Abstract

The documentation of donor-funded projects using the moving image can facilitate a space where the merits, contours, rationale, and outcome of the commissioned work can be shared, discussed, and evaluated. However, in such an exercise, the nature of the characters involved often takes less of a role as compared to the more qualitative and quantitative elements of standard project documentation. At the core of any such development intervention are individuals, and by direct extension, livelihoods. If one uses the visual medium to present these experiences, can the end result present a more holistic perspective of the nature of the project, firmly rooted in the character of those interacted with on camera - their lives, their contexts, their perspectives, and all the idiosyncrasies that we all possess as individuals? This report recounts the experience of the consultant in addressing this question via his applied experience in working on a series of videos for Connectivity Africa, and, among other factors, working with another cameraperson; having a large number of projects to document; and finally editing over two hundred interviews captured across five countries in a ten week period. The main conclusions are that while it is possible to approach the ideal of firmly rooting narratives in the context of characters within a development communication milieu, more time is required to allow for those characters to develop, and ideally, projects chosen for documentation should possess a strong character to allow for more visceral, engaging content to be produced, thereby allowing for the possibility of as wide an audience as possible to engage with the content.
1. The Research Problem.

The consultant was approached in November 2007 while attending GK3 in Kuala Lumpur, Malaysia with a proposal: would he be interested in documenting some of the projects supported by Connectivity Africa for a wider audience? Having had worked with IDRC as a director on a number of productions in the past, and given his interests in observing and considering the state of ICTs in a donor funded development context, he indicated his interest and his desire to work with another camera person, Ms. Tabasheer Zutshi.

From the perspective of the consultant, beyond a simple opportunity to document research that he found interesting, the assignment offered the chance to truly build characters out of those interacted with in the context of the production. While the nature of ICT4D projects is often focused on technological elements as a means to improve livelihoods, the ultimate rationale for their execution is firmly located in livelihoods, and by direct extension, individuals. Assuming this, the consultant wanted to focus not only on the projects, their objectives, and their successes and challenges, but also on those who are affected by the projects – to establish who these people are (as opposed to simply project managers, “beneficiaries”, and similar established roles) and to present a more intimate perspective of why these projects are of use. Perhaps most importantly, the nature of the work documented is based on principles that are universally understood - to use technology as a means to improve ones life. Consequently, and due to the common experience that all people have with this stated principle, the aim of the production was to be palatable and to be made tractable to as wide an audience as possible, in order to provide a forum where these common experiences can be presented and understood by that general audience. By establishing strong characters, the opinion of the consultant is that this process of understanding can be made more visceral.

Given this, the problem, or perhaps the challenge, was to establish and allow for relationships between filmmaker and subject to evolve to an extent that a clear character could be revealed. The constraint in this challenge was time. To establish and facilitate such a relationship is a dynamic process, particularly when a camera is involved and there is the explicit realization that whatever is stated on camera will be shared with an audience, an audience that is unfamiliar to the character in question.

In practice, due to the large number of projects considered and the logistics of travel, the time required was, generally speaking, not sufficient to allow for the development of the relationships required to establish these characters in the context of the moving image. While relationships were certainly forged, and on occasion the camera did “disappear”, generally speaking the objective of forging a narrative that would illustrate the contours of the project from the perspective of documentation as opposed to documentary were met. And as such, the final production does illustrate the projects in terms of the context in which they exist within, the nature of the challenges faced, whether or not objectives were met, and other more reportage-centric elements of such a production. However, in terms of truly revealing identities and the implicit idiosyncrasies that people possess, the production, by construction, was hindered by logistical realities.

2. Objectives.

The premise of this video production has been to document work either currently or previously supported by Connectivity Africa, with a focus on five African countries: Algeria, Morocco,
Kenya, Uganda, and South Africa. Filming took place between May 18 and July 31, 2008, and resulted in approximately 100 hours of raw footage consisting of over 200 interviews. Logging the footage began in September, 2008, editing began in November, 2008, and the final deliverables were completed and submitted in September, 2009. In total, nine pieces were delivered, with a total running time of approximately one hour.

While a number of different projects were encountered, the narratives began to emerge during the process of logging; that is, the common threads between the projects began to emerge during late 2008. These threads were not limited by political borders, but rather by broader themes: medical care in the context of pandemics and how to provide medical care in the face of lacking expertise and a distinct urban-rural divide; connectivity in underserved areas; microfinance as a means to bolster livelihoods; secondary/tertiary education, emerging IT job markets, and e-learning; and networks of expertise to sustain the human and technical network capacity required to take the African continent online in the 21st century and beyond.

Initially, it was proposed that the content would be presented in line with three broad themes - Three broad themes in line with the four objectives of Connectivity Africa (CA). First, Innovation in the Use of ICTs, second, African Regional ICT Networks, and third, Research and Development in African ICTs. The production team proposed that the video would be divided up along these lines - three “chapters” - and within each chapter, a series of “sub-chapters”.

However, during the editing phase, it began to emerge that while there were common threads as indicated earlier, these common threads would not be sufficient to string the stories (i.e. the projects) together to form the three pieces discussed above. After consultation with Ms. Emdon, three new themes were proposed: ICTs and Health, ICTs and Education, and ICTs and Livelihoods. While the consultant began to work within this framework, it soon became clear that the balance required between establishing the core elements of the project context (i.e. what the research problem was, how it was being addressed, and the challenges/successes faced) and the more character based exercise discussed in the preceding section, would require pieces that were far longer in duration than what the consultant’s terms of reference indicated. That, coupled with the opinion that the pieces should not be longer than ten minutes in order to keep the attention of the viewer, led the consultant to finally edit nine separate pieces as opposed to three (plus the ten minute overview of all the projects submitted in January 2009). These nine pieces were not all treatments of one project; for instance, the piece on FOSS in Academic Institutions coupled the north African experience (i.e. POLLES) with the sub-Saharan experience (i.e. AVOIR). Similarly, the piece on Bandwidth and RENs coupled the experiences of the UbuntuNet Alliance, the AAU, and the AfNET processes together given the interlinked nature of the work within.

Ultimately, the initial image of the production differed from the final product in terms of themes, but did not stray very far from the core rationale - to present videos that could be easily understood by a fairly wide segment of the population on why these projects are both pragmatic and effective. While the consultant provided an additional twenty minutes of content outside the terms of reference, the resultant content does address the projects covered in a succinct manner. In terms of the characters built, while the exercise did not allow for the depth that would have been ideal, the nature of having two cameras as opposed to one did allow for a completely different dynamic between camera person and interviewee, and the experience yielded insights regarding production dynamics (i.e. about 50% of the footage was shot “freehand” – without a tripod – a totally new experience for the consultant and directly due to the influence of Ms. Zutshi’s expertise) that have led to the further development of the consultant as a filmmaker.

Initially, there were discussions of getting this content broadcast - that is, to sell the content to television. The nature of this production was to cover a large amount of data across five
countries in a limited amount of time, as opposed to focusing on a smaller contextual subset to really get into the lives of these characters. As such, the possibility of broadcast oriented content being developed was not easily tenable due to the challenge of authoring narratives that are engaging. Given these realities, the consultant was of the opinion that specialty oriented internet broadcast portals (i.e. CurrentTV, http://current.com) may be better suited to showcase this content due to the highly specific and often technical nature of the content. While a general audience can appreciate the information, most broadcast oriented content has some “pathos”; that is, an element of tragedy or perhaps drama. This may sound formulaic, but it is of the opinion of the consultant that a broadcast institution is most interested in a “hook”. This content did not have that kind of appeal, perhaps due to the time constraints discussed here, or perhaps due to the nature of the projects themselves.

To date, the content has been shared on YouTube, with a moderate level of hits, peaking at the October 2009 Acacia Research and Learning Forum in Senegal1.

3. Methodology

As alluded to earlier, this production differed from other productions undertaken by the consultant, and for two primary reasons. First, the consultant worked with another cameraperson, Ms. Zutshi. Second, the number of projects to be considered was more than the consultant had ever encountered for one contract. In practice, this had two ramifications on the methodology pursued by the team, at least from the perspective of the consultant.

First, working with an additional cameraperson in terms of creative execution resulted in techniques never before attempted by the consultant. In particular, a number of the interviews were not really interviews at all, at least not in the sense of how the consultant had interacted with people on camera before. Those who were the subjects of on camera interaction were often simply walking while speaking, or conducting their day-to-day activities. In terms of technique, this implied that the cameraperson would have to follow them at all times. While this resulted in much more footage than was typically acquired by the consultant for prior IDRC productions, and as such required a higher investment in logging and editing time, the end result was aesthetically more pleasing, as the dynamic nature of following someone on camera resulted in more true to life interactions (i.e. the viewer has richer subset of visual cues to establish the context in which the character is living and working in, as the background is not static). This presented novel challenges as well, primarily relating to sound capture. A seated interview is relatively straightforward to mic; one simply uses a handheld or lapel mic and allows the interviewee to respond to questions; questions that often have been formulated prior to the interview. On the other hand, the “run and gun” style pursued here at times disallowed for this type of sound capture, and by necessity required one person to shoot, and the other to control for sound. But, working as a team of two allowed for this to occur, successfully.

Second, the logistical challenges of constantly being “on the road” and traveling to multiple sites (the production team was rarely on site for more than two days at any given location over the course of those ten weeks) necessitated a high level of prior understanding of the nature of the project realities. However, while all attempts were made to establish prior contact with the key members of each project to familiarize them with the goals of the production team, their timeframes, and the nature of their visit (i.e. which people to meet, where they are, are they available, etc.), what the production team on occasion found on the ground was quite different from what they had been prepared and briefed to expect. This was especially the case with

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1 Refer to http://www.youtube.com/connectivityafrica.
regards to the Peebles Mesh project, where the VOIP phone over the mesh had been out of use for months (this was the primary theme that the production team were to consider), or, with regards to POLLES, while the actual university that was most successful with using the software was in Agadir, Morocco, this fact was not evident to the production team until they were on site, and a visit could not be arranged due to travel plans that could not be adjusted at that time. Similarly, while a visit to the Mosoriot clinic near Eldoret, Kenya was not suggested prior to the team in the context of the OpenMRS piece, it became clear during HISA 08 in Durban that such a visit would be useful after consultation with Ms. Emdon, and the additional travel costs incurred would be reimbursed. That said however, overall these logistical challenges were far from insurmountable, and the team managed to establish contact with all the parties that were outlined prior to site visits, as well as others that became clear over the course of the site visits.

Generally speaking, the methodology pursued here was a mix of formal, sit-down interviews and the more informal “run and gun” style of shooting. The resultant content presents this balance clearly. In terms of postproduction, the consultant first logged all 100 hours of the footage, which took about one month. This step was crucial however, as it was the only time that the consultant could gain an inclusive sense of what footage was acquired and what the overlapping themes were. At this time, content which required translation was submitted to various individuals, most often those people involved with the projects themselves. As a result, the projected cost of the translation was highly overestimated. From a more process oriented perspective, the process of logging allowed for a tractable means of actually working with the footage, as all the answers to questions, stock footage, and other key elements of the footage were organized in a logical manner that allowed for efficient editing to occur. This logged footage was sent to Ms. Emdon and Ms. Lefebvre on two hard drives in November 2008, as requested by them for their own evaluation.

After the logging process, the consultant began to edit. The first piece was commissioned for a January 2009 meeting, and was a general overview of all the projects in a ten-minute space. Between February and July 2009, the consultant was based in India pursuing his doctoral research obligations, and beginning in August 2009, the consultant began work on the remaining pieces. Over the course of eight weeks, the consultant completed eight drafts for comments of the pieces and sent links for particular parties to respond to. Over the course of those eight weeks, comments were minimal, presumably due to a combination of summer holidays and other more pressing engagements among those to whom the pieces were circulated. However, some very useful comments were received, particularly towards the end of that eight-week period, and all were incorporated into the pieces. By September 28, 2009, all the content was completed and made public online, and two DVD masters were sent to Ms. Lefebvre on October 14, 2009; one for NTSC regions and one for PAL regions.

4. Project Activities

The activities supported by this contract were quite straightforward; two individuals were contracted to visit multiple project sites over five countries and document project realities. As such, the primary activities supported were travel, production costs (i.e. MiniDV cassettes), daily perdiems, and the fees of the consultants.

The only real lesson learned here was that the yardstick used initially by the consultant of one day for each finally edited minute of content was, in this case, far under what was actually used in practice. While the consultant billed for 47 days on site and 40 days of postproduction, in

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2 A storyline submitted for comments at this stage can be reviewed in the appendix.
realty postproduction occurred over the course of 160 days between 2008 and 2009, four times what was estimated initially. This was primarily due to the sheer amount of footage acquired, but also due to the multiple obligations that the consultant had over the course of those two years. Regardless, the consultant learned a lot in both a creative and professional context as a result of the assignment, and will apply this knowledge to future productions.

5. Project Outputs

There are two main subsets of project outputs; that which is available online on YouTube, and the DVDs that will be made available to interested parties of the same content. In more detail, the content created is listed here:

5.1 Open Architecture and Standards for Information Systems in Health.

2009. 6m49s. English with English Subtitles.

Open Technologies refer to a collection of tools and techniques that contribute to an open approach towards developing and implementing eHealth and health information systems. The hallmarks of the approach are collaboration, standardization, reusability and interoperability.

This video details the OASIS project, an applied example of the open approach. Supported by Connectivity Africa since 2007, the project aims to facilitate the development of free and open source software tools to manage the massive amounts of medical information that health care demands, here in the African context.

5.2 Free and Open Source Software For Microfinance.

2009. 5m33s. English/Swahili with English Subtitles.

Developed by Grameen Technology Centre and adapted for Africa’s low bandwidth conditions, MIFOS aims to improve administration for microfinance in Kenya. The free and open source software solution aims to provide a platform for microfinance institutions to manage the wealth of data that corresponds to the portfolios of a rapidly growing number of clients.

This video considers how Mifos has been implemented in Kenya, with a focus on two institutions; the Jitegemea Credit Scheme and the Kenya Entrepreneurship Empowerment Foundation. It also considers how a HIVOS initiative, Mifos Light, has been implemented as a modification of Mifos, tailor made for situations where connectivity is not present. Connectivity Africa has been supporting Mifos since 2006.

5.3 Acacia and Connectivity Africa: Innovations for ICTs in Africa.

2009. Length: 9m59s. English/Arabic/French/Swahili with English Subtitles.

This 10-minute video presents an overview of a number of projects supported by Connectivity Africa. Connectivity Africa was designed to promote research, development and innovation in the use of Information and Communication Technologies (ICT) for progress in Africa, focusing on the areas of education, health and the economy.

It was implemented by the International Development Research Centre (IDRC), in partnership with the United Nations Economic Commission for Africa (UNECA).
5.4  First Mile First Inch.


Mesh networking allows for a number of people to share one internet connection wirelessly, using nothing more than open source software, common routers, and simple antennas - infrastructure that anyone can easily acquire, develop, and modify.

In this video, one example is presented, that of the ACTS clinic in the Peebles Valley, South Africa. While the initial rationale for the network was to connect a clinic to a hospital wirelessly to allow for voice over internet protocol (VOIP) phones (as there were no landline connections at the time), connectivity was also provided to surrounding areas, with often unexpected results.

5.5  Computers for Schools Kenya.

CFSK presents a novel and pragmatic business model, focusing on recycling computers, ICT teacher training, curriculum development, a sustainable business plan, and ICT education policy influence. The rationale is to provide computers to educational institutions in Kenya, thereby allowing the young and old alike the chance to become computer literate and enrich their livelihood opportunities.

This video documents what CFSK does on the ground, with a focus on two institutions using their computers - Sega Silicon Valley, and Ogada Secondary School. Connectivity Africa has been supporting the work of CFSK since 2003.

5.6  Telemedicine in Algeria.

2009. 5m49s. Arabic/French/English with English Subtitles.

Algeria is an enormous country, with urban coastline to the north, arid desert to the south, and not much in between. While healthcare is free, and there are specialists in the north, the south is separated by great distances from getting expert health care from those specialists.

This video details how one Algerian state research organization, CDTA, has developed a software application to allow for real time video conferencing between these two regions. Telemedicine is a pragmatic and effective means for patients to receive expert care in situations that often leave the sick on the verge of life or death. Here, one story is presented; of Ikram, an young girl with a heart defect, who was successfully treated with the telemedicine solution developed by CDTA. Connectivity Africa has been supporting the work of CDTA since 2006.

5.7  The Uganda Health Information Network.

2009. 6m33s. English with English Subtitles.

In rural parts of Uganda, health care experts rarely have access to the kinds of documentation that their colleagues in the developed world may have - medical journals, reference materials, and always on connectivity are often not available. To address this, UHIN has developed a low cost means of transmitting this information to healthcare workers in rural Uganda by using PDAs and existing cellular telephony networks.

This video considers how the system is being used in the Lyantonde district of the country, with a focus on two clinics. Connectivity Africa has supported the work of UHIN since 2003.
5.8 Free and Open Source University Learning Applications.

2009. 8m28s. English/French with English Subtitles.

eLearning presents a pragmatic means to provide education to those living in rural areas, people who otherwise may not be able to receive a formal education. However, the software infrastructure required to provide such a service can be costly. Free and open source software presents an alternative. But aside from this cost saving, the development of this software is in itself a learning opportunity for those students interested in software development.

The two projects profiled here, AVOIR and POLLES, are providing both the software to encourage eLearning and university administration in sub-Saharan and North Africa respectively, along with providing a platform for post secondary institutions to get applied training in software development. Connectivity Africa has been supporting these initiatives since 2004.

5.9 Promoting African Research and Education Networking in Africa.

2009. 7m18s. English.

While commercial ISPs are flourishing and the costs of getting online are falling in many parts of Africa, the situation with getting African universities online is a different story. The commercial internet and the university internet are two different things. Research and Education Networks (RENs), while well established in the developed world, are just taking root in Africa. Without RENs and the favorable terms of access to undersea and terrestrial fiber optic cables that make connectivity affordable to universities, how can students, faculty, and ultimately African research, be part of the rest of the world?

By consolidating bandwidth, working on policy issues, and training a team of university IT administrators, African universities are going global. This video outlines how and why. The work of the three organizations profiled here - AfNOG, the African Association of Universities, and the UbuntuNet Alliance - has been supported by Connectivity Africa since 2004.

6. Project Outcomes

Any assessment of the outcomes of this production is, at the time of this writing, firmly within the realm of conjecture from the perspective of the consultant. He is not clearly aware of whether or not the videos have been screened to a public in a bounded space aside from what is online, nor is he clear as to what the general public response has been among those targeted as the audience for these pieces. However, if he refers to the initial rationale of this exercise, he imagines that the videos do allow for a wider cache of individuals to become familiar with the nature of the projects supported by Connectivity Africa, and that in the context of conferences and other arenas where ICT4D specialists congregate, that these pieces will serve to showcase this work.

In terms of what has been learned in terms of how to conduct research (or, in terms of this exercise, how to produce project documentation), the primary lessons have been that characters require much more time to develop than what was feasible in this production, and that the a priori established logistical framework of editing from the perspective of the consultant may not be suitable universally. This will be addressed in more detail in the final section below.
7. Overall Assessment and Recommendations

In the opinion of the consultant, future production exercises, particularly those within the context of ICT4D, should be limited to those projects where central characters are present. For instance, with the OpenMRS piece, Samira was very open with her time and was willing to speak on any topic which was presented to her for discussion. It would have been ideal to have spent more time with her than the one day that was allocated to her due to logistical realities, in order to visit her at home, meet her family, and so on, with the goal of establishing what it is like to live with HIV, and how the Ampath clinic transformed her life, as a means of establishing why medical records are so key, and why OpenMRS presents such an ideal means by which to facilitate that process, and ultimately her treatment and progress as a person. The same could be said for Lawrence Odongo and Phelix Kochiyo at Sega Silicon Valley within the context of the CFSK piece, or with Ikram within the context of the CDTA Telemedicine piece. However, all efforts were made to develop these characters to the extent that was possible given two camerapersons.

In the future, the consultant has the following recommendations.

7.1 Clearly Establish what the Status of the Project is Prior to Selection

The Peebles Mesh presents one example of this, but beyond simple project progress dynamics, establishing status also implies whether or not there are elements within the project that lend themselves well to documentation (or ideally, documentary). For instance:

i) Is there an element of the project that has resulted in a significant livelihood change among a particular person?
ii) Has there been conflict between parties that would lend itself well to present an element of drama?
iii) Are there particular characters that can be identified as “mavericks”, or someone who has presented an exceptional commitment or capacity to really run with the project regardless of challenges?

7.2 Limit the Number of Projects to be Considered

While there are clear financial benefits to the contractor in trying to ensure that the maximum number of projects are addressed within a particular production timeframe, such an approach can lead to a rather overwhelming amount of information to process, both on the part of the editor as well as the viewer. In the future, the consultant suggests that, in accordance with 7.1, that four projects be considered; four projects that have the common thread of innovations within the ICT4D context, but also four projects anchored by four clear characters that can result in four pieces that really present a sound narrative.

7.3 Conclusion

The consultant certainly gained a great deal from this exercise, and hopes that the resultant content has been produced to the satisfaction of the contractor for their specified needs. It was certainly a challenge for the consultant, at all levels - personally, professionally, and creatively, but it was a challenge that was always welcome.
A. Storyline

This was the storyline that was submitted for comments in October, 2008.

DOCUMENTING PROJECTS SUPPORTED BY CONNECTIVITY AFRICA
A STORYLINE DRAFT FOR COMMENTS.

SUBMITTED BY RANA GHOSE
OCTOBER 29, 2008

A.1 INTRODUCTION

The premise of this video production has been to document work either currently or previously supported by Connectivity Africa, with a focus on four African countries: Algeria, Kenya, Uganda, and South Africa. Filming took place between April 20 and August 7, 2008, and resulted in approximately 100 hours of raw footage consisting of over 200 interviews. Since September 17, the consultant has been logging (i.e. watching and noting) the footage accumulated, which has since been completed at the time of this writing. Editing is scheduled to begin in November, 2008.

While a number of different projects were encountered, the narratives begin to emerge when one begins to recognize the common threads between them. Such threads in this context are not limited by political borders, but rather by broader themes: medical care in the context of pandemics and, how to provide medical care in the face of lacking expertise and a distinct urban-rural divide; connectivity in underserved areas; microfinance as a means to bolster livelihoods; secondary/tertiary education, emerging IT job markets, and e-learning; and networks of expertise to sustain the human and technical network capacity required to take the African continent online in the 21st century and beyond.

This production presents a challenge: how to tailor this vast amount of data into content that is engaging and succinct, yet at the same time sufficiently illustrative of the nature of the work, the rationale for it, and the effects it has had to date. In quantitative terms, the constraints are a total of forty minutes of edited content. If the goal of this production is to share it with a wider audience via broadcast television, a primary requirement is the development of a sound narrative. This is most easily achieved via the development of a character, or characters. However, the nature of this production was to cover a large amount of data across five countries in a limited amount of time, as opposed to focusing on a smaller contextual subset to really get into the lives of these characters. As such, the possibility of broadcast oriented content being developed is not straightforward due to the challenge of authoring narratives that are engaging and easily related to a general audience. This is not to say it is not possible. Yet given these realities, the consultant is of the opinion that specialty oriented internet broadcast portals (i.e. CurrentTV, http://current.com) may be better suited to showcase this content due to the highly specific and often technical nature of the content.

This document aims to consolidate the main themes discussed here into a series of short narratives to better identify what stories can emerge from the footage.

A.2 MEDICAL SERVICES PROVISION AND FREE AND OPEN SOURCE SOFTWARE (FOSS)
Three components of this production have focused on medical services and how IT infrastructure has provided a pragmatic, affordable, and serviceable solution to addressed the needs of patients\(^3\). Three countries provided the basis of the content:

- **Algeria**: The work of CDTA in constructing telemedicine networks to allow for the diagnosis and treatment of patients in rural areas underserved by qualified medical specialists. This has been achieved via the development of proprietary software that facilitates video conferencing in real time between an urban hospital and rural clinics separated by over 600km.

- **Kenya**: The development of what is now known as OpenMRS, a computerized medical records system based on low cost, open source development, that can easily be adopted and adapted by national health provision systems to track the vast amount of data collected in a clinical context. Most recently, efforts have been made to include mobile devices in the OpenMRS framework via the Open ROSA initiative, which aims to foster the development of Java scripts that can run on simple mobile phones, thus turning phones into data capture devices. The Kenyan story is unique due to the origins of the system taking place in a rural setting and the evolution that has since occurred resulting in the system being adopted in ten countries to date.

- **Uganda**: The work of the UHIN, a collaborative effort of four institutions aimed at a systematic approach to collecting, delivering, and receiving medical information (both data and clinical diagnosis literature) to those working at the field level. The primary element of what makes this system unique is the use of PDAs and the development of the African Access Point, a hardware unit that allows users to sync their PDAs with national databases over existing mobile phone infrastructure.

In Algeria and Kenya, the production team met two patients who were actively deriving benefit from the systems. In Kenya, the team spent on day with an HIV+ woman, who allowed us the chance to follow her over the course of her being treated in Eldoret, as well as a detailed (and at times emotional) interview. Similarly, in Algeria, the team met a young girl and her mother who were diagnosed and treated with the help of the telemedicine system. The treatment of the young girl is ongoing. The team went to the home of the girl’s family and spent time on camera trying to better appreciate their context. The Ugandan element did not present a clear character as in the other countries, yet the nature of the work being done by UHIN with regards to mobile devices and data capture is of direct relevance to the OpenROSA component of OpenMRS, and medical records management in general.

These two individuals offer the possibility of being the “centerpiece” of this short, given the nature of our interactions with them and their comfort in allowing us to interact with them on that level. This, in the view of the team, offers an insight into two characters that can lend a more engaging narrative to a viewer. To round out this piece, the more technical, project-oriented side of the work will be developed via the interviews and interactions had with a number of parties, including:

- Core developers of OpenROSA modules and runthroughs of some of the modules (i.e. formtastic.us)
- Those who were trained at HISA/OpenMRS/OSHCA 2008 Conference on how to develop OpenMRS modules
- The key minds behind OpenMRS/ROSA (Joe Mamlin, Hamish Fraser, Paul Bionditch, Chris Seebregts, Chris Bailey, Carl Fourie)
- The core of those working within UHIN who were available (Holly Ladd, Fred Kakaire, Berhnae Gebru) along with nurses and other support staff in Lyantonde, Rakai District

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\(^3\) See the note that precedes section 6.
• Medical staff at both the urban and rural clinical service providers in Algeria
• CDTA staff, Hatem Hocini in particular, along with other programmers at CDTA

A.2.1 Storyline Summary

The proposed duration is 15-20 minutes. The proposed storyline would be, in chronological order:

1. **Introduction:** The two main characters; their medical problem, and how they have addressed it
2. **The Context:** Distance and lacking expertise in rural Algeria from Doctors and CDTA staff; the high costs of proprietary MRS in general and then with specific application in an African context from OpenMRS “key minds” (Joe Mamlin in particular); why two way data transmissions from Rakai to Kampala and back is key
3. **Challenges:** interoperability and what it means in OpenMRS, having (and keeping) skilled developers in Africa who can develop OpenMRS modules, electricity problems and battery life with PDAs, migrating data from paper to softcopy in AMPATH, why CDTA chose proprietary over FOSS for the telemedicine system, how the current model of state provided bandwidth at no cost in Algeria is not indefinite and how that connectivity can be established, perhaps via 3G
4. **Successes:** How ARVs and OpenMRS has drastically reduced fatalities in Eldoret, how the AAP has made data transfer and management easier in Rakai, and how telemedicine has allowed patients better diagnosis and care
5. **Conclusion:** A return to the original two characters; how the two systems have changed their lives (i.e. successes as continued from 4 above).

A.3 The Nuts and Bolts of Connectivity in Africa: AFNOG, UbuntuNet Alliance, and the AAU

Establishing connectivity on the African continent is a tricky business given the lacking submarine fiber optic cabling that surrounds the continent. It is vastly underserved, due to, for instance, a combination of regulatory asymmetries across and within the borders of many African countries, the historical control of telecommunications by previous colonial powers and the low capacity among some countries to regulate and maintain networks since independence on an average of fifty years ago, a perceived lack of demand among those private sector actors who have the resources to lay down the submarine fiber, and the logistical exercise of actually laying fiber over land in difficult environments. But these are all surmountable, assuming there are a skilled set of individuals who can share their expertise and resources towards getting (and keeping) Africa online according to their own needs.

The AfNET process presents precisely such a mobilization of people. This piece aims to first establish why connectivity in Africa is in the state it is in, and second, what is being done about it.

There are three subsets of individuals who are at the root of this effort. First, Nii Quaynor, Badru Ntege, and Sunday Folayan appeared to be particularly active over the proceedings. Also, their interaction on camera (either one on one or all together) resulted in some great footage. Apart from these core three, Randy Bush, Lucy Lynch, and Steve Song were also key in the process. However, Randy was somewhat reluctant to have his perspectives included in the piece, so his role will be somewhat minimized (though his efforts were central to the process). Second, Victor Kyalo, Duncan Martin, Margaret Ngwira, Boubakar Barry, and Tusu Tusubira were central to collaborating together in the name of securing connectivity for academic institutions, the development of RENs, and the ultimate arrangements that have lead to affordable internet access for these institutions (though still very much a work in progress). Third, those trained in the
AfNET process are ultimately those who will go back into their home communities and manage the networks that people use. It is this group who will validate whether or not these efforts truly bear fruit. Judging by their progress to date, it seems to be indeed the case.

The core messages based on footage from these three subsets of individuals that will come out of this piece are:

- That well functioning academic institutions that participate in the globalized, collaborative nature of research are central to the economic development of a nation state. RENs in Africa and the work of the Alliance and the AAU are key to this, and their efforts and successes are all the more remarkable given the nature of how the collaboration between these five individuals has resulted in real progress.
- That the costs of connectivity without having last mile access to submarine or terrestrial cable are enormous and truly hinder how these institutions can ultimately fulfill their role as hubs of research, development, and progress.
- That the nature of AfNET is remarkable given the diversity on the continent, and yet the process is, for the most part, maintained and furthered by Africans. The role and vision of Nii is key here.
- That the only way that Africa can be part of the global internet is through having skilled and motivated people (i.e. Nii Quaynor, Adiel Akplogan, Aminu Ibrahim) lead the process of negotiating for what is required to endure Africa is represented (i.e. IPV6 addresses and other such allocations, ICANN, and other global fora that needs African representation at the risk of being left behind).

A.3.1 Storyline Summary

The proposed duration is 10-15 minutes. The proposed storyline would be, in chronological order:

1. **The Nature of the Digital Divide:** A description of what is commonly termed “the digital divide”. This would be achieved via a combination of interviews with cyber cafe managers, mobile telephone shops, primary and secondary students, and other “non-experts”; that is, (potential and current) users of the internet.
2. **The Architecture of the Divide:** A more detailed and (popular) technical explanation. This would consist of dialogue from some of the people mentioned above, and will be facilitated by the use of animation (i.e. relative depictions of submarine cable worldwide with the paucity of African fiber explicitly rendered) or a similar illustrative tool.
3. **The Nuts and Bolts of AfNET:** What AfNET is, how it came to be, and why it exists. This would be culled from Nii et al. In terms of applied practice, those trained can address: Why is it so important and how does it work? Who gets trained? Where do they come from? What do they learn? What do they do in their home countries?
4. **Why are RENs so key:** What is it about RENs and academics that can foster to national development? This would be mainly from Victor et al.
5. **Why do you do this?** All of the key architects of these processes were asked the same question: “What motivates you to do this?” This will form the basis of the conclusion of the piece.

A.4 FOSS AND ACADEMIC INSTITUTIONS

The outcomes and ongoing processes of two projects, AVOIR and POLLES, were documented across four countries, Morocco, Kenya, South Africa, and Uganda. While the two projects differ in their scope somewhat due to geography and regional socioeconomic differences, the common
thread between them is the use of FOSS in a university context. While POLLES focuses on North Africa, AVOIR cuts across a broader geographical base in the South and East of Africa.

POLLES was considered here in one country only, though it is active in Tunisia and Algeria as well. Footage focused on the Moroccan experience, and in particular of the software development undertaken by the firm Osmium-Work and the applied experience of the software they developed at the Université Hassan II Mohammedia. The adoption of their package has been plagued with challenges in terms of low adoption, arguably due to academic administration not willing to scale it up for use within the institution. That said, the rationale for it (it is free) is sound; it seems that it is more based on the administration not trusting FOSS as compared to proprietary solutions.

AVOIR on the other hand has been relatively successful, due mostly to the commitment of Derek Keats at the University of the Western Cape in South Africa and the vision of node level managers at the other universities. Keats' efforts have resulted in a number of universities that were visited adopting both the basic framework and undertaking efforts to manifest the rationale of the FOSS framework, namely Chisimba, in practice. Moreover, some of these universities are actively developing curricula around FOSS software development by a) using the framework as a platform to train students how to develop, and b) training them in such an applied manner for future job placement (i.e. an “incubator”). For the purposes of this piece, four universities were visited. Makerere University in Uganda, JKUAT and the University of Nairobi in Kenya, and the University of the Western Cape in South Africa.

The basis of this piece is to illustrate why FOSS is applicable and feasible in an academic context. To do so, the following elements will be addressed:

- That FOSS offers a distinct advantage over proprietary solutions due to the cost factor, and that it can be tailored easily to suit particular contexts provided there are skilled developers who can get behind it
- That e-learning is particularly well suited in areas where distances make attending regular classes difficult, provided there is connectivity in these more remote areas
- That it can be made profitable provided that those it is being targeted towards are willing to accept it without succumbing to stereotypes (i.e. it’s free so it can’t work) and that efforts are made towards developing a business model
- That generating a workforce skilled in FOSS programming can develop domestic IT markets and present a cost effective and appealing outsourcing destination in a developing country context

A.4.1 Storyline Summary

The proposed duration is 5-7 minutes. The proposed storyline would be, in chronological order:

1. **What is FOSS?** Some effort must be lent to defining what FOSS is to a more general audience. This would be sourced from Mona Abakarim and Nabil Sefrioui, the partners who run Osmium-Work, along with Derek Keats (UCW), Jude Lubega (Makerere), Paul Mungai (UoN) and others within these two projects.

2. **What is AVOIR and POLLES and why in an academic content?** Adel El-Zaim did a nice job with this, as did Derek Keats and Ahmed Fahli from UH2M. A fair bit of content with Derek was captured, with his becoming more comfortable and animated towards the end of the second day. It would be good to turn the spotlight onto him for this.

3. **What has been the work?** A profile of Chisimba across the universities where it is being used for AVOIR, and for POLLES, the experience at UH2M.
4. **What have been the consequences, both good and bad?** The establishment of the incubator championed by Jude Lubega is of interest here, as it seems to have been one of the most successful elements encountered. That said keeping students after they have been trained is not easy. One of the main challenges is to have people accept FOSS, particularly in the past where similar frameworks were less than successful (i.e. KEWL at UWC).

5. **What next?** The incubator at DICTS at Makerere, the further development of Chisimba, UNESCO’s interest in adopting it all point to the future and how far FOSS in a university context can go.

### A.5 Computers For Schools Kenya

CFSK was borne primarily from the vision of Tom Musili, after observing Computers For Schools Canada. His ambition was to replicate the model; to source out discarded computers from the developed world and have them upgraded for use in the Kenyan school system. His vision is clear, and he has been quite successful. CFSK has developed entire curricula around computer education aimed at those in primary and secondary schools, and have made agreements with Microsoft for volume software licensing. However, the biggest challenge he faces is getting the Kenyan Ministry of Education to mainstream his efforts.

Lawrence Odongo is based in Sega, a small village near Kisumu. James Ofwona is currently based in Poland, but hails from Sega. Their vision was borne of a simple question: why should rural youth not have the same access to computers as their urban counterparts? In working with CFSK and other supporters, they have established Sega Silicon Valley (SSV), a holistic community model based on connectivity and computers for schools, but also spanning ambitions of VoIP and mesh networks. The main training centre offers basic computer lessons at affordable cost to people in the area.

Phelix Kochito is in his early 20s. He lives in Sega, and has been taking the training courses offered by SSV. He wants to be part of the bigger world that he knows it out there; he wants to be able to work in the IT sector. For him, SSV offers that chance.

These three primary characters, along with their colleagues and families, will form the basis of this piece. The main contours that will be addressed are:

- That computers in primary and secondary schools can offer opportunities that otherwise would not be available, and that everyone deserves that opportunity.
- That CFSK is a “well oiled machine”, taking in computers, fixing them in an almost assembly line process, and getting them out there for use.
- That getting the government to collaborate with CFSK has not happened, and to explore why that is.

### A.5.1 Storyline Summary

The proposed duration is 5-7 minutes. The proposed storyline would be, in chronological order:

1. **Why Computers in Schools?** The basic premise is straightforward, but many would argue that rural Kenya needs other things before computers. Or do they? The perspectives of a wide number of students interviewed from two CFSK partner schools will be used to establish through their words why computers are key, and what their experience has been.

2. **What is CFSK?** Significant amounts of time were spent at CFSK headquarters in Nairobi, and many of the key staff and management were interviewed. They do this
work because they believe computers can change lives and that such skills are a necessity to succeed in the current job market.

3. **What have been the challenges?** The government has been reluctant however to support CFSK due to, in the words of Edith Arera, a sense that favoring CFSK would be politically sensitive due to other NGOs not receiving their stamp of approval, or in the words of Tom, that doing so would create an accountability to the state for curricula that they do not want to be responsible for. These are the “real-life” challenges of getting a project that has so much clear potential off the ground and scaled up to a policy level.

4. **What is the vision for the future?** Lawrence, James, and Phelix all have ambitions; they all want to see their communities and themselves progress and develop. And they think computer literacy is key in achieving that. They spoke quite intimately about this and with conviction, and it would be a good way to close the piece.

### A.6 MESH NETWORKING – THE ACTS CLINIC

**NOTE:** The mesh networking piece could potentially be absorbed into 2 above given the common thread of health services provision and FOSS. It has been listed separately here due to the inclusion of shooting content in the community of Scarborough, about 20km from Cape Town. Scarborough presented an interesting story of how David Carman, a medical researcher turned mesh network aficionado, set up the network in his community and now wishes to expand it to other areas nearby. However, Scarborough and their mesh were not supported by Connectivity Africa, and the link between Scarborough ad Peebles may not be sufficient enough to warrant both being treated.

The premise of a mesh network is to get people on line when connectivity is not easily shared due to lacking access or difficult topographies. By using simple routers (the LinkSys WRT5G) and refitting them with open source firmware (OpenWRT, OLSR, and its derivatives) users can “hack” into routers to make them receive, and most importantly, send, packets containing data that allows for a “cloud” of connectivity to manifest. All that is required is a gateway (i.e. one internet connection) and a community of users who have a router capable of being modified and are willing to work together to understand it and make it work.

In this piece, the experience of the ACTS clinic in Peebles Valley, South Africa will be considered. The premise of their adoption of a mesh networking framework was to connect a hospice in an income-poor community to a clinic in a higher income area, divided apart by a mountain. The initial aim was not connectivity in the sense of internet access (though that was available as well), but rather to provide a free VoIP connection as the local landline provider, Telkom, could not, and at the time of the development of the mesh, mobile telephone networks were not available either.

The project was initiated by Harry Munnings, the manager of the ACTS clinic, and his son in law, Dwayne Bailey, an avid mesh networking advocate and owner of Obsidian Systems, a FOSS development firm. Dwayne was interested in testing whether a mesh could be set up in Peebles, and if so, how it would work in terms of being sustained. Harry was in need of a way to connect the clinic and the hospice together. The two realized this mutual interest and worked on setting up the mesh.

The mesh has, however, fallen somewhat into disrepair and is no longer really used. Moreover, clinicians at the hospice don’t use it due to, in their words, the costs of electricity. This lacking use is due primarily to two factors; better mobile phone reception that links the hospice to the clinic rendering the mesh unnecessary, and a lack of committed staff living in the community to ensure the mesh is up and running. That said, the dynamics of the network and the fact that both communities on both sides of the mountain had to work together forged a different kind of
network, one of people getting to know each other better who were previously separated by a state devised program of segregation (i.e. apartheid). The main points to cover are:

- That mesh networks offer an alternative to connectivity when formal methods are not available
- That the development of mesh networking was done via the FOSS community
- That the rollout of data networks (i.e. GPRS and 3G and in time WiMAX) may negate such solutions
- That the mesh cloud was extended for use in schools and at the hospice for browsing the internet, but that it has since been left and not used, despite the school in particular needing it to fulfill South African computer studies curricula
- That it connects people not only in the technical sense, but also in the community sense due to the interactions that occur by construction in getting a mesh up and running

A.6.1 Storyline Summary

The proposed duration is 5-7 minutes. The proposed storyline would be, in chronological order:

1. **What is a mesh network?** This was well established by Elektra, the chief developer behind OLSR, the routing protocol that makes the mesh possible. Her description will be fleshed out via an animation or similar treatment.

2. **What was the context of the mesh in Peebles?** The ACTS clinic was established based on the high number of HIV+ people living in the area who were, at the time when ACTS was established, dying in large numbers. Receiving ARVs had a dramatic impact in saving lives, but also put stresses on the need for communication due to increased demand for the treatment. However, the institution that provided ARVs also provided a VSAT connection for reporting purposes as there was no other way to get online at the time, which then formed the basis of making the mesh feasible in practice. Harry, Dwayne, and other clinicians would be best placed to discuss this.

3. **How has the mesh worked in practice?** A number of challenges have been faced by those maintaining the mesh. Clinicians at the hospice, teachers at the school, households asked to manage the nodes, and Harry himself are all quite forthcoming about these. Also, lightning and strong winds present in the valley a challenge for maintaining the nodes. Ray (a techie based near by) and Lassie (a local youth from the community who was trained by Ray and Dwayne to maintain the network) could speak for this.

4. **What next?** It appears that as mobile technologies progress, the need for mesh solutions may diminish. But for some, it has made an impact, such as Porschia who has since left for Cape Town to work on the basis of contacts she made online. However, as she is no longer there, her sister Priscilla has since taken to the internet quite quickly and is very excited about the possibilities it offers her.

A.7 Microfinance and FOSS

The premise of microfinance is fairly clear and has been documented in many different places. What has not received much consideration however is what happens when these institutions get larger and larger and require more sophisticated ways of tracking the hundreds, or even thousands, of clients who use and depend on it as a formal banking system. One FOSS package developed by the Grameen Foundation in Bangladesh has now been adopted by a select number of microfinance institutions (MFI) in Kenya. MIFOS is a free alternative to costly proprietary packages that aim to track, generate records, and provide timely tracking of client information.

However, the reach of the original MIFOS has been limited to date. This has primarily been due to the requirements of MIFOS to be online to connect to centralized databases. MIFOS Light, a
FOSS development initiative supported by Connectivity Africa, aims to establish an offline connection and database to suit the needs of communities and areas that do not have access to connectivity.

For this piece, the initial focus will focus on one SACCO, the Jitegemea Credit Scheme, and the experiences of their members with microcredit. Once that is established, the piece will then consider how MIFOS has helped the institutions that foster the development of the livelihoods of borrowers, and what challenges may have arisen on the way.

Key here is interviews with three subsets of people. First, Khadija Shamte, a consultant with Adept Systems Management Consultants based in Nairobi. She has been working with SACCOs in getting MIFOS adopted. Second, borrowers: a number of ladies and one man provided interesting insights on why microfinance is useful. Third, SACCOs themselves, stating what their data needs are, why reporting to donors is so key, and why MIFOS offers an alternative when managing Excel spreadsheets is no longer good enough.

The key elements of this piece are then:

- That microfinance is a pragmatic way of allowing women entrepreneurs to create livelihoods, and that women are particularly targeted due to their low default rate and the inbuilt system of checks and balances (i.e. if one member fails to contribute and make a payment, the whole group suffers). This would be sourced from interviews with borrowers.
- That software is key to track this data, and that as numbers grow and accountability to donors becomes more important, the software must be robust and low cost. Khadija and Issmail Nnafie from HIVOS are well placed to address this.
- That SACCOs have derived benefit from the software, though they have been protective of who among their competitors is also aware of MIFOS to maintain a market cost advantage.

A.7.1 Storyline Summary

The proposed duration is 5-7 minutes. The proposed storyline would be, in chronological order:

1. **What is microfinance?** Based on the words of borrowers, their experiences will help define what microfinance is. Of interest here are the nature of how women are involved and how one man interview expressed his own concerns about that gender divide.
2. **What is MIFOS?** Khadija and Issmail can discuss the nature of the software and the challenge it seeks to address, namely a low cost way of managing data.
3. **What has been the impact?** SACCOs like Jitegemea were still using Excel at the time of the shoot, but are in the process of switching over completely to MIFOS. However, some elements of MIFOS have been introduced, and loan officers and managers will address their experiences.

A.8 Timeframe

This outline has proposed six separate pieces, varying in length from five to ten minutes, and in total surpasses the forty minutes agreed for this work. Some of these can possibly be combined (i.e. 2 and 6), others may be combined at the risk of less cohesive narrative. This can be discussed.

The consultant is proceeding with his ongoing doctoral research and aims to finish his rural level work by the end of the year. At the same time, he would begin editing for delivery. It is his
current understanding that content is to be shared with other parties for a February event. He proposes that half the content be prepared for that event, with the other half completed afterwards at a mutually agreed upon date.