CMPY_FOL-nhre Scribd: http://www.scribd.com/unicef Youtube: http://www.youtube.com/unesco
UNICEF – UN International Children's Fund www.unicef.org	Hi5: http://www.hi5.com/friend/group/1011658--UNICEF%2Bfor%2Bthe%2BChildren--front-html Flickr: UNICEF UK : http://www.flickr.com/groups/unicef_uk/ Linkedin: http://www.linkedin.com/groups/UNICEF-Supporters-21816?itemaction=mclk&anetid=21816&impid=&pgkey=anet_search_results&actpref=anetsrch_name&trk=anetsrch_name&goback=.gdr_1313474981692_1 Twitter: http://twitter.com/#!/UNICEF Youtube: http://www.youtube.com/unicef Facebook: http://www.facebook.com/unicef Myspace: http://www.myspace.com/unicef UNICEF podcasts: http://www.odeo.com/channel/7933/view

UN OFFICE	SOCIAL MEDIA SITES
WFP – World Food Programme FAO – Food & Agriculture Organization www.wfp.org www.fao.org	Flickr FAO http://www.flickr.com/photos/faonews/collections/ Twitter http://twitter.com/#!/FAOnews Youtube: http://www.youtube.com/user/FAOVideo Twitter WFP: http://twitter.com/#!/WFP Facebook FAO: http://www.facebook.com/pages/Food-and-Agriculture-Organization-of-the-United-Nations-FAO/46370758585?ref=mf Flickr: WFP USA http://www.linkedin.com/groups/World-Food-Program-USA-734147?itemaction=mclk&anetid=734147&impid=&pgkey=anet_search_results&actpref=anetsrch_name&trk=anetsrch_name&goback=.gdr_1313474981692_1.gdr_1313474981694_1 Youtube: http://www.youtube.com/user/Worldfoodprogram Facebook WFP: http://www.facebook.com/pages/worldfood-programme
UN Careers & Recruitment https://careers.un.org/lbw/Home.aspx	Facebook: http://www.facebook.com/UN.careers Twitter: http://twitter.com/un_careers Youtube: http://www.youtube.com/user/unitednations?blend=3&ob=4 Linkedin: http://www.linkedin.com/groups/United-Nations-Careers-3781413?mostPopular&gid=3781413
UN & related blogs	UN Dag Hammarskjold Library blog – http://unhq-appspub-01.un.org/lib/dhlrefweblog.nsf UN Watch – NGO based in Geneva http://blog.unwatch.org/ UN Dispatch – news and commentary http://www.undispatch.com/ UN Foundation – blogspot, videocasts & podcasts http://www.unfoundation.org/blog-multimedia/ UN Truth – journalist Marion Houk http://un-truth.com/ Enough Project – End Genocide http://www.enoughproject.org/blog_posts/United%2BNations Refugees International – http://www.refugeesinternational.org/blog UNESCO – http://unescoscience.blogspot.com/ Turtle Bay Foreign Policy – journalist Colum Lynch – http://turtlebay.foreignpolicy.com/

3. Best practices in the UN and DPKO

In general a best practice is a way of doing things that has proven its effectiveness in one situation and may have applicability in another situation. Lessons Identified are, literally, lessons that have been identified from past actions, projects, and operations. The lessons can be positive, for example the identification of a good practice or innovative approach that is worth repeating, or the lesson can be negative, for example an adverse practice or experience that should be avoided or changed. In a peacekeeping environment the Best Practices staff assists in the planning, conduct, management and support of peacekeeping operations by learning from experience, problem solving, and transferring best practices in United Nations peacekeeping. The overall goal is to develop and support a culture of best practices in United Nations peacekeeping by helping to establish and develop the mechanisms and working habits to share knowledge. To this end, the best practices staff undertakes a broad range of activities and work, including knowledge management, policy analysis and development, and lessons learned. Best

practice staff support operational arms of the departments through the development of operational policy materials and, in particular, on thematic issues such as gender, HIV/AIDS, civil affairs, child protection, and planning.

Within the best practice methodological framework it is important to be clear with distinctions on the products they offer to staff serving in the field:

1. A 'Policy Directive' provides an authoritative statement of institutional and management expectations, parameters and broad methods for handling important issues or activities in UN peace operations. Policies have an expectation of compliance.
2. A 'Standard Operating Procedure' (SOP) is a standing instruction, often based on best practice, that provides DPKO/DFS staff with guidance on how to implement a specific task, process or activity, or to achieve a desired result. Compliance is expected.
3. A 'Manual' is a guidance publication, usually on a technical subject, that may contain an omnibus collection of policies, SOPs, and/or guidelines on subjects that can be logically grouped. Compliance is expected.
4. 'Guidelines' are suggested courses of action, recommendations, principles or considerations that provide guidance to staff on how to implement an activity or handle an issue. Compliance is strongly recommended.

Guidance materials are official DPKO/DFS policies, procedures, manuals, and guidelines. These documents reflect best practices that have been validated through the guidance development process, and represent the official DPKO/DFS approach to particular activities. They carry an expectation of compliance.

Best practices materials refer to After Action Reviews, End of Assignment Reports, Surveys of Practice, and Handover Notes. These documents contain analysis from the field on what works well or could be improved. Best practices materials reflect the personal views of, and are drafted by, field staff, often with the assistance of Best Practices Officers, to transmit their lessons and best practices to colleagues in their mission or other missions, as well as to provide field inputs to policy-makers at Headquarters. The practices they suggest reflect personal views on what works well and what does not. These suggestions have not yet been validated and converted into official guidance, and thus do not carry any expectation of compliance. For this reason, they do not require clearance by senior management in missions or at Headquarters. As a complement to existing guidance, staff members are nevertheless encouraged to consult the best practices library to benefit from their colleagues' experience.[97]

The best practice reporting tools that have been developed to assist in achieving the best practices objectives are:

1. After Action Reviews: AAR's are where the user will use a standard structure that resembles how we learn from experiences by specifying the objectives of the action and its expected outcomes, then explain what went well and what could have been done better.
2. Hand-over notes: The purpose of hand-over notes is to provide the staff member's successor with key knowledge and information regarding the position so that the transition period is as short and smooth as possible. They ensure a degree of business continuity.
3. End-Of-Assignment Report: EOA's are assessments by senior mission staff of the implementation of their mandates. EOA's are distinct from Hand-over Notes, which are strictly factual.

97 Accessed on 17 August 2011 from the Best Practice UN Intranet page at http://intranet.dpko.un.org/dpko/pages/WebPageDetail.aspx?pageid=29

4. Exit interviews

The UN has had the concept of exit interviews as part of its staff departure process for some time. The Human Resource (HR) section of the organization normally conducts them. There is an on-line exit interview that departing staff should do but it is voluntary and the questions relate purely to the interactions staff had with the HR section and how they felt the conditions of service related to their time with the organization. This interview is very narrow in focus and cannot be used to delve into broader issues such as effectiveness of functional strategies in the field in a peacekeeping operation. The UN traditionally used other best practices tools to get that sort of data. The use of AAR reports and EOA forms provided quite a bit of useable data to incoming staff. UNMIS adopted the in-person exit interview approach to add to this exiting and growing body of knowledge. Its purpose was to supplement the existing tools in place.

In the broad sense, exit interviews are defined as:

> "…an interview conducted by an employer of a departing employee. They are generally conducted by a relatively neutral party, such as a human resources staff member, so that the employee will be more inclined to be candid, as opposed to worrying about burning bridges. Exit interviews are conducted by paper and pencil forms, telephone interviews, in-person meetings or online through exit interview management systems. Some companies opt to employ a third party to conduct the interviews and provide feedback."[98]

The UN has adopted a variety of these methodologies to conduct the interviews and the face-to-face version we adopted has been a new direction at UNMIS. These interviews are recorded on video and captured into the recordkeeping system. We have adapted the UN metadata for audiovisual material in the capture process and we use a thesaurus to index the interviews.

Criticisms of exit interviews range from comments that they only capture disgruntled employees, skewed or negative responses, that employees are reluctant to be open and honest so as not to burn bridges, that they offer no tangible benefit to the departing staff, that it is difficult to synthesise the responses into actionable projects or programmes, and that they are time consuming. Paper- or form-based interviews are said to be easy to administer but difficult to compile and the in-person approach is time consuming and it is at times difficult to get staff to openly critique aspects of their employment.

The advantages and disadvantages of the four approaches to administer the interviews are usually defined as being:

1. Paper form – easy to administer, low cost, low participation of 25 percent to 35 percent, difficult to compile/track;
2. Telephone – can probe, can track responses, time consuming, expensive;
3. In-person – personal touch, can probe, difficult to get employees to critique, need to compile/track, time consuming; and
4. Technology based – high participation 65 percent-plus, inflexible in terms of questions and probing, more honest feedback, compiling automatic, easy reporting, reasonably priced.

None seem to be universally accepted as the ideal approach but a combination might be the best solution.

98 See http://en.wikipedia.org/wiki/Exit_interview accessed 19 July 2011

Once it has been decided to adopt the exit interview when staff members leave the organization, it should be kept in mind that several ongoing issues need to be regularly reviewed and, if necessary, addressed:

1. It goes without saying that employees who are leaving can be a great source of information. In the knowledge management context the exit interviews can add to the organization's knowledge and also gather ideas to improve productivity, act as an early-warning risk-management tool for sexual harassment and violence issues, and measure the success of diversity initiatives. The gathered data needs to be acted upon otherwise the process itself becomes redundant. Therefore, senior management buy-in and full endorsement of the interview process and subsequent action is critical or no real value is added to the knowledge base of an organization.
2. In selecting a methodological approach it is important to clearly understand the advantages and drawbacks of each. Defining the acceptable drawbacks and what the minimum level of acceptable advantages should be is necessary.
3. Conduct exit interviews as near to the termination date as possible and during any checkout procedure. If the interview is mandatory and required as a trigger for final benefits to be released then this will provide highest participation rate and possibly the most honest feedback. Use a neutral and preferably non-personnel human resources staff to conduct the interviews.
4. If you cannot make the interview mandatory set an initial goal of 50-60% for the exit interview participation rate by selecting a defined target group of employees. Any participation rate of less than 50% is not ideal and cannot give valid or comprehensive data for analysis.
5. Use both quantitative (rated) and qualitative (open-ended) questions. The quantitative questions will allow you to analyze the data. The qualitative questions will give meaning to the data. Review the questions at regular intervals based on quality of responses and extracted data. Relevance of the questions may change overtime.
6. Do not ask too few or too many questions. Too few and the employee may feel that you do not care; too many and the employees may not complete it or give hasty responses.
7. Compile data from exit interviews into a spreadsheet, database or exit-interview management system to identify trends across the organization. Collected data should be presented in a report format with executive summary for managers to digest.
8. Reports should have parsed data by meaningful demographics to isolate the unique issues and opportunities for different departments, divisions, or job groups.
9. For large organizations, add additional demographics such as gender, race, age range, length of service, and performance rating to further identify organizational strengths, weaknesses, opportunities, and threats.
10. Analyze the data not only to create retention strategies based on the issues identified but also to improve service delivery or effectiveness of functional operations.
11. Capture the interviews into a recordkeeping system for future access to incoming employees. The answers, responses, and synthesised data should be freely available to new staff as a way of adapting to the organizational culture and becoming familiar with former staff opinions.
12. Use a standardized tagging system and structured language to log the interviews according to responses given by the staff.
13. Regularly review the entire methodology including the questions asked to ensure the process is still achieving its stated goal of improving how the organization does its core business.

Selection of questions to be asked is a contentious issue in the literature on exit interview strategy but most commentators agree that it is best to ask open-ended questions that do not allow for 'yes' or 'no' answers. The questions asked during the interview are the single most important aspect of the exit interview process. The quality and quantity of responses depends upon the questions and the way the questions are posed during the course of the interview. In

the UNMIS interview process we ask the following questions. These questions have remained constant since the start of the project despite the regular reviews undertaken.

1. Could you briefly introduce yourself and can you please tell us your duty station and functions while at UNMIS?
2. Did you undertake any kind of national preparation before you came to the Mission?
3. On arrival at UNMIS were your duties and functions well defined and were you provided with any handover notes?
4. What was most rewarding and most challenging about your work at UNMIS?
5. With the benefit of hindsight, what would you say needs improvement or was done well at UNMIS?
6. Which PKO's have you worked at before and when? If you have prior experience with DPKO, how does UNMIS generally compare to the other missions in terms of conditions of service, quality of life and satisfaction of the role you fulfilled?
7. Did you feel that you had the opportunity and full support to positively contribute to the mandate of the mission? Where you able to participate in the training programme at UNMIS?
8. Did you make use of any of the staff counseling and welfare, organized staff activities or medical services and how would you rate those support services?
9. Overall was your time with UNMIS a positive experience and could you recommend such an experience to anyone else? *(Military and Police)* How will you give your impressions or experiences to other national colleagues if they come to serve in UNMIS?
10. Did you write any handover or end of assignment report? What made you leave UNMIS?
11. What were your general impressions of Sudan and is there anything else you wish to add?

Through the use of this set of questions we feel we can identify if there is an issue with pre-deployment to the mission, and whether the induction and initial phase at the mission are productive. We can identify what makes staff separate from the mission and whether they were part of the best practice process on checkout, as well as what they felt about their ability to perform duties and the support of supervisors and managers. There is also a consent form that all participants complete where we capture further metadata that links the recorded interview with data such as gender, nationality, office location, staff type and grade, length of service, various dates, and an acknowledgement that the interview may one day become a public record of the UN archives.

From our perspective we feel this exit interview fits very well into the best practice framework of the UN. As previously explained the best practice concept of the UN falls into the framework of the 'best practice toolkit'. The toolkit has several tools that allow for capture of staff knowledge through crowdsourcing data with products such as 'end of assignment reports' or 'hand-over notes' and by making available online SOP's and guidance material. The exit interview is an additional aspect to all of these products and does not make any other product obsolete.

It has always been the case that managers of information systems used a form of standardized metadata to categorise the information they maintained. The metadata aided access to the information. "[Records managers] have always captured metadata about their organizations' records in their records systems and related tools"[99] but we needed to review the current schema available as far as audiovisual records were concerned. We had to be able to run a report from the recordkeeping system that allowed for the quick provision of summary infor-

99 W. Duff and S. McKemmish 'Metadata and ISO 9000 Compliance' in ***The Information Management Journal,*** January 2000. pp.4-16.

mation with regard to nationality, gender, location and staff type, functional area of employment, and major areas of concern in their responses. This metadata applied to the records was the most effective way to be able to extract data from the recorded interviews.

Figure 2: Synopsis of interviews conducted showing selected data such as nationality in order of top 20 numbers and staff types interviewed.

NATIONALITY[1]	**Staff Total and Types**	**Gender Ratio (M/F) and Main Issues Raised during the Interview**[2]
SUDAN	78 - 3 national volunteers, 75 national staff or national professional officers	Male 54 / Female 24. Premature termination of contracts, transition period
NEPAL	30 - 1 Civilian Int'l, 5 UNV's, 3 Military, 21 Police	M29 / F1. Administration, security, infrastructure, R&R, language
BANGLADESH	28 - 1 Civilian Int'l, 4 UNV's, 16 Military, 7 Police	M27 / F1. Supply, communications, R&R, illiteracy, IDP's
INDIA	26 - 1 UNV, 11 Military, 13 Police, 1 Contractor	M25 / F1. Infrastructure, flight movements, human resources
PHILIPPINES	25 - 7 UNV's, 1 Military, 17 Police	M17 / F8. UNMO patrols and UNPOL call locations, training, mandate, medical
UGANDA	24 - 9 UNV's, 4 Military, 11 Police	M9 / F15. Discipline & conduct, audit, logistical & comms support, tribalism
CANADA	23 - 2 Civilian Int'l, 1 UNV, 20 Military	M21 / F2. Induction training waste of time, bureaucracy
JORDAN	23 - 8 Military, 15 Police	M23 / F0. Language, communication, transport & vehicles
PAKISTAN	20 - 1 Civilian Int'l, 7 UNV's, 10 Military, 2 Police	M20 / F0. Communications, religion, transport & aviation, fighting, information
SRI LANKA	20 - 1 Civilian Int'l, 7 Military, 12 Police	M20 / F0. Language, medical, welfare, culture
AUSTRALIA	19 - 1 Civilian Int'l, 15 Military, 3 Police	M13 / F6. Induction training waste of time, bureaucracy, accommodation, information
ZIMBABWEA	18 - 1 Civilian Int'l, 1 UNV's, 1 Military, 15 Police	M12 / F6. empowerment of women, communications, gender
SIERRA LEONE	17 - 1 Civilian Int'l, 14 UNV's, 2 Military	M17 /F0. Transportation and vehicles, rainy season

NATIONALITY[1]	Staff Total and Types	Gender Ratio (M/F) and Main Issues Raised during the Interview[2]
NETHERLANDS	16 - 6 Military 10 Police	M14 / F2. Induction training waste of time, bureaucracy
RWANDA	16 - 1 UNV, 9 Military, 6 Police	M16 / F0. Induction training, religion, culture, climate
BRAZIL	15 - 1 UNV, 1 Police, 13 Military	M14 / F1. Bureaucracy, induction, culture, medical, climate
SWEDEN	15 - 2 Civilian int'l, 3 UNV's, 3 Military, 7 Police	M11 / F4. Information, GIS, transport
GAMBIA	14 - 14 Police	M13 / F1. Personnel, culture, security
KENYA	14 - 5 Civilian Int'l, 8 UNV's, 1 Police	M9 / F5. Personnel, training, infrastructure, accommodation, culture
GERMANY	13 - 1 Civilian Int'l, 12 Military, 0 Police	M13 / F0. Induction training waste of time, bureaucracy
	Total interviews of the 'top 20' nationalities **450 out of total of 688**	Overall ratio male to female – **82% to 18% (**564 males to 124 females)

Note 1 on Locations: HQ was in Khartoum. The Sector offices include those in Team Sites. UNMIS had 6 Sectors each with a HQ office. Sector I – Juba, II – Malakal, III – Wau, IV – Ed Damazin, V – Kadugli, VI – Abyei and LogBase was in El Obeid. Each Sector had a number of smaller Team Sites used by UNMO's and UNPOL staff as well as human and civil rights and other substantive staff. 34 UNMIS office locations were covered in the interviews.

Note 2 on Locations: The highest number of interviews from HQ, LogBase and Sector Offices (in reverse order): Khartoum 162, Juba 101, Wau 41, Malakal 37, Ed Damazin 30, Abyei 28, Kadugli 27, El Obeid 7.

The highest number of interviews from Team Sites (in reverse order): Rumbek 31, Bentiu 29, Aweil 28, Bor 20, Yambio & Torit 16, Nassir 14, Dilling, Maridi & Melut 12, Yei 10, Kauda 9, Raja 8, Kurmuk & Warrap 7.

Most commonly raised issues at check-out: 1. the checkout process; 2. Induction training; 3. Information flow; 4. the transition period; 5. transportation, flight schedule, and cancellation; 6. accommodation; 7. bureaucracy; and 8. premature termination of contracts.

Footnotes

1 Total of 84 nationalities interviewed over a period of 10 months.

2 See notes at bottom of table regarding issues of concern raised by participants.

4.1 Enhancing knowledge management?

Much has been written about the concept of knowledge management. For the sake of brevity in this discussion, it is the concept of harnessing, as far as possible, the intangible aspects of an organization's knowledge base, i.e., the accumulated knowledge of staff gained through the active performance of their functions and duties overtime. Knowledge management is about systems and technologies. It is about people and learning organizations. It involves processes, methods, and technique. It is about managing knowledge assets. It is a holistic initiative across the entire organization and should be an integral part of every knowledge worker's daily responsibilities.[100]

Given the best practice requirements to develop documentary resources for future staff to access in the performance of their work, the exit interviews form a valuable asset in that respect. Apart from reading the hand-over notes or end-of-assignment reports of former staff, incoming staff members can now view the exit interview of their predecessor to give them a very real introduction to the mission and possible feedback related to the work they will be expected to perform. As the interviews are indexed in the recordkeeping system of UNMIS they reside with the other more traditional records expected to be found in any organization.

5. Oral history

A secondary benefit of the exit interview is that we are creating an oral history of the mission. It has been said that "'Oral History" is a maddeningly imprecise term: it is used to refer to formal, rehearsed accounts of the past presented by culturally sanctioned tradition-bearers; to informal conversations about "the old days" among family members, neighbors, or coworkers; to printed compilations of stories told about past times and present experiences; and to recorded interviews with individuals deemed to have an important story to tell.[101] Sub Saharan Africa has a long tradition of its own form of oral history in the guise of West African griots that passed down history orally through generations. Countries such as Kenya, Eritrea, South Africa, Ghana, and many more all have had experience with traditional oral histories being fundamental to their identity and cultures.[102] In the twenty-first century oral history continues to be a thriving and seemingly useful tool if one surveys the many organizations both national and international that exist to foster the practice globally. [103]

Historians generally consider oral history as beginning with the work of Allan Nevins at Columbia University in the 1940s. Nevins was the first to initiate a systematic and disciplined effort to record on tape, preserve, and make available for future research recollections deemed of historical significance. While working on a biography of the United States of America President Grover Cleveland, he found that Cleveland's associates left few of the kinds of personal records—letters, diaries, and memoirs—that biographers generally rely upon. Moreover, the bureaucratization of public affairs was tending to standardize the paper trail, and the telephone was replacing personal correspondence. Nevins came up then with the idea of conducting interviews with participants in recent history to supplement the written record. He conducted his first interview in 1948 with New York civic leader George McAneny, and both the Columbia Oral History Research Office—the largest archival collection of oral

100 See the 'Knowledge Management On-line' web page for a wide range of definitions and resources on KM http://www.knowledge-management-online.com/Definition-of-Knowledge-Management.html accessed 22 August 2011.

101 See the very informative discussions and resources at 'History Matters', ***Making Sense of Oral History*** http://historymatters.gmu.edu/mse/oral/what.html accessed 21 August 2011.

102 See the Columbia University Libraries 'African Studies' ***History and Cultures of Africa*** page at http://www.columbia.edu/cu/lweb/indiv/africa/cuvl/cult.html for a huge reference listing of sources on many aspects of African history including the oral tradition. Also see the 'International Society for the Oral Literatures of Africa' website at http://africaisola.org/ Both accessed 18 August 2011.

103 See http://iohanet.org/resources/websites.html for a comprehensive global listing of associations and organizations devoted to oral history, accessed 21 August 2011.

history interviews in the world—and the contemporary oral history movement were born.[104] This situation still rings true at UNMIS where most staff members rely on email and mobile phone communications including text messages. Given that few recordkeeping systems exist that allow for capture of text messages or phone conversations we have lost a large amount of communication between staff. It was only in early 2011 that UNMIS implemented a record-keeping system that allows for capture of emails as well as the traditional record formats of digitized hard-copy, born digital, and audiovisual records.

It was the intention of the staff of the UNMIS archives to collect the thoughts of departing staff to provide a tangible link to the past once the mission had closed its doors and ceased operations. The questions asked at the exit interview were framed with an eye on what a future researcher might want to hear from staff. The open-ended nature of the questions put to the staff members who participated in the programme led to broad responses from a wide range of staff. In particular UNMIS exit interview questions 9 and 11 noted above were meant to elicit a response that was more personal and that might be of more value to a social scientist twenty years in the future rather than senior management of the mission in 2011. The interviewer also has the ability to probe while asking the questions. If the interviewee raises an interesting point it is possible to ask supplementary questions to get more detailed information. The process is not set in stone but is flexible enough to be able to draw out more than standard responses from some interviewees who may be reluctant to say too much due to cultural background or expectations of military and police 'conditioning.' We have realized in the course of doing over 650 interviews that it is more than simply asking the questions and recording the session. To get a truly useful interview it is important to listen carefully and try to get as much as possible from the interviewee. Of course it goes without saying that some people will just not open up and no matter how much you probe they will limit their responses to the bare minimum. Hence we have interviews that are a total of six minutes while others run for an hour.

> "Oral history might be understood as a self-conscious, disciplined conversation between two people about some aspect of the past considered by them to be of historical significance and intentionally recorded for the record. Although the conversation takes the form of an interview, in which one person—the interviewer—asks questions of another person—variously referred to as the interviewee or narrator—oral history is, at its heart, a dialogue."[105]

It has been said that the best oral history interviews have a measured, thinking-out-loud quality, as perceptive questions work and rework a particular topic, encouraging the narrator to remember details, seeking to clarify that which is muddled, making connections among seemingly disconnected recollections, challenging contradictions, evoking assessments of what it all meant then and what it means now. As much as possible this is what we have tried to do at UNMIS while maintaining the primary need to gather information on the work-life experience of staff in the peacekeeping field to try to improve processes and functional effectiveness through a reporting structure to senior management of the mission. We feel we have been able to find a middle ground between satisfying the need to report on staff impressions and to provide future researchers with a useful resource on what it was like to work in the peacekeeping field with UNMIS in 2010–2011.

It is acknowledged that oral history is a very tangible and accessible way to pass on real life experience to others who view the recorded responses of those who participate. We are not, however, saying that it is necessarily a better history than one written by a historian. It is true to say that just because someone was there does not mean they fully understood what really happened or how their experience should be conveyed to others

104 'History Matters', *Making Sense of Oral History* http://historymatters.gmu.edu/mse/oral/what.html.
105 See http://historymatters.gmu.edu/mse/oral/what.html.

in a meaningful or objective manner. The immediacy and emotional connection of the respondents can at times be a negative thing. What we hope to do with these oral histories is to present very personal reflections on what life was like at a peacekeeping mission in Africa in the second decade of the twenty-first century. Interpretation of the content of these interviews should be the concern of a trained professional.

6. Audiovisual developments

As part of the development phase of the exit interview and oral history project we needed to establish a technical framework on which we would build the overall project goals. This framework included setting a minimum metadata requirement for the upload of the interviews into the recordkeeping system. UNMIS used the HP TRIM[106] system, which has the capacity to capture records in most formats. Certain audiovisual records were easily captured into the TRIM database. We also had to determine the file formats to use to record the interviews of staff. We discussed this with other audiovisual colleagues primarily at the UN International Criminal Tribunal for Rwanda (ICTR).

Initially for lack of appropriate recording equipment when the project was initiated, we used the only available Sony DCR-SR52 HDD Handycam whose output is MPEG2 (not a highly recommended or an archival file format). After seeking professional advice, we have decided that we should procure an AGHVX-200 camera which outputs to Quicktime. The footage is compressed and the compression is DVCPROHD. It shoots on P2 cards, which are like mini hard drives but solid state (i.e. no moving parts) so they are potentially more stable. We will use the camera with an external microphone.

The metadata we use in TRIM for the exit interviews was derived from PBcore as well as the Department of Public Information (DPI) at the UNHQ in New York. Some of the fields which are mandatory for our videos are: Title (name & functional title), Nationality, Staff Category (Civilian, Military Observer, UN Police), Gender, Interview Duration, Location (Duty Station), Duration of Service, Date of Interview and the Interviewer.

7. Conclusions

The joint Exit Interview Programme and the Oral History Project had been the culmination of many hours of efforts to establish a process whereby we had a worthwhile end product. In a relatively short time period we were able to interview almost 700 departing staff and capture their thoughts and impressions for future use. Of course some issues such as cultural sensitivities and military mind-sets impede the free discourse of some participants but we still believe that major issues can be synthesised from the collated data we gathered. It is also fair to state that the processes within the UN driving change and enhancing best practice and knowledge management also added to the impetus to ensure we were able to get management support at UNMIS to carry out the interviews as apart of the staff check out process. Social media developments after the Haiti earthquake in 2010 established and solidified the widespread use of these Internet based tools and they are now part of the fabric of the United Nations. It is within this context that we carried on with the oral history project to ensure social and personal voices of those who served in UNMIS will remain accessible long into the future. Many lessons have been learnt and we now have them recorded according to best practice standards.

106 See http://h41112.www4.hp.com/promo/imhub/trim/erm/index.html, accessed 10 August 2011.

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NOTES