Evaluation of ACACIA III:
The Acacia Approach and Its Most Significant Outcomes 2006-2009

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February 2010

Table of Contents

Chapter 1: Executive Summary

Introduction

This evaluation was designed to be an internal, formative evaluation of the Acacia approach of networking 2006-2009. Its dual primary purpose was a) to serve the Acacia team and its primary intended users in their decision-making to improve the Acacia approach to network programming and b) to generate knowledge that could be used to enhance the effectiveness and efficiency of the 13 Acacia networks. In addition to the uses that the findings would serve, this evaluation had two important process uses: First, the considerable participatory nature of the evaluation was intended to enhance the shared understanding amongst the Acacia team and the network co-ordinators, as well as network members, of the Acacia networking approach and the outcomes being achieved by the networks. Second, in the process of answering the evaluation questions, this report aimed to develop an outcomes monitoring modality that could be used in future to support and to reinforce both the application of the Acacia approach and the interventions designed for the supported network projects.

In this participatory, experimental and developmental evaluation with a heavy learning focus, my involvement as an external evaluator aimed to facilitate the participatory process and ensure checks, balances, and objectivity. The evaluation employed an experimental mix of participative and formative evaluation modalities. We recognised that the experimental methodology meant that the evaluation would be an iterative process in which learning would lead to adaptation of the evaluation process itself. Consequently, the evaluation design was provisional and the evaluation questions and how to answer the questions emerged during the evaluation process.

Phase 1 – The Acacia Approach to Networking

The evaluation was carried out in two phases, each with a core evaluation question. Phase 1: *To what extent is the Acacia networking approach for programming appropriate and relevant to the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D?*

We carried out the first phase between September 2008 and May 2009 through an internet survey. The eight Acacia staff and fifteen leaders from eleven networks considered that the Acacia Networking Approach was fulfilling its purpose. They affirmed the relevance of Acacia's nine goals, nine operating principles and the ten management processes. There were, however, a few areas of relative weakness in the application of the principles: a) building research management capacity, b) building research institutions' capacity to manage the research and c) leveraging of other research funding opportunities and building sustainability for the research networks. This resounding affirmation of the Approach was accompanied by a number of suggestions for improvement.

During the May 2009 Acacia team meeting in Dakar, the team discussed the findings about the Acacia Approach to Networking. These points were made:

- Acacia never envisaged long-term sustainability for the network projects themselves Thus, it was probably a mistake for the Acacia team to have agreed that "leveraging

of other research funding opportunities and building sustainability for the research networks" was one of Acacia's operating principles.

- The Acacia team recognised the tensions that exist between creating networks for building the research capacity amongst peers and the assumed capacity that exists in the host institutions. This would have required administrative support, which in many instances Acacia did provide – financial and administrative as well as legal assistance with subcontracts, for instance. Nonetheless, for many Acacia team members as well as the host institutions, managing multi-country networks was new and difficult and what Acacia could have developed was a toolkit to provide support.

- Another tension is between a) building the research capacity of researchers or b) building the administrative or research director capacity.

In addition to these issues, the team considered the potential to explore further what might be done to overcome weaknesses and build on strengths. In the light, however, of the overall strength of the Approach and the desire to understand the achievements of the research networks in time for the Acacia Learning Forum in October, the team decided to put the Approach evaluation aside and undertake the second phase – an outcomes evaluation.

Conclusions

To what extent is the Acacia networking approach for programming appropriate and relevant to the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D?

1. The Acacia team members were able to reach agreement on what constitutes the Acacia Approach, which had never before been defined.

2. The 23 Acacia team members and network leaders confirm that Acacia's nine *goals* deserve priority. Nonetheless, in their opinion, two goals deserve markedly less priority: Serving to nurture the development of research ideas that research funders should support and building on-line capacities for research networking.

3. Regarding the *operating principles* of the Acacia Approach, the respondents are in agreement that six of the nine have been very acceptably applied. Acacia is considered to be weakest in leveraging of other research funding opportunities, building sustainability for the research networks and building research management capacity.

4. The Acacia principles become operational through a *management process* that team members agreed has ten dimensions. The 23 Acacia team members and network leaders alike consider that the management of the Acacia Approach worked well or very well. That said, 14 of the respondents propose specific improvement and so there is clearly a felt need to perfect the process.

Phase 2 – The Effectiveness of the Acacia research networks

The evaluation question for Phase 2 was: *How effective have the Acacia research networks been in:*

- *Fostering on-going, robust policy dialogue*
- *Catalyzing thriving regional research networks*
- *Increasing research capacity in ICT4D*
- *Stimulating social and technical innovation in ICTs*
- *Contributing to a formal body of knowledge in ICT4D*
- *Applying meaningful gender analysis*

The Acacia team decided that the outcome evaluation would be developmental as well as formative with the primary intended users – the Acacia team – interpreting the findings and drawing their conclusions. Thus, what was required of the external evaluator was more facilitation along the lines of a developmental evaluation. Jennifer Vincent, an IDRC research intern, joined me in the evaluation team and from May to September 2009 we engaged with the leaders of the thirteen research networks and the Acacia team to identify and formulate up to ten of the most significant outcomes achieved by the thirteen Acacia research networks since 2006. We crafted sixty-five outcomes from the thirteen network projects. At the Acacia Research and Learning Forum in Dakar at the beginning of October, the Acacia team and network leaders discussed the preliminary findings in round robin sessions that enabled everyone to comment on the findings for each Acacia objective. Following the Forum, Jennifer and I worked with the network leaders to revise some of their outcomes and to formulate new ones, bringing the total to eighty-five outcomes. In November and December, the Acacia team engaged in a process of interpreting the findings and drawing conclusions, with my and especially Jennifer's support.

In conclusion, the eighty-five outcomes demonstrate that Acacia has been effective in fostering on-going, robust policy dialogue, catalyzing thriving regional research networks, increasing research capacity in ICT4D and stimulating social and technical innovation in ICTs. Acacia's research networks have been less fruitful in contributing to a formal body of knowledge in ICT4D, although the criteria appear to have been too restricted. Acacia has had the least success in applying meaningful gender analysis or changing gender relations.

Conclusions

How effective have the Acacia networks been in generating what they consider are significant outcomes that correspond to the six Acacia program objectives?

1. For the first four Acacia objectives, the research networks report a diversity of outcomes according to each criteria agreed for each objective.[1] Thus, Acacia has been effective in *fostering on-going, robust policy dialogue*, *catalyzing thriving regional research networks, increasing research capacity in ICT4D and stimulating social and technical innovation in ICTs.*

[1] At first glance, it appears that the outcomes of this last objective are concentrated in one of its five criteria. A closer look, however, reveals that the four are all criteria for technological innovation. Thus, taken together they are comparable in number and breadth of coverage to the fifth and sole criteria for social innovation.

2. For the fifth objective, Acacia's research networks have been less fruitful in generating outcomes. Eight research networks report that a total of nine of their most significant outcomes *contribute to a formal body of knowledge in ICT4D.* In this case, the criteria appear to have been too restricted. In addition to being cited in peer-reviewed publications and contributing to university curricula, there are other equally valid criteria – for example, invitations to make scientific contributions in professional forums and to premium publications or even to the grey literature.

3. The sixth and last objective is the one in which Acacia has had the least success. Only four research networks consider their outcomes contribute to *applying meaningful gender analysis* or changing gender relations, and most of these are contributed by one research network devoted to gender research.

Chapter 2: Introduction

Since 1997, Acacia has been working with African partners to help countries in Africa apply information and communication technologies (ICTs) to social and economic development. Acacia supports 13 research networks to carry out research on ICTs that improve livelihood opportunities, enhance social service delivery, and empower citizens while building the capacity of African researchers and research networks.

In 2005, an external review of the second phase of the Acacia program (Acacia II) demonstrated that there are many areas where Acacia has developed considerable experience and knowledge about what works and does not work in developing a research programme involving networking in the field of ICT4D, and why invest in network programming and for what end. Indeed, actions on the recommendations of the 2005 review were incorporated into the new prospectus for Acacia III. Therefore, the Acacia program committed itself to carry out in 2008 and 2009 an internal, participatory formative mid-term evaluation of how well research network-driven projects were succeeding and whether they were delivering all of the additional value outlined in the program objectives. This evaluation focuses on the more complex aspects of Acacia where relationships of cause and effect were unknown and only emerged as the Acacia program was implemented and the networks developed. Similarly, a different type of evaluation was foreseen so that as the evaluation progresses, the evaluation questions and methodology could change as new questions emerge and the learning experience shows how best to answer these emerging issues.

In May 2008, Acacia contracted my services[2] as an external evaluator to lead this internal, participatory formative evaluation. The primary goal was to serve the Acacia team's need to learn about how well the program has done and what they had achieved at the mid-term of their prospectus. In the end, the evaluation was carried out in two stages rather than three. The first phase ran from August 2008 to May 2009 on the relevance of the Acacia approach to research through networking. The second phase was carried out from May to December 2009 and focused on the effectiveness of the network approach through an assessment of the outcomes produced by the 13 networks which are supported by Acacia. During the evaluation process, an attempt to incorporate two African associate external evaluators became unworkable and unnecessary to the final evaluation product.[3] Instead, Jennifer Vincent, an Acacia research intern, joined me for the second phase of the evaluation.

In summary, the first phase of this formative evaluation helped the Acacia team make explicit the tacit approach they were following in building research development networks. This

[2] I am an independent evaluator with expertise in the planning, monitoring and evaluation of international social change networks.

[3] Originally, the intention was for me to lead a team that would include two African associate evaluators, one English-speaking and the other French-speaking. They were to have experience in evaluating program performance and results in Africa. In the first stage, an English-speaking Kenyan evaluator was contracted but unable to complete the work. We were unsuccessful in identifying an appropriate, available French-speaking African evaluator.

approach was tested and validated with the research network leaders. Strengths and weaknesses were articulated. A second phase of the evaluation followed an outcomes evaluation of the networking approach which was iteratively constructed with the research directors in the networks, and through consultation with the program offices. These results were then analysed by the team, discussed with the research directors at a meeting ahead of the Acacia Research and Learning Forum in Dakar in October 2009. I have concluded with some evaluation questions for the team.

The structure of this report is as follows:

Chapter 1: Executive Summary
Chapter 2: Introduction
Chapter 3: Purpose and primary intended uses and users
Chapter 4: Phase 1 – Acacia's Approach to Networking
Chapter 5: Phase 2 – Acacia Research Network Outcomes 2006-2009
Chapter 6: Phase 2 – Acacia Team Interpretation and Conclusions of Outcomes
Chapter 7: General Conclusions and Points for Discussion
Chapter 8: Annexes

Chapter 3: Purpose and primary intended uses and users

This evaluation was commissioned in order to evaluate the Acacia approach of networking. The Acacia III prospectus clearly identifies that it will use the modality of forming research development networks across Africa to achieve its stated objectives,[4] which include achieving:[5]

- Sustained policy dialogue
- Thriving research networks
- Enhanced research capacity in ICT4D
- More social and technical innovation in ICTs
- Contribution to a formal body of knowledge in ICT4D
- Gender analysis

The primary intended users of the evaluation were the Acacia team members:

- Adel El Zaim, Cairo, Egypt
- Alioune Camara, Dakar, Senegal
- Chaitali Sinha, Ottawa, Canada
- Edith Adera, Nairobi, Kenya
- Geneviève Lefebvre, Ottawa, Canada
- Khaled Fourati, South Africa-Johannesburg
- Heloise Emdon, Ottawa, Canada (research commissioner)
- Ramata Molo Thioune, Dakar, Senegal (program officer for this project)

The intended audiences included research network project co-ordinators and research directors, network project members, and IDRC's Evaluation Unit as well as senior management (the ICT4D Program Area Director, the Vice President, and the President).

There were two primary uses envisioned for the findings of the evaluation. Firstly, the Acacia team would learn from the emerging experience in order to make decisions which would improve the Acacia approach to network programming. Secondly, the evaluation was designed to generate knowledge that can be used to enhance the effectiveness and efficiency of the 13 Acacia networks.[6] Secondary uses were that the evaluation findings would inform IDRC's next corporate strategy and would serve as material for IDRC dissemination and publications. The evaluation was also intended to feed into the Acacia External Review.

In addition to the uses that the findings would serve, this evaluation had two important process uses. Firstly, the considerable participatory nature of the evaluation was intended to enhance the shared understanding amongst the Acacia team and the network co-ordinators, as well as network members, of the Acacia networking approach and the outcomes being

[4] *Acacia Prospectus 2006-2011, page 42.*

[5] Ibid, page 7.

[6] In the course of 2009 it was announced that the Acacia program would end during the re-organisation of IDRC.

achieved by the networks. Secondly, in the process of answering the evaluation questions, this report aimed to develop an outcomes monitoring modality. Such a modality could be used in future to support and to reinforce both the application of the Acacia approach and the interventions designed for the supported network projects.[7]

Methodology

Although experimental and developmental,[8] the evaluation was designed to be judged by the IDRC Evaluation Unit according to the following four internationally recognised standards:

Utility – Will serve the information needs of intended users.

Feasibility – Will be realistic, prudent, diplomatic and frugal.

Propriety – Will be conducted legally, ethically and with due regard for the welfare of those involved in the evaluation, as well as those affected by its results.

Accuracy – Will reveal and convey technically adequate information about the features that determine the worth or merit of the program being evaluated.

The internal formative[9] evaluation which leaned on a heavy learning focus was also designed to be as participatory as the primary intended users had desired. My involvement as an external evaluator aimed to facilitate the participatory process and ensure checks, balances, and objectivity. Furthermore, the purpose of this evaluation is to be formative and developmental. As such, experience suggests that the greater the involvement of primary intended users, and the more I as the external evaluator serve as a facilitator in this joint inquiry rather than as an expert wielding 'objective' measuring sticks, the greater would be the quality and validity of the evaluation. Perhaps most importantly, we hoped that the primary intended users would develop through their participation, their understanding and their commitment to take action on the findings.

Consequently, my role as evaluator was to ensure that the data that was gathered was credible, the criteria or standards used to analyse the evidence was rigorous, and the methods of synthesis and interpretation were valid. Furthermore, I was responsible for keeping the evaluation focused, "on improving rather than on proving, on understanding rather than on reporting, and on creating knowledge rather than on taking credit."[10]

The evaluation employed an experimental mix of participative and formative evaluation modalities. We recognised that the experimental methodology meant that the evaluation would be an iterative process in which learning would lead to adaptation of the evaluation process itself. Consequently, the evaluation design was provisional and the evaluation questions and how to answer the questions emerged during the evaluation process.

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[7] Originally, the evaluation was also to be a learning experience for the two African evaluators and therefore be a contribution to enhancing the international network evaluation knowledge and capacity in general, and in Africa in particular. Unfortunately, this could not be achieved, as explained above.

[8] Consistent with the emerging field of Developmental Evaluation, this evaluation aimed to be "developmental" in the sense that it intended to support development of innovations and adaptation of Acacia's interventions in the dynamic environments internally in IDRC and in Africa where its research networks operate.

[9] Formative evaluation focuses on improving Acacia's practice, in contrast to a summative evaluation that would focus on making a final judgment about the Acacia model.

[10] Sarah Earl, Fred Carden, and Terry Smutylo; *Outcome Mapping - Building Learning and Reflection into Development Programs*; IDRC, 2001, page 21.

Evaluation questions and process

Each phase had a core evaluation question. For phase 1 it was:

> *To what extent is the Acacia networking approach for programming appropriate and relevant to the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D?*

We carried out the first phase between September 2008 and May 2009. I surveyed nine Acacia team members and nineteen research network leaders from eleven networks. The findings were discussed in a May 2009 Acacia team meeting in Dakar but it was decided to table consideration of further action and embark on the second phase of the evaluation.

We also decided that it was not indispensable to have one or two African evaluators for the second phase of the evaluation. The Acacia team decided that the outcome evaluation would be developmental as well as formative. The primary intended users – the Acacia team – would deliver their primary interpretation and draw some conclusions. Thus, what was required of the external evaluator was more facilitation along the lines of a developmental evaluation. To this aim, Jennifer Vincent joined me in the evaluation team. From May to September 2009, we addressed the second phase through the following evaluation question:

How effective have the Acacia research networks been in:

- *Fostering on-going, robust policy dialogue*
- *Catalyzing thriving regional research networks*
- *Increasing research capacity in ICT4D*
- *Stimulating social and technical innovation in ICTs*
- *Contributing to a formal body of knowledge in ICT4D*
- *Applying meaningful gender analysis*

We agreed to assess the Acacia networks' effectiveness by identifying and formulating up to ten of the most significant positive (and negative) outcomes[11] achieved by the thirteen Acacia research networks since 2006. From June to July 2009, Jennifer did an extensive desk study of all the documentation on file in Ottawa for the thirteen networks, and from July to September, the two of us engaged with the network leaders and subsequently with the respective Acacia team members to craft sixty-five outcomes from the thirteen network projects. At the Acacia Research and Learning Forum in Dakar at the beginning of October, the Acacia team and network leaders discussed the preliminary findings in round robin sessions that enabled everyone to comment on the findings for each Acacia objective. Following the Forum, Jennifer and I worked with the network leaders to revise some of their outcomes and to formulate new ones, bringing the total to eighty-five outcomes. In November and December, the Acacia team engaged in a process of interpreting the findings and drawing conclusions, with my and especially Jennifer's support.

[11] In keeping with the Acacia Program's adoption and promotion of the Outcome Mapping process, this review will be conducted using the definition of "outcome" elaborated in *Outcome Mapping: Building Learning and Reflection into Development Programs* by Earl, Smutylo and Carden (2001), available at http://www.idrc.ca/openebooks/959-3/. The latter defines outcomes as "59

Chapter 4: Phase 1 – Acacia's Approach to Networking

Introduction

The question that we addressed in this first phase of the internal, participatory, formative evaluation was:

> *To what extent is the Acacia networking approach for programming appropriate and relevant to the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D?*

In order to answer it, we first required a working definition of the Acacia Approach to Networking. Through a survey and interviews, the Acacia team agreed to this definition:

> "The Acacia Approach" is a multi-country, multi-partner, strategy to support research management and social networking arrangements of research organizations and researchers linked together around research on ICT for Development, working jointly but allowing members to maintain their autonomy as participants.

The team also defined the Approach's goals, operating principles and management process that they have been using to develop and support research networks in Africa. These above listed factors were used to measure the validity perception of the Acacia network approach. From February to March 2009 the Acacia staff and the leaders of ten Acacia networks were surveyed with the internet tool Survey Monkey for their opinion about how well the Acacia Approach had met the needs of African ICT4D developers and researchers, including women, and research institutions.

Methodological challenges

We faced two significant methodological issues during this process and we were successful in solving the second issue. The first one was *time and timing.* Due to the highly participative nature of the evaluation, the Acacia team members, all with heavy workloads, were hard pressed to find time to engage with the evaluation. The process of agreeing on what was the Acacia Approach began in September 2008 and was to be completed within the month of October. Instead the process took until well into 2009, four months longer than expected. Agreeing on the content and piloting the survey took as long as actually administering the survey.[12] The evaluation simply demanded more time than busy people had readily available.

A second methodological challenge was finding commonly understood terminology and phrasing for the Acacia Approach and survey. Even after piloting we launched the survey

[12] The difficulties involved with the associate evaluator who was unable to complete her work exacerbated the time problem but was not the principal cause.

with a lingering concern that there might be difficulty with the terminology. In the end, however, of the twenty-eight goals, principles and management processes described in the survey, the terminology or phrasing of only four was problematic and only for three of the twenty-three respondents; two were Acacia team members and one was a network leader.

Findings – The Acacia Approach is effective

The eight Acacia team members and fifteen network leaders who answered the survey represented many years of Acacia experience.

Relationship to Acacia and time involved

Category	Number of respondents	Length of relationship with Acacia		
		Less than 2 years	2-3 years	Greater than 3 years
Acacia team member	8	1	0	7
Network leaders[13]	15	2	4	9

Overall, the Acacia staff and leaders believed that the Approach was fulfilling its purpose to date (see full survey results in Annex 1). Nonetheless, there were various differences, especially when comparing the responses from the Acacia team (Annex 2) with those of the network leaders (Annex 3).

Acacia's goals

The Team explained that the purpose of the Acacia Approach was broken down into nine goals. The first question was: "In the light of what you consider to be the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D, how important is each goal?"

Both the eight Acacia team members and the fifteen people who are current or former network leaders affirmed the priority of all Acacia's goals[14] (Also, see Annex 1, pages 1-4.)

[13] The 11 Research Network Directors or Project Coordinators and the four people who identified themselves as "Other": a member of the RIA team and country leader for Uganda and now a lead researcher as CEO Of UbuntuNet Alliance; Research Project Manager for the PanAfrican Research Agenda for the pedagogical integration of ICT; former project lead; current subproject lead and Project Manager of an Acacia funded project in southern Africa.

[14] The nine goals the Acacia team agrees make up the purpose of the Acacia Approach, in order of priority given by the 23 respondents:

1. Stimulating innovation in research approaches to influence the development of ICT4D in Africa
2. Creating channels for dissemination, including publications, to ensure the development of bodies of knowledge
3. Fostering innovative forms for researchers to engage policy-makers, and other key policy-related bodies
4. Serving as a locus for new development-focussed research relevant to Africa

Nonetheless, the two groups coincided in giving less priority to two goals: Building on-line capacities for research networking and serving to nurture the development of research ideas that research funders should support (see following table).

Two Acacia goals of least priority

Acacia's Goals	*Top priority*	*Moderate priority*	*Neutral*	*Low priority*	*Not a priority*
Serving to nurture the development of research ideas that research funders should support					
Acacia team	3	5	0	0	0
Network leaders	8	7	0	0	0
Building on-line capacities for research networking					
Acacia team	2	5	1	0	0
Network leaders	5	7	3	0	0

Furthermore, four Acacia team members and eleven network leaders identified that the other needs of African researchers and research institutions was to develop their research capacity in ICT4D in Africa which they considered deserve top priority.[15]

1. *Entrepreneur style training for researchers*
2. *Regional forums for exchanging ideas - Africa is big too big, need to build regional capacity to exchange ideas*
3. *to engage gender awareness and gender analysis in all research approaches and undertakings*
4. *Training needs*
5. *The most important need as I see it is gender awareness as part of a coherent and sustainable development approach. ICT4D is part of a development studies paradigm. It would be ironic, if ICT4D research, by neglecting the gender dimension would contribute to the growing gender digital divide and as such to the increase of under development of communities and societies in Africa.*
6. *Develop new research capacities, especially in public research institutions*
7. *Better linking of ICT4D/E and L10n. You're active in both areas (kudos) but integrating them is key.*
8. *Access to good mentors*

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5. Enabling advanced researchers to serve as mentors for less experienced researchers in developing the field of knowledge in ICT4D
6. Facilitating a trans-disciplinary research approach integrating expertise from various disciplines
7. Creating forums for learning
8. Serving to nurture the development of research ideas that research funders should support
9. Building on-line capacities for research networking

[15] Because we offered confidentiality, I will not identify which responses were from Acacia team members and which from network leaders. The rule of thumb for confidentiality is that when there are ten or less in a category of respondents, their responses should not be disaggregated. There are 8 Acacia team members. Also, here and throughout this section lightly edit direct quotations of the responses to the survey's open questions.

9. *Have access to intellectual resources to support their work*
10. *Supporting new think-tank's and/or deepening existing ones as a mechanism for sustaining work supported by Acacia beyond funding periods*
11. *Build evaluative thinking, and understanding of differences between outcomes and impact*
12. *Fostering a community of research and researchers who design, carry out, and promote rigorous and sound social science research on the multifarious effects of ICTs on African communities (speaks to sustainability of capacity building and evidence-based research design, implementation and communication)*
13. *Developing the researchers' capacity for research*
14. *A focus on strategic or problem solving research*
15. *Publication of research*
16. *Build administration and management capacities in the Africa research institutions*
17. *Develop policy entrepreneurs, understand behaviours necessary to influence policy*
18. *Developing scientific writing skills*
19. *Providing mentoring for women researchers in order to increase the corpus of female researchers*
20. *Spreading work in countries previously without Acacia's presence. Also locating coordinating centres outside countries like South Africa.*
21. *Develop planning, monitoring and evaluation skills, especially Outcome Mapping.*

Acacia's operating principles

The Acacia team used nine operating principles in its work which helped to develop and to support the ICT4D networks in Africa. Both Acacia team members and network leaders reported that the application of six of the nine[16] Acacia Approach principles has been very acceptable – between 87% and 95% of those who had an opinion (that is, excluding those with no opinion) considered the application was either acceptable or strong. (See Annex 1, pages 4-8.) There are three principles, however, whose application they considered relatively weak: Building research management capacity, building research institutions' capacity to manage the research and leveraging of other research funding opportunities and building sustainability for the research networks. The first identified by the Acacia team and research directors is the weakest application of an Acacia principle.

[16] The operating principles in the order of relative strength:

1. Diversification: use multidisciplinary teams, multi-country partnerships
2. Communicating evidence-based knowledge for policy and practice influence
3. Focus on poor communities and their development needs with regard to the development of ICT4D
4. Learning by doing (adaptive learning)
5. Building research capacity
6. Ensuring innovations and knowledge generation are based on specific intended uses.
7. Leveraging of other research funding opportunities and building sustainability for the research networks
8. Building research institutions capacity to manage the research
9. Building research management capacity

1. Building research management capacity

Respondents	*Strong*	*Acceptable*	*Weak*	*No opinion*
Acacia team	0	4	3	1
Network leaders	2	5	5	3

The majority of both the Acacia team members and the network leaders perceived that the building of research management capacity was positioned between acceptable and weak, with the members of the Acacia team coming across as slightly more optimistic. Although only four respondents had no opinion on this principle, that is more than twice as many compared to the average number of no opinion ratings for all nine principles.

In their response to the open question, four respondents had suggestions on how the principle of building research management capacity could be better applied[17]:

1. *Sustainability and spread have not been addressed. Currently, for example, RIA. I am not aware of any other centre in RIA that has approached this (DICTS Makerere is I believe the only other centre where RIA is institutionalised). This will then demand that we focus more on say country research teams that have an institutional base (in universities and research institutions) where young researchers are better positioned for both mentoring and later leadership.*
2. *I don't understand who the subject is here - the project participants, the project coordination team? The project team has gained a lot of experience through the management of GRACE, and the research teams are independently managing their research projects*
3. *Building research management capacity by sharing lessons learnt from existing project coordinators. I know Wireless Africa and ACA2K are doing this.*
4. *Specific research management training could enhance [this principle]*

The second area of relative weakness was building capacity to manage research.

2. Building research institutions' capacity to manage the research

Respondents	*Strong*	*Acceptable*	*Weak*	*No opinion*
Acacia team	0	5	2	1
Network leaders	1	7	5	2

Again there is a slightly more positive Acacia team rating than that of network leaders. That three respondents – twice the average number of "no opinion" on the principles – had no opinion on this principle is equally curious.

Seven network leaders and two Acacia team member had ten ideas on how building research institutions capacity to manage research could be improved:

[17] Please remember that in italics are lightly edited quotes of the responses to the open questions.

1. *Institutions are often treated as safeguards for donor investments, but their bureaucracy, inefficiency or even corruption can be a liability for projects. Building institutional capacity or what is required very often, securing more fundamental institutional change, is unlikely to happen through the engagement of one or two projects. It is only likely to happen through fundamental change of governance frameworks and these very often require change at the political/national level. Due diligence of the financial accounting systems done by donors, is often not sufficient, and because they cannot really investigate often misleading about the capacity and willingness of institutions to manage research.*
2. *Building research institutions capacity to manage the research. More thought should go into this but I think that it should start at the micro level with the researcher then with the unit, the department and expand outward. Start with the smallest possible unit with an overall goal in mind for the institution.*
3. *Some of the researchers we are working with are affiliated with or manage research institutes; others are academics, and some are activists. We are primarily building the capacity of the researchers, and in some cases this will directly affect the ability of the organizations to manage research as we are working with the leaders of these organizations. In other cases the individual in not connected to GRACE through her organization, but as the researcher's capacities are increasing these will contribute to the research capacity of the organizations she affiliates*
4. *Acacia applied the principle of networks, but without concretely helping the institutions to learn how to manage networks. Networks change institutions hosts because of these difficulties. It will have to be made sure that the network is also used for financing and reinforcing the capacities of administration and management. Acacia will have to study the reasons for which the networks change institutions hosts and to learn the lessons from this experiment. [Freely translated from: Acacia a instauré le principe de réseaux, mais sans concrètement aider les institutions à apprendre à gérer des réseaux. Des réseaux changent d'institutions hôtes à cause de ces difficultés. Il faudra s'assurer que le réseau sert aussi à financer et renforcer les capacités d'administration et de gestion. Acacia devra étudier les raisons pour lesquelles les réseaux changent d'institutions hôtes et tirer les leçons de cette expérience]*
5. *Specific research management training could enhance [this principle]*
6. *More meetings of all network leaders and key staff could enhance [this principle]*
7. *The principle of building research institutions' capacity to manage the research would be better applied if networks were encouraged to start small and grow slowly, instead of networks being encouraged to grow quickly; overly quick growth in the size of a network can undermine the capacity of the managing research institution to manage the research; building institutions' capacity to manage the research must be treated as a gradual, slow process.*
8. *[This principle] needs deepening. While Acacia programs are often multi-year initiatives, it's likely that without strong institutional bases, such initiatives wont last long beyond IDRC's funding. Often there is emphasis on participation of individual researchers without sufficient support to the institution where the researcher is located. Likewise Acacia needs to support thinktanks or help found new ones around issues and causes they support. The immediate opportunity in this regard is turning*

individual research networks into formal organizations with some central coordinating office (or offices organized on regional basis).

9. *We recognised over time that managing research networks is complex. We have as such recognised the need to offer management support to network leaders and assess the capacity of the recipients to manage large projects.*
10. *Research Institutions are busy with their own agenda, more effort required to inform the next highest power.*

The third area of weakness was about leveraging funding opportunities to build sustainability.

3. Leveraging of other research funding opportunities and building sustainability for the research networks

Respondents	*Strong*	*Acceptable*	*Weak*	*No opinion*
Acacia team	0	5	2	1
Network leaders	3	8	3	1

While a majority of Acacia team members and network leaders perceived that the application of the leveraging principle as acceptable, five consider the application as weak. In their responses to the open question, *"Do you have any suggestions for how any of the principles could be better applied?*" there were suggestions concerning the leveraging principle from two network leaders and one Acacia team member.

1. *Leveraging of other research funding opportunities and building sustainability for the research networks. This is a good idea and is definitely implementable. This would make a very good joint effort between the researcher and the program officer. There would be no better person to advise on how to go about applying for other sources of funding than the program officer. Together with the researcher they would make a formidable team in sourcing other areas of funding BUT the focus should shift from applying for donor funds all together as this is drying up for Africa, rather the focus should be on training/helping networks in becoming more self-sufficient and independent of donor funding.*
2. *To me the sustainability of the network is evolving due to the increasing sense of affiliation and shared learning, shared experiences, shared ways of knowing and seeing that the researchers are encountering. However, the researchers, through their GRACE research, are applying (and being accepted) to present at conferences, raising their profile and influence, and that of the GRACE network.*
3. *Sustainability strategies need to be worked out from the outset - applied and monitored through out the project cycle.*

Finally, respondents answered the question, "*are there other operating principles that you would delete or change or suggest be incorporated into the Acacia Approach?"* Two Acacia team members and four network leaders answered in the affirmative.

1. *A lot of the issues mentioned above rely on building good, internal processes of a researcher which is excellent in terms of developing capacity. However, researchers move on so institutional capacity and sustainability in the long term become important. Here entrepreneurship style training would benefit the institution as the*

overall, guiding ethos would then be on self-sustainability independent of donor funding and how to achieve this.

2. *Not quite a principle, but recognising the need to sometimes take chances as part of any natural growth process. Otherwise toddlers would never walk.*
3. *4.1.5 This principle should now be more explicit. To document the cases of success and to retort them; to document the cases of failure and to learn the lessons from them to be learned. [Freely translated from: Ce principe devrait maintenant être plus explicite. Documenter les cas de succès et les répliquer; documenter les cas d'échec et en tirer les leçons à apprendre.] 4.1.8 I am not certain that one will be able to ensure the durability of the networks of research (sustainability) in Africa. [Freely translated from Je ne suis pas certain que l'on pourra assurer la durabilité des réseaux de recherche (sustainability) en Afrique.]*
4. *The principle of quality over quantity should be incorporated into the Acacia Approach to building research networks; smaller networks are likely to be more sustainable and manageable than big ones.*
5. *Allow for in-country support as well and not only multi-country networks. Acacia phase II evaluation showed that we had tangible outcomes in supporting individual countries and Uganda was picked as an example.*
6. *A yearly meeting of project coordinators to share management lessons and to look for synergies across different projects. Why can't the OM specialist do more than one project in their country? Use seed funding to help develop funding proposals.*

Acacia management process

Another way of assessing the Acacia Approach was to look at the different ways in which the Acacia team members worked with the networks. So, we asked Acacia team members and network leaders alike, "*in your opinion, how well have the ten dimensions of the Acacia management process worked for you*?[18] Over ninety percent of those who had an opinion said all the processes worked well or very well.

[18] Not all of the ten steps in the process have been used with all networks.

1. Predevelopment stage: identify issues and researchers interested in these research domains, or encourage sector specialists to work in a multi-disciplinary way. This may require contracting consultants to do scoping work.
2. Identify potential research directors and organisations that can host the network's administration and coordination
3. Frequently but not always sponsor a development workshop that brings all interested researchers together to lay the foundations of a network project proposal or of a coherent research approach and methodology.
4. Work with network project coordinator to develop a top quality grant proposal.
5. After approval, program officer takes a back seat and plays a demand-driven supporting role to the network research director, project coordinator and the research partners.
6. Project team develops its research methodology, with the program officer's assistance if necessary.
7. Network research director, with the help of the project coordinator oversees work by research partners, consulting with the program officer if necessary.
8. Program officer monitors progress and participates in the Acacia team.
9. Program officer stays engaged in the theme, serves as an intermediary between the network project and other actors (funding organizations, other research projects, sector experts) and is alert to new opportunities for the network project
10. Program officer provides a back stop in case of conflicts and risks.

Therefore, the answers to the open question, "*is there anything you would like improved or changed in these processes?"* contained the most relevant findings. Eleven network leaders and three Acacia team members gave opinions, often about more than one dimension. Some made general comments rather than suggestions for change. Here I have ordered the suggested changes by dimension in the following table.

4. Suggestions for improvement

Ten dimensions of the Acacia management process	*Suggestions for improvement or change by respondents*
1. Predevelopment stage: identify issues and researchers interested in these research domains, or encourage sector specialists to work in a multi-disciplinary way. This may require contracting consultants to do scoping work.	
2. Identify potential research directors and organisations that can host the network's administration and coordination	*- The identification of a research director worked extremely well. The identification of an organization as a host did not work at all.* *- Identify potential research directors and organisations that can host the network's administration and coordination - This could be improved to obtain the best people and institutions*
3. Frequently but not always sponsor a development workshop that brings all interested researchers together to lay the foundations of a network project proposal or of a coherent research approach and methodology.	
4. Work with network project coordinator to develop a top quality grant proposal.	*- The process of securing a proposal is very resource intensive and as the project moves through the consultative system of approval with the IDRC, goal posts can shift. While dozens of iterations of a proposal can enhance the quality of the proposal it can also deplete the resources of existing programs (especially those without operational funding and the interest of those without, or possibly looking for smaller grants).* *- I question the need for a "top quality proposal". Development is dynamic and the plan needs to be outlined with deliverables/budget but allowing for the details to evolve.*
5. After approval, program officer takes a back seat and plays a demand-driven supporting role to the network research director, project coordinator and the research partners.	
6. Project team develops its research methodology, with the program officer's assistance if necessary.	
7. Network research director, with the help of the project coordinator oversees work by research partners, consulting with the program officer if necessary.	

Ten dimensions of the Acacia management process	*Suggestions for improvement or change by respondents*
8. Program officer monitors progress and participates in the Acacia team.[19]	*- Makes no sense. Do you want to say [Est-ce que vous voulez dire]: .. "and participates in the project team". ????* *- Not sure about this question. Is it program officer monitors progress and participates in the project workshops? we all have to participate in the Acacia team meetings.*
9. Program officer stays engaged in the theme, serves as an intermediary between the network project and other actors (funding organizations, other research projects, sector experts) and is alert to new opportunities for the network project	*This principle will not go paa. It is too much to require of PO (employed by CRDI) to imply kind. It is responsibility for the researchers and the coordinator of research to do this work. It is a question of ownership. [Ce principe ne marchera paa. C'est trop demander au PO (employée du CRDI) de s'impliquer de la sorte. Il est de la responsabilité des chercheurs et du coordinateur de la recherche de faire ce travail. C'est une question d'ownership.]*
10. Program officer provides a back stop in case of conflicts and risks.	*- While individuals have sought to intervene personally where conflicts have arisen between the research leader for example and the institution, the nature of IDRC itself, together with the fact that it generally has other projects at the institution it does not wish to compromise, means it is unlikely to use its funding muscle to demand that certain things that should be done are done (though it will politely request them to be).*

In addition, there were suggestions that were not tied to a specific dimension:

- *I would also recommend bi-monthly meetings between the network researcher and the IDRC project officer.*
- *A more competitive approach might ensure better ownership among those who participate at the country level.*
- *I think that there needs to be a careful look at how capacities and resource generation of Acacia's boundary partners happens. It's possible to participate in great projects and receive good funding, but not enough funding to maintain an organization or initiative. If the organization or initiative does not have other revenue streams they could be struggling for reasons that have nothing to do with the Acacia project design or process.*
- *Identifying specialist training in research methodology and research management would enhance the activities of the research leaders.*
- *There is a need to balance control at the 'centre' or core (project manager/research lead) and the network/country nodes once the network is established and core areas of the research project are agreed upon.*
- *While individuals have sought to intervene personally where conflicts have arisen between the research leader for example and the institution, the nature of IDRC itself, together with the fact that it generally has other projects at the institution it does not wish to compromise, means it is unlikely to use its funding muscle to demand that certain things that should be done are done (though it will politely request them to be).*

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[19] In the first versions of the Acacia Approach that were circulated for comments in November, this affirmation was this "Program officer monitors progress and participates in the team." At the beginning of December Heloise clarified that what was meant was the "Acacia team".

Discussion by the Acacia team

The resounding affirmation of the Approach plus the large number of suggestions for reconsidering the priority of the goals and improving the operating principles (research management capacity and resource mobilization in particular), led to a discussion that revolved around the following points:

- Acacia never envisaged long-term sustainability for the network projects themselves. In fact, the modus operandi was to work with existing universities and organisations and to stimulate them into research and research development through peer networks. Heloise Emdon, a long-term programme officer and the new Acacia Program Manager expresses it: "Our intention then was to strengthen research, researchers and research organisations and not to create new organisations." Thus, it was probably a mistake for the Acacia team to have agreed that "leveraging of other research funding opportunities and building sustainability for the research networks" was one of Acacia's operating principles.

- The Acacia team recognised the tensions that exist between creating networks for building the research capacity amongst peers and the assumed capacity that exists in the host institutions. It was only through the implementation of the Acacia programme that weaknesses emerged. In particularly a host institution like a university or a research council whose remit is national, to manage an international network with partners in several African countries would stretch these organisations. These pressures were foreseen, but the challenges of addressing these were not always obvious because the Program Officers would interact with content experts, while the administrative challenges were in their universities and organisations back offices. This would have required administrative support, which in many instances Acacia did provide – financial and administrative as well as legal assistance with subcontracts, for instance. Nonetheless, for many Acacia team members as well as the host institutions, managing multi-country networks was new and difficult and what Acacia could have developed was a toolkit to provide support.

- Another tension that emerges from the survey results is whether or not we were building the research capacity of researchers or research management capacity of research directors. Furthermore we were often having to interact with administrators, and weak organisational capacities generally meant these organisations were in South Africa. For Acacia there is a tension is between a) building the research capacity of researchers or b) building the management and leadership skills of of research directors or c) building the administrative capacity of African universities, research councils or NGOs.

The Acacia team decided not to pursue any of these points further and instead move on to the second phase of the evaluation focusing on the research networks' outcomes.

In conclusion

The Acacia team and network leaders confirmed the relevance and appropriateness of Acacia's Approach to Networking for programming in the field of ICT4D research. The nine

goals were affirmed although two are considered to be of slightly less priority. Acacia's application of the nine *principles* to apply the Approach was considered more than acceptable. Nonetheless, the application of three was weaker: Building research management capacity, building research institutions' capacity to manage the research and leveraging of other research funding opportunities and building sustainability for the research networks. Lastly, the ten *management processes* that Acacia used to apply the principles dimensions worked well or very well for almost all team members and network leaders.

This resounding affirmation of the Approach was accompanied by a number of suggestions for improvement. In their discussion of the findings, the Acacia team identified issues that could be pursued further. There could have been further work to "drill down" into these weaknesses and explore the potential of the numerous ideas for improvement. In the light of the overall strength of the Approach and the desire to understand the achievements of the research networks in time for the Acacia Learning Forum in October, the team decided to put the Approach evaluation aside at that stage and to do an outcomes evaluation.

Chapter 5: Phase 2 – Acacia Research Network Outcomes 2006-2009

Introduction

This second phase of the internal, participatory formative evaluation addressed the evaluation question of, since 2006 "*how effective have the Acacia networks been?"* The areas in which we would measure effectiveness were derived from Acacia's objectives:

- *Fostering on-going, robust policy dialogue*
- *Catalyzing thriving regional research networks*
- *Increasing research capacity in ICT4D*
- *Stimulating social and technical innovation in ICTs*
- *Contributing to a formal body of knowledge in ICT4D*
- *Applying meaningful gender analysis*

We measured effectiveness through the review and analysis of up to the ten most significant outcomes (positive, negative, intended, unintended) achieved by the research networks. "Outcomes" are understood as the intended or unintended changes in the behaviour, relationships, activities, or actions of the people, groups, and organizations (also referred to as "social actors") that a research network had influenced.[20] These changes must be reasonably linked to the research network's activities, although they are not necessarily directly caused by them.

We aimed to harvest from the networks' project reports two types of outcomes: internal and external outcomes. The internal outcomes refer to a positive or negative developmental change in the Acacia-supported research network or in building the research capacity of research project participants. That is, an internal outcome is a verifiable change in the patterns of behaviour, relationships, or actions of the research network project or its members that represent a significant development and which the research network did not control but did contribute towards. The change is not, however, simply improvement (that is, doing more or better); it implies development, or a change in the way of thinking or doing on the part of the members of the network. Nonetheless, there can also be unintended negative changes that can undermine the development of the research network participants.

However, the Acacia program also aims to have impact beyond the realm of the research networks. This is the area of external outcomes, the verifiable changes in patterns of behaviour, relationships, or actions amongst individuals, groups or organisations outside of the network itself. In order to count an outcome for the purpose of this evaluation, the Acacia-supported research network must have contributed to these changes, which may be positive or negative.

[20] This is adapted from the IDRC Outcome Mapping definition. See http://www.idrc.ca/en/ev-26586-201-1-DO_TOPIC.html.

In contrast, a research network's outputs are changes caused and controlled directly by the research network, typically as an immediate result of the network's activities. That is, outputs are the processes, goods and services that a research network produces through activities partially or totally funded by Acacia. Examples of a research network's outputs are: capacity building processes, newsletters, workshops, seminars, briefing papers, conferences, presentations at conferences, advice from a gender consultant, training, tools, research reports, dissemination/policy engagement processes, national policy dialogues, communities of practice, electronic programs, pilot projects, surveys, websites. Thus, the key to distinguishing outputs from outcomes is that the research network has control over the 'production' of outputs.

Furthermore, not all Acacia research network activities and outputs will lead to an outcome. Outcomes often take time to emerge and some activities may never lead to an outcome. Frequently, activities will contribute indirectly and partially to one or more outcomes. Thus, in approaching this task, Jennifer and I encouraged the research network leaders and the Acacia team members to avoid seeking linear, cause-effect relationships between what the research network did and the changes it influenced in other social actors.

In addition to identifying the outcome, we strove to explain concisely its significance and the way in which the research network contributed to the change.

Methodological challenges

As in the first phase, we faced methodological issues, although in this second phase there were more of them: time and timing, concept of outcomes and complexity, differentiating between outputs and internal outcomes, formulating concise and precise outcomes, and validity and credibility. Time and timing

Again, the methodology demanded considerable time from the Acacia team but especially of the network leaders, which added to their heavy workloads. Reflecting on achievements in years past was demanding. Ideally, a full evaluation of outcomes would include additional documentation for review and the consultation of other people,, but would be time-consuming and unrealistic given the available resources.

Also, the sequencing of data collection was a challenge. Our approach was to set what we considered to be reasonable deadlines over the July-September period and be flexible with those who could not meet them. Thus, we were able to achieve a high rate of response: 100% of the research networks formulated outcomes, many investing heroic amounts of time – not just hours, but days – in formulating their outcomes.

Concept of outcomes and complexity

There is a definition of outcome which is recognized by IDRC and frequently used within the organization and by IDRC partners. However, when the Acacia team and research network leaders were asked to apply the outcome definition this became most challenging. Certainly, Acacia had never requested that research networks report on these precisely defined changes since the interim and final technical report templates that are followed do not ask project reports to be aligned with program objectives, their significance, or how the research network contributed. This was complicated by the reality of the environment in which the research

networks operate, and often the research networks themselves, are highly complex, open and dynamic. When a research network contributes to an outcome, the effect tends to be indirect, partial, and even unintentional. It generally occurs some time after the research network's activity, which is usually in conjunction with other initiatives of the research network or with other social actors. In many cases, research networks may not even be aware of changes in other actors, or if they are aware, may not know details of the change. Thus, there is rarely a linear, cause-effect relationship between Acacia-funded activities and a research network's outcome. Causality is messy, multi-level and multi-directional, as well as unpredictable.

Differentiating between outputs and internal outcomes

By and large, the concept of outcomes was manageable when applied to changes in social actors outside of a research project. For example, persuading the Free State Province of South Africa to explore alternative delivery strategies to improve access to HIV treatment is easily understood as an outcome. So too is an Acacia research network influencing the Attorney-General and Minister of Justice of Ghana to delay the introduction of subsidiary legislation in Ghana's Parliament on the country's Copyright Act. The challenge arose in deciding when changes in the capacity of a researcher constituted an output and when would this amount to an internal outcome?

Research networks' activities and outputs generally do not count as outcomes because they are under the network's control[21]. For example, if a research network invites researchers to a meeting to learn from each other, usually their attendance at the meeting is not an outcome but an output of the research network. An exception might be if a prestigious senior researcher who previously never shared her knowledge decided to attend for the first time.

That is, the key criteria we employed to distinguish between outputs and internal outcomes were: a) did the network control or influence the change and b) is it a change that represents improvement or development? Thus, if researchers are trained by a network and learn a new skill, we consider this is an output because through its control of the quality of the training. The network well determines what the participants would learn. In contrast, if the researchers change their behaviour or their way of doing research, not just by applying the new skill during the course research project (which they are fairly well committed to doing) but undergo a sustained change in how they do research, then it would be an outcome because it represents a change that is distinct to doing more or better research – it is significantly different, a development in their research capacity.

These distinctions may be easy to make conceptually but in practice for the Acacia team and research network leaders they sometimes tended to be difficult.

Formulating concise and precise outcomes

Identifying outcomes is not a process of scientific research "undertaken to discover new knowledge, test theories, establish truth, and generalize across time and space. Outcome evaluation is undertaken to inform decisions, clarify options, identify improvements, and provide information about programs and policies within contextual boundaries of time, place,

[21] This was the most contentious issue. Project partners and program officers alike struggled with this notion since the intended and planned for outcomes of the project were considered the project's outputs. This created much discussion both within the team, between the evaluators and the research directors, and at the Acacia Research and Learning Forum. It is this strict definition that is used to identify up to ten of the most significant changes of the Acacia supported networks. In other words planned project outputs are not here considered as outcomes.

values, and politics… Research aims to produce knowledge and truth. Useful evaluation supports action." [22] Appreciating and applying that distinction is a big challenge to an Acacia team and network leaders whose work centres on research. Furthermore, we required that the formulation of the quantitative and qualitative aspects of outcomes (and of the activities and outputs that contributed to them) be sufficiently specific and concrete so that third parties without the contextual knowledge of ICT in Africa would be able to appreciate and eventually to verify what has been achieved. At the same time, to be useful, the formulation of an outcome must be brief – we aimed for one to two paragraphs per section (description, significance, contribution) or maximum, one side of an A4 per outcome. This is a big challenge for busy people whose work is not principally on writing evaluative outcomes and whose first language is not English (given the evaluators worked in this language). It is culturally challenging too, as the process could be more familiar and more accessible in some cultures than in others. Jennifer and I foresaw that a sizeable portion of our time engaging with them would be devoted to editing and re-editing, respecting of course their final decision on the content because the outcomes are theirs. This we did and almost with full success – the average size of the eighty-five outcomes is roughly one page (ninety pages total). And, even though Jennifer did a final review and editing, we realise that many outcomes could still be better formulated.

Validity and credibility

Identifying and formulating outcomes has a strong element of subjectivity. The issue is not only if there had been a change, if it was significant and the degree to which the change could in some measure be attributed to a research network's actions. Equally important is who makes that judgement. The quality of the outcome formulation requires skill in crafting the outcome, which can vary greatly from one research network leader and Acacia team member to another. In addition, there has to be an "honest" relationship between what changed and the person describing the change, who often was not the same person who influenced the change. And, when the writing of the outcome is a shared responsibility, necessarily two or more perspectives and interests come into play. Then, consensus over what actually happened, how, when and where, its significance and how the research network contributed is very difficult to achieve.[23] Lastly, most outcomes did only have one source – the research network.

Although substantiating each outcome – through consultation with third parties, for example – would add credibility, we consider that the outcomes do have validity. Outcomes were identified and formulated by the research network who contributed to them through a process in which Jennifer and I as external evaluators rigorously examined. We verified that each outcome had a plausible rationale and was reported as the change, that its significance was given and a description given on how the research network contributed to the outcome. Also, the research networks formally and publically went on record with their funder, as well as with the evaluators, who naturally can be expected to verify the outcomes. Furthermore, they were informed that the evaluation would be publicly available.

[22] Michael Quinn Patton, *Developmental Evaluation*, Guilford Press, forthcoming 2010.

[23] Chris Roche, *Impact Assessment for Development Agencies*, Oxfam, 1999, page 267.

Methodology: Process of harvesting outcomes

In June and the first half of July 2009, Jennifer Vincent exhaustively reviewed the 2006 – 2009 project files for the thirteen Acacia research networks and extracted potential outcomes for all of them. Jennifer identified a title for each outcome and then developed its descriptive material which included information on the significance and on the contribution of each research network to the outcome. She placed these initial, partial set of outcomes in the format (Annex 4) and we sent it to all the network leaders for their review.

Then, from mid-July until mid-December 2009, we engaged with the leaders of the networks and their Acacia program officers in reviewing Jennifer's initial information harvest and identifying and formulating outcomes. We engaged with the network leaders in a process of crafting the outcomes that took at least three or more exchanges of drafts. Once we had a set of outcomes for each research network, we shared them with the respective Acacia team program officers for their review. She and I commented quite exhaustively on the outcomes and posed numerous questions for the network leaders and program officers in order to supplement the material which was obtained from the reports. Through the process, we strove to make the outcomes as comparable as possible in terms of the specificity of their content. The aim was to make them all as detailed as necessary for readers to be able to appreciate what had been achieved, its significance and the contribution of the research network.

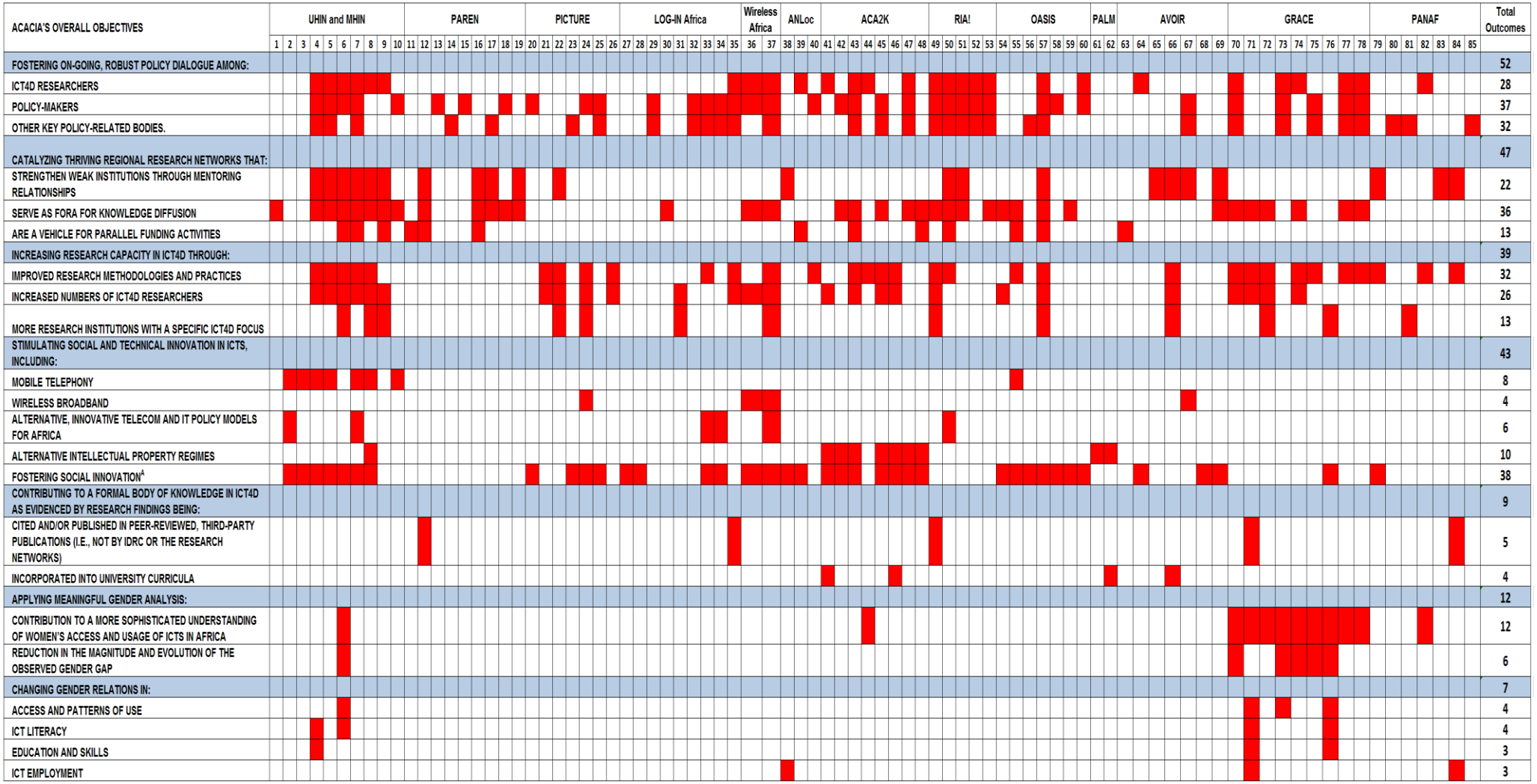
All respondents provided answers to some of our questions, and most formulated additional outcomes. Most network leaders classified the outcomes as requested according to the Acacia objectives for 2006-2009. We attempted only to keep those classifications for which there is a clear link to an objective in the description of the outcome. A number of respondents enriched their formulations with references to bibliographical material or with additional information in footnotes.

It should be noted that the source of all the information is the research networks, through their reports and our email consultation. The respondents particularly the network leaders decided which outcomes were the most significant and why. They also described how they contributed and they decided to which objectives each outcome corresponded.

Findings: Representative outcomes achieved since 2006

On the next page we present in Table 1 which is a simple results chart of the outcomes in relation to Acacia's overall objectives in 2006-2009. Then, you have a one-sentence description of the 85 outcomes that we compiled. In Annex 5 the full outcome formulations are listed. Following this section is Phase II analysis and conclusions of the effectiveness of the Acacia network approach.

Table 1– Outcomes of 13 research networks 2006-2009, by Acacia objectives



[a] Broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

Summary of Outcomes

I. UHIN/MHIN – Uganda and Mozambique Health Information Networks

1. In March 2007, a large percentage of participating health care workers in Uganda indicated that they refer to health information available on their PDA and that this information has changed their patient-care practice.
2. In 2007, the Ugandan district health services of Rakai and Lyantonde developed PDA-based data collection instruments for the monitoring and evaluation of community hygiene and sanitation.
3. From 2005 to 2008, the Ugandan districts of Rakai and Mbale implemented health management information system data gathering and reporting as a cost-effective alternative compared to paper-and-pen-based approaches.
4. Since 2006, managers at hospitals where UHIN is operational, in five districts in Uganda, have increased the frequency and quality of their monitoring and planning.
5. From 2006 to 2007 Mozambique's Ministry of Health replicated the UHIN project.
6. Since 2006, the District Health Services of Lyantonde, Uganda developed and is using PDA-based tools for improving nutritional surveillance in the district.
7. As of 2009, health workers in 45 health centers in Kamuli, Uganda refer to a PDA-accessible mobile library to diagnose, treat and care for patients.
8. Since 2006, remotely located health units and district health services in Uganda and Mozambique are facilitating two-way data exchange using the wireless access point called African Access Point (AAP).
9. Since 2005, UHIN collaborating partner Uganda Chartered HealthNet has applied the capacity it has developed in implementing ICT projects using mobile technologies to related PDA-based projects in eight countries.
10. In 2008 the Ugandan Ministry of Health asked the UHIN project team to play a key role in the development of a national health information system policy and strategy, based on UHIN's experience.

II. PAREN – Promoting African Research and Education Networking

11. The Carnegie Foundation and Swedish International Development Cooperation Agency (SIDA) sent representatives to the first UbuntuNet-Connect Conference in November, 2008.
12. Since 2006, the European Commission has worked closely with the UbuntuNet Alliance for the development and support of ICT infrastructure for sub-Saharan Africa.
13. In 2007, Professor Venâncio Massingue, Minister of Science and Technology, Republic of Mozambique, requested that the UbuntuNet Alliance assist in preparing a communiqué from the SADC Science and Technology Ministers

to SADC Secretariat on utilisation of EU funding for research and education networking and catalysing the economy through ICT innovation.

14. In May, 2007 the West Africa Telecommunications Regulators Assembly invited PAREN research director Boubakar Barry to make a presentation on NetTel@Africa, a trans-national network which facilitates knowledge creation and sharing in ICTs, policy, regulation, applications, and research.
15. In 2008, the Economic Community of West African States invited the Association of African Universities to a workshop on business models and regulatory implications for alternative network infrastructure provision in West Africa.
16. Since 2006, policy dialogue has been established in several African countries, which has led to commitments on working together to establish research and education networks in several countries.
17. In 2008, Professor Abdelrahim Osman Mohammed, Vice Chancellor of El-Imam El-Mahdi University in Sudan, successfully lobbied the incumbent telecom company, SUDATEL, and the Higher Education Council to establish the Sudanese Universities Information Network.
18. On 18 January 2008, Malawi's Ministry of Information granted an international gateway licence to the Malawi Research and Education Network (MAREN) without charge.
19. In 2006 the Association of African Universities recognised the UbuntuNet Alliance as a partner and agreed to nominate the chair of the Alliance.

III. PICTURE – Poverty and Information and Communication Technology Systems in Urban and Rural Eastern Africa

20. Rwanda's State Minister for Planning engaged Rwandan members of PICTURE in the development of the 2nd Economic Development and Poverty Reduction Strategy (EDPRS) for Rwanda and requested the results of the first PICTURE survey.
21. In 2007 the South African National Research Foundation and the Norwegian Research Council provided the Research Director of PICTURE with a grant so that an experiment similar to the one being performed in Tanzania could be undertaken in South Africa.
22. The South African National Survey and another IDRC program called upon the PICTURE network of PDA experts within Eastern Africa to advise on the use of PDAs by other research programs outside the Eastern Africa Region.
23. Trainers for small and medium businesses in Tanzania's Small Industries Development Organisation (SIDO) decided to include the use of ICTs in the training curricula.
24. In 2009, the Director-General of Tanzania's Commission of Science and Technology (COSTECH) adopted a policy of ICT mainstreaming within the key activities of the Commission, which can influence government policy and the effective use of ICTs in research.

25. In 2008, the National Statistics Agency in Uganda began to use personal digital assistants (PDAs) to collect data and to incorporate an „ICT and poverty' component in key national statistical surveys.

26. In 2006, the University of Nairobi promoted a PICTURE researcher.

IV. LOG-IN AFRICA – Local Governance and ICT Research Network for Africa Project

27. In 2007-2008, the Moroccan municipalities of Marrakech, Essaouira, Midelt, Casa, Taza, Jerada, Mekness, and Sefrou launched electronic civil registration projects.

28. In 2007-2008 the city government of Addis Ababa launched a program which involved training employees in basic computer applications.

29. In 2008, the Kenyan officials in charge of the country's e-government strategy invited Professor Waema, LOG-IN Project Leader, to lead a team that would review the current strategy and elaborate a national e-government strategy for the next five years.

30. Ekurhuleni metropolitan municipality in South Africa requested training on ICT for managers in local government, which led to the development of a course by the LINK Centre which was delivered to 20 municipal officials in 2008.

31. In 2006, two organizations within the University of Nairobi - the Institute for Development Studies and the School of Computing and Informatics - entered into a collaboration which involved the joint supervision of doctoral students of ICT4D.

32. In 2008 one of the Mauritius LOG-IN team members was appointed to a key e-Government committee at the national level.

33. In 2008, the business processing mapping methodology and tool developed by the LOG-IN Africa Egypt team was adopted by the Egyptian Ministry of State for Administrative Development.

34. In 2008/2009, the City Government of Addis Ababa requested the upgrading of the life events prototype system developed by LOG-IN Africa's Ethiopian team and started implementing it in one of the city's administrative units.

35. Between 2007 and 2009, several organizations invited LOG-IN Africa to share research findings in various fora, and several peer-reviewed journals accepted papers written about the results/findings of LOG-IN research.

V. WIRELESS AFRICA – FMFI and Wireless Africa projects

36. Telecommunications regulators in Angola, Mozambique and South Africa bent the rules to extend licenses after engaging in a dialogue with Wireless Africa's First Mile, First Inch partners.

37. The Mozambican communications regulator invited Mozambique Information and Communication Technology Institute (MICTI) to participate in policy development workshops.

VI. ANLoc – African Network for Localisation

38. Between July 2008 and July 2009, five Africans volunteered their services for software translation and 30 volunteers worked on the ANLOC locales project and two on the terminology project, which added two additional languages, Somali and Afrikaans, as volunteer-driven initiatives.

39. In 2008, several actors who are or have the potential to be important players in the localization endeavour – for example Mozilla and Google – have been moved to action by the work of the ANLoc network.

40. In 2009, Canada's Translation Bureau accepted to contribute its ICT glossary to the project.

VII. ACA2K – African Copyright and Access to Knowledge Network

41. In January 2009, University of Ottawa Law Professor Jeremy de Beer launched a law course on Global IP Policy and Social Justice that draws in part from ACA2K's work.

42. In May 2009, the Honourable (Mrs.) Betty Mould Iddrisu, Attorney-General and Minister of Justice of Ghana, decided to delay introduction in Ghana's Parliament of subsidiary legislation to Ghana's Copyright Act until after release of the ACA2K country report and policy brief and staging, in June, of the ACA2K National Policy Dialogue Seminar in Accra.

43. The global consumer watchdog Consumers International (CI) convinced two international donors to fund its Public Education Network on Access to Knowledge (A2K) project, and subsequently CI co-hosted an access stakeholders' workshop with ACA2K in Nairobi.

44. The Executive Director of the Kenya Copyright Board, Marisella Ouma, tried to deepen the gender elements in her investigation of Kenyan copyright law.

45. A number of official national delegates from countries in the African Group at the World Intellectual Property Organisation (WIPO) approached the ACA2K/IQsensato delegation at the Geneva meeting of the WIPO Standing Committee on Copyright and Related Rights (SCCR) in May, 2009 to find out how to connect with the ACA2K project.

46. In 2009, researchers in Zimbabwe and Zambia, two countries not formally a part of ACA2K, are applying the ACA2K research methodology.

47. ACA2K Network members from different countries have begun to collaborate in a decentralised fashion that was not actively fostered by the network leadership.

48. In 2009, the German non-profit group InWEnt approached ACA2K with the idea of learning and possibly collaborating.

VIII. RIA – Research ICT Africa

49. In 2007 and 2008, the International Telecommunications Union and the Organisation for Economic Co-operation and Development increasingly drew on RIA research and formally collaborated on dissemination.

50. In 2009 Namibian and South African ICT regulators agreed to reduce interconnection prices.

51. In March 2009 African parliamentarians responsible for oversight of ICTs for development requested training in ICT initiatives.

52. In 2008 the communication commissions in Uganda and Botswana committed to engaging more fully with RIA on its research findings.

53. In 2008, Namibia passed an act of parliament which created a ministry of ICT and a telecommunications regulator.

IX. OASIS – Open Architecture, Standards & Information Systems

54. In 2007, individuals from 13 institutions and organizations formed what would later be named the OpenROSA consortium in order to collaborate on the development of architecture and JavaROSA software for mobile data collection.

55. An ongoing relationship has formed between Google and OpenMRS since the former selected the latter for the annual Google Summer of Code 2007 program.

56. In 2007 the Free State was prompted, through the linkage of patient data with the death register, to explore alternative delivery strategies to improve access to HIV treatment, such as nurse-initiated antiretroviral therapy.

57. In 2008 Mozambique OASIS (MOASIS) and FOSS Implementation Labs (FOSSIL) developers in Mozambique became FOSS health informatics service providers to the Centers for Disease Control and Prevention and, in 2009, to Vanderbilt University and the Ministry of Health of Mozambique.

58. Between 2005 and 2007, the Free State province in South Africa adopted the data warehouse technology developed by OASIS.

59. The OpenMRS consortium has included the OASIS project leader, Chris Seebregts, as among the four leaders of the group.

60. In 2008 the World Health Organization's Health Metrics Network (HMN) adopted the position that the open architecture work done through OASIS would directly contribute toward the updated version of HMN

X. PALM – Publishing and Alternative Licensing Model of Africa

61. In 2009, African and international publishers made books available online using alternative licensing models and decide to explore new models of publishing.

62. In 2008, two university departments, one in South Africa and another in Uganda, have incorporated flexible licensing models into their curricula.

XI. AVOIR – African Virtual Open Initiative and Resources

63. Between 2005 and 2009, the UWC node of AVOIR attracted a number of clients for development and support contracts.

64. Between 2005 and 2007, private sector and university employers employed more than half of the interns and software developers trained at the University of the Western Cape.

65. In 2008, Professor Maria Beebe at Kabul University began using the Chisimba to support/teach her face to face course.

66. In 2007, six AVOIR universities decided to develop a masters program in free and open source software (FOSS), allowing more members of society to benefit from formal training in FOSS and become members of the AVOIR network.

67. As of 2009, developers from Jomo Kenyatta University of Agriculture and Technology (JKUAT) and the University of Nairobi (U of N) are setting up the infrastructure to transform the University of the Witwatersrand (WITS) into an AVOIR node.

68. As of 2006, when the KEWL framework was migrated to a new, Web 2.0-enabled platform called Chisimba, the ways of teaching and learning have changed significantly at two South African universities: the University of the Western Cape and the University of the Witwatersrand.

69. In 2008, USAID commissioned AVOIR nodes at four African universities to develop an animal health surveillance system.

XII. GRACE – Gender Research in Africa and Arab Countries into ICTs for Empowerment

70. Between 2007 and 2009, GRACE leaders and researchers were invited to contribute their expertise and experience as acquired in and through GRACE in various fora and towards various purposes.

71. Since the inception of the GRACE project in 2004, GRACE Africa researchers, many of whom had never authored published texts, demonstrated substantial behaviour change which culminated in their contribution of chapters to the book African Women & ICTs (May 2009).

72. From 2005 onward, GRACE researchers have developed nurturing and synergistic relationships with like-minded researchers within the GRACE Network.

73. Starting in 2006, African policy makers in countries such as Nigeria, Uganda, Kenya, Cameroon and South Africa have accepted the research, or the expertise derived from GRACE experience by researchers and research participants, as contributions to policy dialogues within their organizations, communities, regions and countries.

74. From 2005 to present, GRACE researchers have expressed that they have undergone fundamental and powerful personal change and development.

75. In December 2008, the Zambia Council for Social Development elected GRACE researcher Kiss Abraham to serve as an advisor for the development of the CIVICUS (World Alliance for Citizen Participation) Civil Society Index.

76. In 2009 GRACE researcher Salome Awuor Omamo co-founded Big Sisters Network in Kenya, which provides a centre for mentorship and capacity building for teenage girls and a youth centre for ICT access and training.

77. The First National ICT Research Symposium in Lusaka invited Kiss Brian Abraham to present his GRACE work and research process, indicating an emerging interest in gender and ICT research in this key initiative to bring a broad spectrum of researchers together.

78. In 2009 the International Federation for Information Processing (IFIP) Technical Committee 9 decided to hold a research workshop on 'Research voices from Africa' regarding ICT and society/development in Africa at Makerere University in Uganda in 2010.

XIII. PANAF – PanAfrican Research Agenda on the Pedagogical Integration of ICTs

79. In 2008-2009, the University of Nairobi and UNESCO awarded academic and professional promotions to Kenyan and Congolese “ICTs in education” experts.

80. In 2007 and 2008, the World Bank’s infoDev and the UNESCO Institute for Statistics partnered with PanAf to share additional knowledge resources and research on ICTs in education.

81. In the spring of 2009, the UNESCO Institute of Statistics (UIS) and a consortium of other international organisations invited a representative of the PanAf project to contribute to the development of an unprecedented set of global "ICT in education" indicators.

82. Since 2007, education researchers and practitioners around the world have accessed previously unavailable indicators of the pedagogical integration of ICTs in African schools.

83. From 2007-2009, 5-10 school principals and educators in Kenya, Uganda, Central African Republic, Senegal, and Mozambique demonstrated an understanding of the important difference between teaching computer skills and developing learning skills and accessing knowledge resources with the help of computers.

84. From 2008-2009, Cameroonian “ICT in education” researchers applied innovative new skills to produce academic writing beyond the expectations of the project.

85. In May, 2009, His Excellency Professor Ambroise Zawa, Ministre de l’Enseignement Supérieur, de l’Alphabétisation et de la Recherche Scientifique, of the Central African Republic (CAR), expressed that research results regarding computer use in schools were of high quality and important to the development of a policy on the ICT integration in CAR’s education system.

Chapter 6:
Phase 2 – Acacia Team Interpretation and Conclusions Regarding Outcomes

Introduction

This chapter contains the results of the evaluation process through which the Acacia program officers each "championed" their interpretation of what the eighty-five outcomes signified for each one of the six Acacia objectives. Together, they drew the following analysis and conclusions. Their preliminary analysis and conclusions were then discussed for the first time during a three hour working session at the Acacia Research and Learning Forum in Dakar, 4-8 October 2009. Each of the objective champions engaged in several interactive round-tables (round robins or or speed-geeking) to obtain the reactions and perspectives of the research network participants. The discussions continued from November to December 2009. The conclusions were then finished on 19 January 2010 at an Acacia team meeting in Ottawa. I and especially Jennifer Vincent supported the process.

The document referred to, below, is Annex 5 plus the "Table 1– Outcomes of 13 research networks 2006-2009, by Acacia objectives", above.

Objective #1: Fostering on-going, robust policy dialogue

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Acacia Champion: Khaled Fourati

The approach and the process

The following conclusions were reached after a review and analysis of the overall document which summarizes the Acacia research outcomes. They reflect on the common trends within the sub-classifications which correspond to the objective area as well as highlight any worthy unintended outcomes.

The main conclusions from the effectiveness of Acacia's network approach to ongoing policy dialogue is as follows:

1) More mature networks have been more effective in achieving policy dialogue outcomes with ICT4D researchers, policy-makers and policy-related bodies. In particular, one can review the outcome evidence for the listed research networks: RIA, PAREN, UHIN, OPENMRS/OASIS. The network research leaders validated this conclusion.

2) There seems to be some relationship between the intent to influence policy by the researchers, policy-makers and policy-making bodies and the achievement of this

objective. For example, see the following corresponding outcomes: ACA2K 45; OASIS 56, 60; RIA 49, 50, 51, 52, 53; PAREN, 13, 14, 15.

When this conclusion was presented to the research networks, some leaders spoke of experiences (GRACE, PanAf) which questioned the strength of the policy intent and achievement relationship. The research-to-policy capacities within the network seemed to be a factor as wellThis dichotomy between policy dialogue and research capacity building can be explained by several factors, such as:

1) The main objective of the network and what the project is trying to achieve. For example, the GRACE network focused mainly on building the research capacity to conduct methodologically sound gender ICT research, and the PanAf network focused on building a data repository on the use of ICTs in education in Africa. The primary concentration of these networks were not necessarily on policy dialogue.

2) The network members and their public relations capacity to use their own network and relationships to leverage research to policy dialogue. For example, RIA policy changes were driven by the actors in specific countries in Southern and Eastern Africa. The policy dialogue achieved at the international level was mainly driven by the core RIA management team. The ACA2K network tried to put various members at centre stage when interacting with WIPO. PAREN, on the other hand, leveraged a multidimensional approach, from national to regional to international dialogue at various forums. But again, success depends on the public relations capacity within the network to sustain this dialogue.

3) Reliance on national champions for building sustained policy dialogue. For example, review outcomes: MHIN 4-8, PAREN 13, ACA2K 42, RIA 50.

Networks have relied on local champions to interact with policy actors. However, these champions may end up taking on other functions during the project life cycle. Deficiencies can be found in putting one's faith on one local champion. Networks also struggled in identifying other entry points for influence. This conclusion was challenged by network leaders who thought that there is a need to institutionalize this champion process in order for outcomes to be sustained.

RIA, for instance, first tried to build the capacity of the national statistical offices and the regulators. Another strategy has been to work with national parliaments and with the African parliamentarians group. RIA's outcome number 53 was probably a reflection of this change in approach, wherein the dialogue with Namibian policy makers was mainly conducted in the beginning through various presentations by Christoph Stork, who is based at the RIA network core management team in South Africa. This strategy evolved over time and RIA worked more and more on building the local capacity of the Namibian Regulatory Commission so that they could invoke evidence-based policy change. This seemed to have enabled some concrete outcomes as representatives from the commission were recently invited to South Africa to present their experience on lowering inter connection costs to the Parliament and to the Director General of the Ministry of Communication in South Africa. The same results were observed with ACA2K, where the focus was on national dialogue in the beginning of the project, and then moved to interaction with WIPO, and finally made process influence in Geneva (refer to outcome 45).

4) Flexibility and seizing opportunities (which was validated by network leaders)

See the outcome results from: PAREN 13, 14, 15; PICTURE 20, 24; LOG-IN 30; Wireless Africa 36, 37; ACA2K 42; RIA 49

Many outcomes were not necessarily planned during the conceptual phase of the project. Networks leveraged opportunities as they emerged during implementation. In many instances, this meant revisiting budget allocations and changing what had been planned in the initial proposal.

5) Role of POs/IDRC(which was validated by network leaders). POs facilitated the policy dialogue process by opening doors, and making connections between research networks and their contacts. See the outcome results from: ACA2K 43, RIA 49, LOG-IN 29, PAREN 12

Objective #2: Catalyzing thriving regional research networks

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Acacia Champion: Chaitali Sinha

Summary of General Conclusion: This objective (as measured by the three points of sub-classification) was met by many of the networks to varying degrees. The extent to which it was met depended in large part on three main issues:
1) the maturity of the network (within its life cycle and among different phases);
2) succession planning strategies for personnel; and
3) visibility and/or effectively communicating findings, leading to resource mobilization

In this submission, I will be sharing some brief reflections about how I approached the „catalyzing thriving research networks' objective, followed by conclusions along the three main areas of investigation under this objective.

My approach to the objective

On p. 2 of Acacia's 2006-2011 prospectus, the second objective area is „thriving research networks'.

"With 53 countries and comparatively few strong research institutions, finding the capacity to carry out larger research programs in Africa can be a challenge. Fostering regional research networks can strengthen weak institutions through mentoring relationships. They can also serve as fora for knowledge diffusion and can create an ideal vehicle for parallel funding activities. By the end of the next five years we expect to see ten or more thriving African ICT4D research networks that Acacia has catalyzed and supported (*Acacia Prospectus 2006-2011*)."

I recognized that all of the projects included in this evaluation are networks of some sort, and as such had at some point been catalyzed. As such, in constructing my initial conclusions, I focused on the activities and events that acted as „catalysts after the formation of the network', and those that „facilitated the research networks to thrive'. More specifically, I examined these activities and events along a time dimension – seeing the network as a life cycle.

Conclusion by Point of Sub-Classification

On the following page I provide some general conclusions based on the summary table from the report. In doing this general analysis, I recognize that the table is still a working structure, and that it is based only on the outcomes that have been collected to date. As such, it does not assume or imply that the boxes that are currently un-shaded are not addressed in the network outside the reported outcomes.

According to the rows presented above, the networks that are most **strongly represented** in the three sub-classifications of this objective are:

- UHIN and MHIN
- AVOIR
- RIA
- PAREN

And to a **lesser extent**, the following networks have performed well according to the table:

- ACA2K
- OASIS

Strengthening Weak Institutions Through Mentoring Relationships

Achievements according to this sub-classification seemed to be highly dependent on the maturity of the particular network. For instance, the networks with the most boxes shaded in along this row were: UHIN/MHIN, PAREN, AVOIR, and RIA. Each of these networks had been operating for several years at the time of this study. This conclusion was based on the fact that the primary recipient and other node institutions had the necessary time to design and apply mentorship schemes across the networks. This finding was validated by the network leaders.

Moreover, the role of champions within the networks seemed to be an interesting issue that relates to network resilience through mentoring, among other mechanisms.

In examining the role, I found that a champion can help networks thrive, or in some cases, it can in fact cause some challenges in this regard.

Examples where champions have moved into positions of influence include the case of outcome 47 – *In 2007, six AVOIR universities decided to develop a masters program in free and open source software (FOSS), allowing more members of society to benefit from formal training in FOSS and become members of the AVOIR network* – where the formation of the masters programs was influenced by Dr. Keats. Dr. Keats led the AVOIR network and was its champion. He accepted the position of Vice Chancellor at University of Witwatersrand. This influential position was beneficial in establishing the reach of the masters program, as well as access to „key personnel from funding organizations – USAID, key personnel from IT companies Sun Microsystems …' (p. 75 of report). This points to the maturing of the network, and the role of the champion as an influencer in shaping the mentorship provided through the masters program and the ability to mobilize parallel funding.

There are also possibilities for fallout caused by the departure of a strong research champion that could leave gaping holes in the network. Although this did not come up in this study *per se*, it illustrates the need for succession planning among networks and flexible network designs and operations. One such design was shared by Alison Gillwald (RIA's network leader) as Next Generation Networking (NGN). NGN involves pushing some intelligence and ownership out to the nodes. This was then nuanced by the ACA2K network coordinator, Chris Armstrong, who argued that there is a need to have responsive network structures that can centralize when needed and decentralize when appropriate. This indicates a need to strengthen capacity and build sustainability of champions from the bottom and the top.

Forum for knowledge diffusion

In my opinion, all networks with internal communications processes act as fora for knowledge diffusion. Given this reality, I have focused my conclusion around outcomes where the network has itself acted as a forum for knowledge diffusion beyond the regular internal communications practices. This does not include instances where individual network members are invited to an existing knowledge forum to diffuse the network's research findings. I am not questioning the value of such an activity; instead, I am examining instances where being part of the network itself provides a knowledge diffusion opportunity for the network's activities beyond the boundaries of the network periphery.

The role of volunteerism (mostly through an open source model) is found to be considerable in helping a research network act as a forum for knowledge diffusion. When I use the term „volunteerism' I am not necessarily referring to work done without financial compensation; what I am referring to is a network of individuals who were not originally part of a network structure, but who chose to contribute to an activity within the network. This is another way of dealing with the issue of succession planning within a research network. I draw on two networks within this study to substantiate this conclusion – the first is ANLoc and the second is OASIS.

Outcome 38 „*Between July 2008 and July 2009, five Africans volunteered their services for software translation and 30 volunteers worked on the ANLOC locales project and two on the terminology project, which added two additional languages, Somali and Afrikaans, as volunteer-driven initiatives*' points to how ANLoc as a research network housed the interests and efforts of 30 volunteers to work on African

language locales, and two volunteers to work on the terminology project. These volunteers extended the diffusion of the network's knowledge and practices beyond the immediate network boundary, and in essence created a new, wider and more far-reaching network periphery.

Outcome 54: „*In 2007, individuals from 13 institutions and organizations formed what would later be named the OpenROSA consortium in order to collaborate on the development of architecture and JavaROSA software for mobile data collection*' is an outcome from the OASIS research network. The OpenROSA consortium, which was formed only two years ago, held a meeting in Tanzania in July, 2009. This meeting convened people from different sectors and different continents to discuss open mobile health data collection on a common codebase. The implications of knowledge diffusion as a result of this activity are significant. The OpenROSA consortia began as a small core group of handheld point-of-care mobile software developers. However, as a result of the network's role in diffusing knowledge to extend the network and its activities beyond this core group, the network has been able to thrive and grow as it continues to diffuse knowledge and attract interest.

Vehicle for parallel funding

Conclusions related to research networks thriving as a vehicle for parallel funding revolve around the positive visibility of network members and findings, as well as the ability of the network members to effectively and strategically communicate these findings with key individuals and at key venues. The two examples I draw on from the report to provide evidence toward this conclusion come from PAREN and ACA2K.

Outcome 12 „*Since 2006, the European Commission has worked closely with the UbuntuNet Alliance for the development and support of ICT infrastructure for sub-Saharan Africa'* from PAREN demonstrates how the strategic membership with different structures, such as the EU and DANTE, has added credibility to the UbuntuNet Alliance. These alliances, among other factors, have helped garner interest from donors such as Carnegie Foundation and SIDA toward potentially mobilizing parallel resources for the network.

In the case of ACA2K (Outcome 45), several members of the network presented at the highly influential World Intellectual Property Organization (WIPO) meetings in May, 2009. It is still too early to tell what potential opportunities this type of engagement will yield. That being said, there have been some initial expressions of interest stemming from this.

Meta-Level Conclusions

The general conclusion drawn from this exercise is that the extent to which this objective was met depended in large part on three main issues:

1. The maturity of the network (within its life cycle and among different phases)
2. Succession planning strategies for personnel
3. Visibility and effectively communicating findings, leading to resource mobilization

Other Observations … and Some Recommendations

There were a number of things that struck me throughout the process of drawing and vetting these conclusions with the network leaders. Although many of these have been

mentioned in bits and pieces in the pages above, I thought it would be worthwhile to summarize them briefly here.

1) The need to examine the outcomes as internal and external in nature.

Although the distinction between internal and external outcomes has been made in the report, I feel there is a need to make this more clearly and to perhaps classify the different outcomes as (primarily) internal or (primarily) external in nature. I feel this will lead to the inclusion of some very pertinent internal outcomes that may have been left out to date. Moreover, I think it will give us a sense of what types of networks (in terms of maturity, focus on research versus implementation, geographic reach, etc.) tend to achieve more or less outcomes of a particular kind.

2) The need to examine the networks along parallel time lines (where t=0 at the beginning of each network.)

The pressing need to analyze the study findings taking into account the different network maturity models is an issue that came up again and again. I would recommend making a series of timelines that (regardless of the calendar year when a network started) all begin at the left-hand side of the page at year one of the network's life cycle. Doing this and then mapping the dates of different outcomes (and adding in distinctions between external and internal outcomes) would provide a powerful visual to use during analysis. When developing this visual, I would suggest continuing to plot outcomes even after the network has officially closed, because as we all know, many outcomes (and if we are lucky, impacts) come about well after the project has closed. Despite that being the case, I see no reason why these cannot still be monitored and studied.

3) When is a network a network?

The final observation (not so much of a recommendation, in this case) relates to discussions I had on October 4th with network leaders. Many expressed some confusion when it came right down to whether or not they saw themselves as a network. Some voiced their opinion that they were a multi-country project until IDRC came and told them they were a research network. This made me pause and think about what kind of connotations lie within being an Acacia network and what criteria Program Officers use to decide whether a network is really a network.

Objective #3: Increasing research capacity in ICT4D

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Acacia Champion: Adel El Zaim

Conclusion of the outcomes validation and discussion work

At this point, I recollect Objective Three as per Acacia's prospectus:

> "There are very few institutions anywhere in the world that specialize in ICTs for development. It is by its very nature a trans-disciplinary field. Our objective is to increase institutional strength in ICT4D research focusing on improved research methodologies and practices, increased numbers of ICT4D researchers, and

research institutions with specific ICT4D focus *(Acacia Prospectus 2006 – 2011)."*

Conclusion from the discussion with the research partners

Overall, the partners and Acacia team realize a need to connect the outcome to the objective in a more clear relationship. Are we looking for outcomes related to the project objective or to the program objectives, and what is the nature of the linkage between Acacia's objectives and the research network's objectives? This discussion turned around in a way that asked whether the program objectives are or are not reflected in the network objectives. For some participants, it is not really crystal clear.

There is a need to have a common definition of "outcome". We are working with the definition of outcome as per IDRC usage and by the Outcome Mapping approach (i.e., behavioural change). It was in fact important to distinguish again output and outcome during the discussion.

There is a need to take into consideration the other factors which may influence the achievement of any outcome. Some outcomes may happen early in the project life due to some facilitating circumstances or opportunity seized by the research team. Other outcomes may happen long time after the project is ended. For these outcomes, there is a need to complete the current evaluation in order to make sure we capture more outcomes now, later and after the projects end.

My general conclusion

1) The list of outcomes is validated as well as the need to continue monitoring the outcomes during the life cycle of the networks and even after.

2) Now we (the Acacia team and researchers) have a common understanding of the outcome definition, the objectives of this evaluation and the importance of monitoring and reporting outcomes, some networks need to revisit their answers, review the outcomes they identified and add more outcomes if needed.

3) Some outcomes need to be supported by evidence.

4) Need to distinguish different types of research capacity: Some networks are more technical development oriented (ANLoc, OASIS, Wireless Africa). These networks' outcomes should be linked to the objective of "Social and technical innovation"

How the projects analysed contributed toward the achievement of this objective

GRACE made a significant contribution to building and increasing the research capacity in ICT4D. The network did this mainly by increasing the number of researchers and by developing and sharing a research approach which emphasizes women's agency and which promotes a qualitative methodology allowing for participatory and transformative techniques. This contribution was made both on the level of the project (from the first to the second phase, and from Africa to the Arab countries), and in the research community. The number of presentations, participation in conferences and forums, and assistance to other research projects constitute a good set of outputs leading, hopefully, to achieving outcomes as we intended it. The invitation extended to GRACE researchers to review the IFIP proposals is a sign of recognition of the gender dimension in ICT and of the domain of ICT4D in such a conference on information processing. GRACE's participation will hopefully influence the selection of the papers towards that inclusion.

GRACE's development into a group of like-minded researchers is also a good example of building research capacity. In gender study, probably more than in any other domain, good relationships and trust seem to be a condition for common success and achievements. Building the research network starts by building the relationship and breaking the barriers that hinder researchers to work together and to share. The change is affecting both the personal and the professional levels. Quoting from the GRACE contribution to this study:

> One researcher was able to change how she connects with those she respects and initially felt hesitant around:
>
> *Having to share and exchange ideas with academically accomplished people ... was at first intimidating. However, as time went on and as I came to know them better through interaction, I felt comfortable since in GRACE we would communicate with each other using our first names. I was often challenged by their humility!*
>
> Another researcher commented:
>
> *GRACE is also a vision of the world, a process of transformation or change, and for that, it has a mission. GRACE means for me the search for coherence, efficiency, better intelligibility of the social in order to be more conscious of gender. With GRACE I am undergoing a process of deep change. I changed, and I am using this know-how in my classes, and in my personal research.*

By using the approach in their classes, researchers are probably contributing to increase the number of future researchers. Same could be observed in LOG-IN. Researchers are supervising students and collaborating with researchers in other disciplines like governance in Nairobi and social sciences in Morocco. With ACA2K, Prof. De Beer was able to build on the existence of a large research network with researchers present in several countries to develop a course being delivered by the University of Ottawa in Canada.

PanAf Network: contributed to the achievements of objective 3 by contributing to the promotion of the researchers in their own field and institution as illustrated by the case of Professor Mawete (Congo) and Dr. Kidombo and Dr. Gakuu (Kenya). Their peers' recognition of their work attests to the credibility of the methodology and the approach used in PanAf. PanAf researchers are now invited to participate in the elaboration of ICT in education indicators. The Cameroonian case is a good illustration of building the research capacity: the researchers have written, proposed and secured the acceptance of their paper in Brazil and France after they have designed research experience and used the Observatory data.

The recognition of ACA2K work and results by the WIPO is per se an outcome of the increasing of the research capacity in Africa. For researchers to interact with WIPO and similar organisations, they have to be of high-calibre and possess a great deal of know-how and a solid approach to their research.

What was challenged

1) The definition of outcome/output and linkage with the objective. There is a need for a more common definition.

2) How do you take into consideration the external factors which contribute to the outcome?

3) How do you link the project objectives and outcomes to the program objectives and outcomes?

4) In today's discussion: is the change in the behaviour of the network members (more collaboration, more openness to others) an outcome of the project?

On this latest question, several projects consider that being a network has contributed toward an internal change both on the personal level and professional level. This is obvious with GRACE and their research on gender and ICTs. But even in projects dealing with administration and intellectual property (LOG-IN and ACA2K), there is a change in terms of capacities and behaviour. Researchers are more empowered to interact with international organisations and with policy makers.

What was added

1. Credibility and recognition of ICT4D research as an outcome
2. Outcomes can happen early in the project life and after the end of the project

Objective #4: Stimulating social and technical innovation in ICTs

- Mobile telephony
- Wireless broadband
- Alternative, innovative telecom and IT policy models for Africa
- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems

Acacia Champion: Heloise Emdon

*"*ICTs are enablers of both social and technical innovation and Africa is home to a great deal of innovation especially around the adaptation of low-cost ICTs to African needs and conditions. In the next five years, we expect to stimulate innovation in the development and use of new ICTs including mobile telephony, wireless broadband, alternative policies and intellectual property regimes." *(Acacia Prospectus 2006-2011*).

Mobile Telephony:

UHIN, MHIN and OASIS (Free State Province, South Africa HIV/AIDS M&E) demonstrated that mobile based health devices are viable solutions in Africa where internet resources are not available, particularly in remote health facilities. The data can be collected with mobile devices, forwarded, integrated into databases, analyzed and can result in health management decisions (outcome 2, 3, 4, 5, 8). UHIN has demonstrated facilities-based mobile data collection and surveillance and the relevance of feedback to nurses, which has resulted in better diagnostic decisions, improved monitoring and higher quality of planning as well as stronger communication to health workers in remote areas. The procedure of using mobile devices is also more cost- effective than using pen and paper-based survey data

collection. The experience of the OASIS network (and Free State project) has helped to demonstrate the integration of electronic medical records into data warehouses. More significantly, OASIS learned from its experience and helped to influence a self-organised group move to mobile data collection. Under the banner of OpenROSA, OASIS team members have gone on to collaborate on the development of architecture and JavaROSA software for mobile devices (outcome 29). This is significant technical progress since mobile phones are cheaper and more in use in African countries for these kinds of programming activities. Not mentioned in the outcomes, but still relevant, is the innovative use of PDAs for data collection of large household data sets in several African country nodes. This successful PDA usage by RIA and PICTURE Africa have influenced the data collection techniques of the National Statistics Agency in Uganda (see Outcome # 25).

Finally, I reclassified the innovative policy outcome on mobile pricing through the RIA benchmarking study. The results of the mobile interconnection rate study in Namibia has influenced the actions of mobile phone pricing regulation for some countries in Africa.

To what extent have these outcomes been the effect of the networking modality? In both UHIN and Free State, the technical innovations actually took place before they were networked with the other projects. However, OpenROSA and MHIN are outcomes of both of these networks in that further technical innovation continues to be tested which are based on the initial results of the Free State and UHIN.

The RIA benchmark study again is the result of one node (Dr. Christoph Stork, working with the Minister of Communications in Namibia, is based in South Africa and is a member of the core team of the RIA network) diffusing its innovative results which are now being undertaken across the RIA network. Moreover, the uptake of the policy interconnection rates issues in other nodes such as South Africa and Kenya demonstrates the value of the network in regard to diffusion of innovation.

Wireless Broadband

The only significant outcome in this area is that through the FMFI project which is when Angola's telecoms regulator "bent the rules" for Wireless ISP services in that country. Here the relevance of the network modality can be demonstrated via the general approach that the FMFI (precursor to Wireless Africa) took, in that policy implications needed to be taken consideration of and each node was encouraged to interact with regulators and policy makers.

The outlier in this category comes from PICTURE, whose Tanzanian partner, COSTECH, also benefitted from a non-network related project, "Community Broadband." Since this workshop occurred around the same time as there was a new head of the organization, the outcome is somewhat serendipitous.

Wireless Africa should have, by now, produced some tangible outcomes. Due to the network's implementation challenges, Wireless Africa has not demonstrated such influence. Interestingly enough, the Fantsuam member of GRACE is also a member of Wireless Africa. The innovation of VOIP in rural Nigeria, which will be implemented in GRACE 2, is being reported under this gender network rather than Wireless Africa.

Alternative, innovative telecom and IT policy models for Africa

In the outcomes classification PAREN and/or the UbuntuNet Alliance work went completely uncategorized under this sub-classification and needed to be categorized here. Outcomes 12, 14 and 15 are all significant innovative approaches that came out of the formation of the NRENs, which would obtain telecoms or even international gateway licenses and then award them to their national consortia or universities. Such licenses were previously preserved for telecom companies (or state-owned telecoms) The significance is also under-stated, given the fact that universities in most countries represent the single largest internet usage in a developing country. Thus empowered by their new license regimes and or simply by their bandwidth hungry client bases, these universities ventured out to tackle the institutional issue of policy alternatives such as Open Access and equity ownership of submarine cables. The NREN's failure to meet the equity ownership work moved their work to next best approach which was to purchase dark fibre. They then paid bandwidth at a tenth of the price that they were originally paying and for longer timeframe from the original length of life of contracted connectivity. This outcome demonstrates significant innovation in alternative telecoms models for Africa and is the result of a network modality which emerged by virtue of the players working together on cross border networks. Their focused goal was to catalyze the linkages for improved international, national and local connectivity for their universities.

Alternative and innovative telecoms modelling is demonstrated by the use of the African Access Point (Outcome 2, 7) which manages to collect and deliver data beyond the conventional mobile networks. This demonstration resulted in new IT policies for the Ugandan districts' health management. This was not necessarily network-dependent.

Alternative and innovative IT was demonstrated by the AVOIR network, though, insofar as universities both in Africa and Afghanistan started to use the open learner management software as an university platform for consolidating education materials and teaching. Universities in Kenya and South Africa had also set new standards for university based infrastructure requirements based on their AVOIR experiences (67).

Alternative intellectual property regimes

By far, this category has collected the most categorized outcomes which flow from the alternative intellectual property approaches to hardware, software and content. The African Access Point (8), the only open source hardware application developed, was again the outcome of a project rather than a network. Even though the Access Points were duplicated in MHIN, the demonstration has not had significant network dependent inputs or network externalities.

The research on alternative approaches to copyright law undertaken by ACA2K is a strategy to raise the copyright research agenda in Africa and build capacity in this area. This has resulted in several network modality dependent outcomes. For example, Ghana delays its subsidiary legislation to its copyright act (42), an outcome of the ACA2K network influence. The ability for the ACA2K network to attract new funding (43) demonstrates the deepened understanding and reach of the innovative intellectual property research. For example, donors have shown keen interest in the ACA2K network model strategies and work in addressing the research gap on "Open Innovation in Africa". Without the existence of pioneering projects such as ACA2K,

InWEnt would be forced to start largely from scratch in conceptualizing non-governmental, non-WTO, multi-country African interventions related to copyright and other intellectual property (IP) matters.

ACA2K became a credible voice to the extent that WIPO officials asked to connect with the network. This is similar to the outcome from the early phases of RIA when the ITU also started to recognize RIA's research as a credible source and voice from Africa through citation of the network's work (see outcome #49), Although RIA is not related to alternative copyright, their work is valued for its relevance to alternative sources of data on the telecommunications sector. In the case of ACA2K, there is a recognized dearth of research resources for Africa and an expressed need to produce more useful African research. The network collaboration amongst these members is strong (47)

The Publishing Using Alternative Licensing Models (PALM) project uses research in alternative publishing business models and action to change the mindsets of publishers in Africa. PALM Africa demonstrates the first influence of alternative licensing amongst African book publishers (66), with evidence of alternative publishing activities going beyond piloting. For example, new publishers and titles will be using the creative commons licenses in digital publishing in Africa and abroad. These approaches are now being taught in several universities to demonstrate alternative licenses and business models in Africa (67). Frances Pinter is credited for initiating the research work in alternative book publishing and also became the first network leader in this field. Her influence through the network modality, again as a means of diffusing innovation, is credited to the network workshops where other publishers were convinced to test the approach. Similarly, the inclusion of alternative licensing and business models in university curricula are linked to PALM members who hold research chairs in their respective universities.

One outcome which is not represented in the report (partly because the GRACE rPCR was not yet complete and therefore not reviewed for the evaluation) involves the GRACE network's agreement, after much negotiation, to release their book simultaneously as an e-book co-published by IDRC and as a book published in London by ZED books. The latter, a prestigious development literature and alternative content publisher, was more attractive to the GRACE network than alone having an e-book which would apparently not generate income or royalties for them. This is a process outcome that has given a closed research network an alternative view of publishing relevant for its target audience.

The open source software outcomes from AVOIR (64, 66) and OASIS (54, 55, 57) demonstrate that an alternative open source software policy in university and health is contributing to developing software capabilities in Africa. Not only will the new skills presently contribute to education and health services, but also strengthen the ICT software industry in Africa.

Fostering social innovation

At the time of the feedback to network leaders of our Network Outcomes findings on 3 October, I had chosen to use Joseph Schumpeter's formulation of innovation in which organizations and institutions interact to form an enterprise, which describes the innovation's success through the results of some economic manifestation. The three-phase axis of Schumpeter's innovative process, consists of invention, innovation and diffusion (Schumpeter, 1934), as discussed by Andrea Bonaccorsi and Cristina

Rossi (2003). The same authors discuss Shapiro's (1999) concept of network externalities and a growing body of literature suggests that "the diffusion of informational goods is subject to two fundamental factors: increasing returns from the production or supply side, and network externality effects, or increasing returns from the demand side." Our Acacia definition, as pointed out in our team feedback on 9 October, was more broadly stated. It would nevertheless be important, I believe, for our final program evaluation to use these more theoretical perspectives in order to value our program's overall contribution.

For this analysis, I return to the Acacia Prospectus definition of social and technical innovation, which is *broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, and its expressed purpose being to provide solutions for individual and community problems.* I used the following concepts for improvements:

1) **Employment**: There was a change in employment conditions in both cases of: a) the Addis Ababa's training of local government civil servants in basic computer skills (28); and, b) the change of technical mobile computer skills required for the Rakai, and Lyantonde district nurses for the collection of routine health data resulted in higher motivation for their jobs. In a profession wracked with low levels of motivation, the nurses whose skills were improved both for their routine work, but also in terms of better diagnostic procedures. (2) More than half of the trained interns from the University of the Western Cape AVOIR open source software Masters program were immediately employed (64) in an otherwise depressed labour market in South Africa. (63, 64 and 69). From AVOIR, PALM and ACA2K, university masters courses are created or existing course material adapted respectively to teach the use of alternative to proprietary software development (66), alternative licensing models for publishing (67), and alternative approaches to copyright law (41). This demonstrates formalization of the knowledge diffusion through including next generation learning most relevant for employability and job skills.

2) **Consumption**: The Wifi projects in Angola, South Africa and Mozambique gained tacit approval from the regulators, where the use of WiFi across public boundaries was outlawed because of the facilities and voice monopolies of the telephone companies. This demonstrated that telecom liberalization was indeed possible in allowing for communities to own and to manage their own wireless networks. Aggregating the university partners use of internet services and negotiating for lower prices with internet providers was also demonstrated by the Ubuntunet Alliance (UA) under the PAREN constellation of projects. Here universities banded together to not only form a consortium for negotiating satellite service provision but this new social group formation recognized that the cheaper, faster and more secure communications option for consumption was to access fibre-optic infrastructure. They formed the UA, pursued alternative approaches to finding and interacting with service providers in Africa's slowly liberalizing telecommunications market. Two African universities adopt alternative licensing approaches in the curricula, easing access to learning materials (64) and innovatively increasing demand or consumption.

3) **Participation**: Morocco's electronic registration projects (27) enabled citizens to gain access to their civic registration documents with greater ease. AVOIR's Chisimba framework, an interactive internet-based or Web 2.0 technology (68), changed the way in which two South African universities utilised online teaching and learning approaches. The same framework is being replicated at the Kabul Polytechnic University (65). This demonstrates diffusion of technologies and use, particularly when the innovators are commissioned by other universities to develop new tools for other universities (69). Another experience of social innovation in participation is the experience of ANLoc and the mobilization of 30 volunteers (mostly Africans living outside of Africa). These volunteers contribute their time and skill to translate computer locales and terminology that has enabled the use of nearly 100 African languages. The network also demonstrates the value social networking tool use to mobilize people's skills and coordinate resources (38). OpenROSA is an example of innovative participation: thirteen institutions with competing, and uncoordinated technologies from different sectors and continents get together and discuss open mobile health data collection on a common codebase. This is yet another example not only of how open source collaboration can result in better coordination in the innovation stage, but also improved diffusion of the technology.

4) **Providing solutions for individual and community problems**: I would call these **Production** solutions. The Moroccan electronic civic population registration is an example of local solution development. Another example is the small indication that regulators recognized the potential of these wireless networks in addressing their own universal access challenges in the MICTI outcome (37). This Mozambique incubator project which built Cantenna[24] rural networks with university students was invited to participate in a policy dialogue on developing an appropriate universal access policy which would allow local entrepreneurs to provide access in remote areas. If viable, this could demonstrate the "unbundling of the local loop" that is in some countries the liberalization of provision of the last-mile access in telecommunications networks and creation of new enterprise opportunities. Google's summer of code relationship with OpenMRS and the subsequent outflow of the idea of the Southern Summer of code, or the internship program in OpenMRS (55) is another outcome that could be discussed under any of these headings especially in terms of creating new skills new developers to provide solutions for their local problems. This partnership demonstrates the search for local solutions using the global internet-enabled collaboration. This also facilitates the continuous and ongoing building of applications that are required by users of OpenMRS who seek adaptation and customization of their software.

[24] This is a do-it-yourself antennae made from a can using unregulated spectrum reserved by the ITU for Industrial Scientific and Medical reasons, and not for income generation . The First Mile First Inch network project was the first to put to test WiFi as an alternative to providing access to remote and underserved areas. APC managed a project under Adel el Zaim to train community and NGO's to build these homebrew antennae in an effort to emulate the successes in Indonesia of community owned networks. The First Mile First Inch project. These two project constituencies were brought together in the Wireless Africa project with the objective to find business models to sustain these last-mile delivery options.

The creation of a death registry (56) requires a discussion on its own because of the health outcomes perspective. Normally health management information systems (HMIS) do not register death indicators, as this would normally be the function of population registration. Given the high mortality rate of HIV/AIDS in South Africa it became evident that effective monitoring of the roll-out of the Anti-Retroviral Treatment need the Free State Province to record the number of deaths of patients registered in the system. This proved to be an innovation in the HMIS as the research helped to inform Ministry of Health and request the exploration of alternative strategies for delivering the ART. The data analysis demonstrated to the Ministry that there were bottlenecks in the ART delivery system: a lack of doctors to initiate the treatment. As a result, a local policy decision was required to empower nurses to commence ART treatment in uncomplicated conditions, thus reaching more patients with the life-giving drug therapy. This demonstration of the value of death registry has resulted in the Mozambique commission by the Ministry of Health for the local MOASIS team to develop a death registry for the country (62).

In conclusion:

Most inventions that resulted in innovative solutions for local problems were particular to and can be located back to Connectivity Africa funded projects, most of which had Acacia research funding as well. The were piloting projects aimed at developing technical solutions. UHIN, pre-OpenROSA use of mobiles, electronic population registration in Morocco preceded LogIn, monitoring ART rollout for HIV/AIDS in order to account for lost-to-follow-up patients preceded the larger collaboration of OASIS, the use of low cost wireless devices to extend connectivity into rural areas in a smaller network preceded the Africa-wider Wireless Africa. It could be argued that network modality employed by the Acacia program catalyzed and facilitated the diffusion of these innovations. This diffusion of innovation, also referred to as “innofusion” is a social innovation and therefore the networking approach could be considered the primary social innovation which could lead to improved development processes.

This category of outcomes should in future be researched from a perspective of lasting impacts in Africa In particular, the Acacia program’s funding of interventions around m-health and alternative licensing for applications development and access to content are now being leveraged by new funders wanting to take advantage of these innovations for their own development objectives. While this might have more to do with individual inventions, as discussed above, diffusion of these technologies and their use can be attributed to the network modality.

Several examples of self-organized networks coming about because of the social innovation of facilitation or research agenda-setting by the Acacia programming approach resulted in networks such as the UbuntuNet Alliance (UA). The Alliance has a unique and legal identity. The UA is demonstrating that as a transnational and regional entity, its members are able to create further spill-over of their innovation as other countries rally to form NRENs in order to improve consumption costs and to influence the expansion of the infrastructure to provide improved internet connectivity to African universities. Universities are the single-largest consumers of internet infrastructure in Africa and this could have a significant catalyzing effect on access to internet in Africa *per se*.

Other outcomes that need to be monitored for potential impact and network approach influence:

While discussed elsewhere under thriving networks, the contribution of volunteers, and in particular the expatriate African volunteers that have contributed to ANLoc's translation of web applications and computer locales, demonstrates a confluence of various issues related to innovation, collaboration and the diaspora which should be researched in future. This should be considered both from the perspective of the access to knowledge and knowledge materials and brain-gain potential either via the PAREN/CORENA work, alternative scholarly publishing, open source production models or ANLoc itself.

Intentionality

Finally, social and technical innovation has come from networks that had stated objectives of pursuing innovative strategies for access to infrastructure, alternative approaches to software development or alternative approaches for copyright. It would be important in any new programming approach to have intentional objectives of achieving social and technical innovation, and not just in researching it. Interestingly, many of the projects that worked on hardware and software solutions had some seed funding from the Connectivity Africa grant that originated from Canada's commitment to the G8 dot.force contribution from the Canada Fund for Africa.

Objective #5: Contributing to a formal body of knowledge in ICT4D

As evidenced by research findings being:

- Cited and/or published[25] in peer-reviewed, third-party publications (i.e., not by IDRC or the research networks).
- Incorporated into university curricula.

Acacia Champion: Edith Adera

Introduction and Approach

This objective was added by the team during the network evaluation approach discussions. The team concluded that it in addition to building research capacity and influencing policy one of the prime contributions of the networking approach was to see the researchers contributing to a body of knowledge. ICT4D has a growing body of literature and the contribution by researchers to this formal discourse would demonstrate the evolution of this field. Finding measures by which this could be demonstrated became the subject of this next section, as most of the Acacia projects and networks did not, at their genesis, have the objective of publishing in peer reviewed journals but rather the publication of books, wiki's or policy briefs. Nor did

[25] It was decided in November, 2009 that this objective would be broadened to include publications by Acacia-funded researchers and not just citations of their work by third parties. The Acacia team feels that, since successfully publishing in a peer-reviewed publication is an onerous and formidable feat for any scholar (especially ones based in Africa), Acacia's research partners cannot be expected to achieve this result solely from Acacia's financial support of a project. The team is of the opinion that review and acceptance by peers in the field is a substantial change and one that falls outside the immediate influence of the funding it provides to research networks.

many of them set out to contribute to university curriculum. According to the definition of outcomes the former would have been considered outputs and therefore not contributions to a formal body of knowledge. This was therefore considered to be a stringent objective imposed by the team and lead to a great deal of debate amongst the evaluators, the Acacia team and the respondents.

In analyzing the network evaluation outcomes and the extent to which Acacia partners "contributed to a formal body of knowledge", the classification provided by the evaluator was followed as evidenced by the sub-classifications above.

During the meeting with the network leaders on 4th October 2009, they were provided with an opportunity to reflect on whether or not they had outcomes that were not reported under this objective. They were alerted to the opportunity to report any missing outcomes within the timeframe provided, i.e. by end of October, 2009. Discussions were facilitated by sharing the summary findings related to this objective and then posing three questions to the network leaders:

- Is the classification currently used by Acacia the only way to "contribute to a formal body of knowledge" in the field of ICT4D research?
- Why is the word "formal" important?
- What are the current realities in the ICT4D research with respect to knowledge generation, dissemination and application and how do they apply in this case?

Summary of Findings

From the review of network outcomes, it was noted that only four (4) out of thirteen (13) Acacia network projects reported having "contributed to a formal body of knowledge in ICT4D". These networks included:-

- African Copyright and Access to Knowledge (ACA2K);
- African Virtual Open Initiatives and Resources (AVOIR);
- Research ICT Africa (RIA); and
- Publishing and Alternative Licensing Model of Africa (PALM Africa)

The network contributions are highlighted here below and include the outcome reference numbers, thus:

1) Citations and/or publications in third-party, peer-reviewed publications:

- RIA - (49). In 2007 and 2008, the International Telecommunications Union and the Organisation for Economic Co-operation and Development increasingly drew on RIA research and formally collaborated on dissemination and;
- AVOIR - (63). Between 2005 and 2009, the UWC node of AVOIR attracted a number of clients for development and support contracts; 65. In 2008, Professor Maria Beebe at Kabul Polytechnic University began using the Chisimba program to support/teach her face to face course; 66. In 2007, six AVOIR universities decided to develop a masters program in free and open source software (FOSS), allowing more members of society to benefit from formal training in FOSS and become members of the AVOIR network.

2) Incorporated into university curriculum: -

- PALM – (62). In 2008, two university departments, one in South Africa and another in Uganda, have incorporated flexible licensing models into their curricula).
- ACA2K – (41). In January 2009, University of Ottawa Law Professor Jeremy de Beer launched a law course on Global IP Policy and Social Justice that draws in part from ACA2K's work; 46. In 2009, researchers in Zimbabwe and Zambia, two countries not formally a part of ACA2K, are applying the ACA2K research methodology).
- AVOIR - (65). In 2008, Professor Maria Beebe at Kabul University began using the Chisimba to support/teach her face to face course; 66. In 2007, six AVOIR universities decided to develop a masters program in free and open source software (FOSS), allowing more members of society to benefit from formal training in FOSS and become members of the AVOIR network).

Conclusions and Reflections

Only two projects, RIA and AVOIR, reported to have contributed to knowledge that was cited by third parties in their work, or to have contributed their own third-party, peer-reviewed publications, while three projects (AVOIR, ACA2K and PALM) contributed to the development of university curriculum and teaching materials. There seems to have been a strong correlation between the project leader/research director being from the academic community and the network's contribution to the body of knowledge, although this did not necessarily apply to other networks under the same category. It was observed that "dynamic networking" and seeking "windows of opportunities" for collaboration by the projects that have reported outcomes under this objective could have contributed to their success. On the other hand, it was recognized that possible lack of intent and/or strategic planning on the part of some of the projects to "contribute to a formal body of knowledge" may have resulted in low outcomes under this objective. It was reported that in some cases, there was a conflict between pursuing the objectives of "contributing to a body of knowledge" and "policy influence". Partners expressed constraints in pursuing both especially in cases where research capacity within the networks is uneven. Priority was generally dedicated to research capacity building and in some instances intellectual contribution to the body of knowledge than policy influence. This however does not fully explain the low outcomes in achieving this objective.

Consultation with network leaders validated the assessment criteria used to determine project contributions to a formal body of knowledge. It was recognized that "citation in third-party peer-reviewed publications" is an important reflection of scientific excellence and is indeed acknowledged internationally as a formal metric and reward criteria in the academic world. Contributions to academic programs and course materials was also validated and lauded as an important contribution by those in the academic sector.

Despite these validations, a number of project leaders, challenged the criteria and suggested a need to expand the assessment criteria to include:

- Recognition of scientific contributions by peers through targeted invitation to professional forums;

- Contributions to premium publications such as *The Economist* and/or grey literature widely available in the cyberspace.

Indeed, others voted for a review of the "metric and reward system for scientific contribution" as they felt current peer-reviewed knowledge systems are largely biased and managed by closed networks/cliques. One participant remarked that "an old metric and reward system - peer-reviewed journals - are being used in a new world!". It was proposed that an African benchmark for scientific excellence should be developed. These points require further deliberations as the metric and reward system must meet international standards of scientific excellence. Another possibility would be to support and to encourage African-based peer-reviewed publications/journals for a greater contribution to the field of knowledge.

After much debate in the team and with the evaluator it was decided that the publication of any material in a peer reviewed journal was an outcome because the editorial board and peer review mechanism was not within the control of the project. Therefore, even if the project had as a stated objective such a publication, the actual achievement of it was not within the project's control. In fact, given that the Acacia program had in its programming identified the lack of scholarly publications as a dire need in the African continent. Several projects addressed these concerns, namely PALM, the Scholarly Communications Africa to specifically address the opportunities that exist for the expansion of African scholarly publications. The revision of the objective enabled the networks that had achieved peer publications to submit these as significant outcomes.

There is a possibility that network project partners faced challenges in capturing evidence of contributions to the body of knowledge during the evaluation process. This could be attributed to the distributed nature of Acacia networks in which these contributions could have been missed out from individual members given that the focal point was the project leader, who in some cases was under pressure to report on the outcomes and may not have sufficiently consulted its research network.

Going forward, Acacia needs to incorporate mechanisms to better capture and require partners to report on a network project's contribution to the body of knowledge within the project cycle. There is also need to encourage partners, throughout the various stages of the project, to better target deliberate contributions to the body of knowledge in the field of ICT4D. Technical support and resources could be provided to achieve this objective. Finally, Acacia networks could introduce internal peer-review mechanisms to facilitate contributions to the body of knowledge.

Objective #6: Applying meaningful gender analysis:

Acacia Champion: Ramata Molo Thioune

The prospectus refers to Gender in the following sections: "*Gender:* While Acacia does have some interesting flagship projects on Gender and ICTs, it lacks a systematic approach to the integration of ICTs in its research projects.

"Theme: People Empowerment – While it is important to understand the large-scale impact of ICTs economically, socially, and culturally, we felt it was equally important to understand the perspective of social change being brought about through ICTs from the perspective of the end users of these technologies. What does the 21st century

ICT-empowered African look like? This perspective is important for understanding both the positive and potentially negative aspects of ICTs on society. This theme will cover areas of research that particularly focus on the individual and ICTs, covering topics ranging from income generation opportunities; gender to intellectual property to privacy issues; censorship; local language access; and more."[26]

"The Acacia team will also endeavour to strengthen its own ability to assist all its project partners in raising the awareness of engendering all projects to ensure that these deliver disaggregated data and perspectives from women ranging from the e-usage index to the e-governance research projects. This process will begin with an external evaluation of gender programming within Acacia. The purpose of the evaluation will be to provide recommendations for capacity-building within the team on engendered analysis and project development and to assist in the development of a gender programming framework for Acacia that will cut across all projects. We expect this framework to be developed by year two of the prospectus but that it will continue to evolve over the remaining years of the prospectus." [27]

Under program objectives:[28]

Objective: Sustained policy dialogue

- ❖ an ongoing engagement between gender and ICT researchers and policy-makers resulting in more gender-aware ICT policies;

Enhanced research capacity

- greater capacity in research methodologies, in particular on ICTs and gender analysis;
- Under "organisational practices"[29]

Finally, as the impact of ICTs is increasingly felt across the continent, understanding the way in which gender relations and social equity is changing is a key part of our program. Acacia will invest (particularly in the first year of this phase) in building capacity within the team and with project partners in engendered approaches to research project design and development.

Under planned evaluation:[30]

1) *Evaluation of the integration of engendered analysis in Acacia programming*: The external review of Acacia highlighted gender as an area in which Acacia has lost some of its former emphasis and in which there does not appear to be a consistent approach to gender across our projects. The intention of this evaluation would be to take a closer look at gender in Acacia projects with the intention of building capacity within the Acacia team and of developing a framework for the integration of engendered programming into Acacia project development. This will be carried out in the first year of the next phase.

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[26] Acacia Prospectus 2006-2011, pp 12
[27] Ibid, p18
[28] Ibid p31 and 32
[29] Ibid p36
[30] Ibid, p41

- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa
  - UHIN and MHIN (outcome 6); GRACE (outcomes 70 to 78), ACA2K (outcome 11); PANAF (outcome 82)
- Reduction in the magnitude and evolution of the observed gender gap
  - UHIN (outcome 6); GRACE (outcomes 70, 73, 74, 75 and 76)
- Changing gender relations in:
  - Access and patterns of use: UHIN (outcome 6); GRACE (outcomes 71, 73 and 76)
  - ICT literacy: UHIN (outcomes 4 and 6); GRACE (outcomes 71, 76)
  - Education and skills: UHIN (outcome 4); GRACE (outcome 71, 76)
  - ICT employment: ANLOC (outcome 39), GRACE (outcome71), PanAf (84),

1- Approach

This analysis is based on team discussions on the 29th September and a subsequent discussion with network leaders of the contribution of project outcomes to Acacia's objectives on the 4th October. During the latter gathering, discussions of Acacia's gender objectives were organized around two concepts: Transformation and Inclusion.

I first made a presentation of the gender-related outcomes identified by the project leaders and validated by POs (table classification):

- Very few respondents have identified gender-related outcomes as using the suggested classification (above). Gender-related objectives were chosen only by UHIN, MHIN, ANLOC, ACA2K, AVOIR, PanAf, and GRACE.
- Apart from GRACE, most of the outcomes to which networks felt they had contributed related to inclusion and not gender transformation.
- Three are related to ICT employment

I also mentioned the work which Acacia is supporting to enhance gender inclusion/integration into projects. For example, the 2007 gender awareness workshop in Fez, where all Acacia team members had been exposed to gender theories, gender approaches and the importance of considering gender issues in development research.. I also mentioned the awareness workshop offered in 2008 to Acacia and its partners, which had the same objectives. All the Acacia-funded networks have been represented by a designated gender focal point and several tools and methods were presented. In addition, gender theories have been revisited for the participants and practical exercises developed. Partners applied some tools to their own projects.

Based on this information, I asked the participants to help analyze why there was so little reference to gender and mainly to the lack of gender transformation outcomes.

Main reason: One of the main reasons that came out is the fact that there is a very limited understanding amongst Acacia POs and network leaders of what it takes to achieve gender transformation.

Based on this, I asked the participants what should be done.

2- Discussions:

During the round table discussion with network leaders at the Acacia Forum, two alternatives were suggested as a solution:

1- Change partners: Select new partners who are not in the "whether" stage (whether gender matters) but instead are in the "how" stage (eg. how to integrate gender transformation and gender inclusion into research projects)
2- Re-engineering the networking approach: Promote cross-collaboration to enhance the gender transformative dimension into ICT research for development projects. This will lead to new knowledge contribution/construction.

We decided that the first alternative cannot be reasonably feasible within IDRC – Acacia's current prospectus. Instead, the second alternative could be adopted, with the following actions suggested:

- Include gender objectives in the research (gender budgeting: time, money and capacities)
- Incorporate gender mainstreaming: a set of gender-related research questions (NB: development outcomes)
- Through capacity building/mentoring, enhance the understanding of the relationship between gender and development: from research findings/data (description) to outcomes (analysis) and provide with technical and analytical capacities (methods and methodologies, frameworks, paradigms, etc)
- Instead of using gender as an entry point, use development as a framework. From there, including gender will be easier.
- Address lack of skills (research/methods)
- Representation of women in networks important but not sufficient
- Gender at the project development stage

GRACE[31]:

We had a more in-depth discussion about GRACE-reported outcomes, and this is based on the lead evaluator'squestioning of these outcomes. We

1- Grace 1 was a closed network; it chooses purposely to concentrate on internal capacity building of network members in feminist and gender justice research; most outcomes were internal.
2- Grace 2 is still a closed network although expanded (geographic and thematic) but still focusing on research capacity-building
3- **Conclusion**: Gender outcomes are not made explicit, and among the few identified, most are related to gender inclusion, not gender transformation. The networking approach needs to be re-engineered to allow a systematic and meaningful application of gender analysis into research networks.

[31] It should be noted that the GRACE Network substantially refined its presentation of outcomes subsequent to Acacia's meeting with network leaders on October 4. For a full listing and description of GRACE's nine most significant outcomes since 2006, see "Final Presentation of Acacia Research Network Outcomes 2006-2009."

CONCLUSION:

I think the outcome identification and classification is a very useful process. It allows the team to have a good sense of the significant and catalytic role played by research funding in ICT4D in development processes.

As for the reported gender-related outcomes, it is unfortunate that, despite all the effort which Acacia has invested, namely build team capacity (April 2007), create a framework for integrating gender into projects, chose flagship projects in the planning phase of those already in implementation to assist with gender integration, and provided training for key network participants (October 2008) , as well as documentation for partners (November 2009) [32] , the changes in behaviour during this prospectus period are not very extensive. It must be noted that the outcomes are likely to have been addressed in the outputs, as defined in the definition, in other words the intended objectives of the projects, but that longer term changes, "changes in the behaviour, relationships, activities, or actions of the people, groups, and organizations with whom a program works directly…[which] can be logically linked to a program's activities, although they are not necessarily directly caused by them" are changes that require attention to transformation rather than mere gender analysis.

Another possible explanation could be because of the limitation of the methodology used in this network evaluation, namely that the research director was likely the writer of the technical reports, and they were asked to help formulate the outcome statements. This first layer of response does not account for work done by sub-team leaders and might indicate the lack of priority assigned to gender analysis by the research directors, despite the Acacia team's efforts. Another approach that could have been followed in the outcomes reporting would have been to ensure that the gender focal points in each network were consulted or that a question be put to the network director on whether the gender focal points were consulted? It must be noted that few of the research directors participated in the gender workshop for Acacia partners, the participants were assigned or self-selected based on an invitation to the network leaders.

The results of this survey could have been differentif there were face to face or oral interviews with the network members, most of the gender-related outcomes would come out. I think that this limitation also has to do with the limited understanding of the concept of outcomes. It is interesting to note that the GRACE network took longer to report on their outcomes and this was partly because they chose to ask each of the researchers in the network to respond to the outcomes statements. This network then followed a more participatory process in gathering outcomes. Low levels of reporting amongst the other networks could thus be a methodological problem based on selection of the respondent. Further analysis might be worthwhile.On the other hand, if the low level of gender-related objective selections really does reflect reality (that is, that Acacia-funded networks are not making gains vis-à-vis gender inclusion and transformation), I think we need to rethink our gender integration strategy, and ask ourselves if our strategies were relevant and appropriate to the need and level of capacity on gender of the network members.

[32] The latter documentation was only submitted by end of November 2009 https://intranet.idrc.ca/uploads/user-S/12666206271nprimo_gender&devt_theorypaper_final.pdf

Meta-conclusions

In sum, there are a number of repeated factors of success that surfaced through the discussion amongst the Acacia team. A successful Acacia network approach entails:

- Work over many years and phases so that a research network can achieve maturity.
- Maturity entails research capacity development including innovative approaches to integration of gender into research, policy influence and contributing to a formal body of knowledge.
- Benefiting from the economies of scale that come from research development networks in order to achieve coherence between project and program of policy influence, gender research and contribution to formal body of knowledge.
- Building capacity (strategic choice of individuals and projects which can use expertise and academic strengths in effective communication / policy dialogue, academic writing, etc)
- Succession planning or network development
- Flexibility and the ability to seize opportunities to strengthen networks or to let go of the networking approach where outcomes are not forthcoming.

Chapter 7: General Conclusions and Points for Discussion

In this last chapter, as the external evaluator I will summarise the answers to the two questions that guided both phases of this participatory, formative and internal evaluation and finish with recommended points for discussion. As the objective of a learning evaluation is for the intended users to learn, mitigate and adapt from the process, there are few judgements to express here. Instead, I attempt to frame the issues for further reflection for the Acacia team's ongoing learning and in particular the Centre, concerning the strategy of supporting networks in programs.

Conclusions on the Acacia Approach to Networking

To what extent is the Acacia networking approach for programming appropriate and relevant to the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D?

1. The Acacia team members were able to make explicit an approach to building research development networks in Africa which constitutes the Acacia Approach, and to demonstrate there is coherence amongst the team regarding this approach. In and of itself this demonstrates an innovative approach and leadership in the field of support for African research development. .

2. The 23 Acacia team members and network leaders confirm that Acacia's nine *goals* deserve priority. Nonetheless, in their opinion, two goals deserve markedly less priority: Serving to nurture the development of research ideas that research funders should support and building on-line capacities for research networking.

3. Regarding the *operating principles* of the Acacia Approach, the respondents are in agreement that six of the nine have been very acceptably applied. The Acacia approach is considered to be weakest in leveraging of other research funding opportunities, building sustainability for the research networks and building research management capacity.

4. The Acacia principles become operational through a *management process* that team members agreed has ten dimensions. The 23 Acacia team members and network leaders alike consider that the management of the Acacia Approach worked well or very well. That said, 14 of the respondents propose specific improvement and so there is clearly a felt need to perfect the process.

Conclusions on the effectiveness of Acacia

How effective have the Acacia networks been in generating what they consider are significant outcomes that correspond to the six Acacia program objectives?

1. For the first four Acacia objectives, the research networks report a diversity of outcomes according to each criteria agreed for each objective. Thus, Acacia

has been effective in *fostering on-going, robust policy dialogue*, *catalyzing thriving regional research networks, increasing research capacity in ICT4D and stimulating social and technical innovation in ICTs.*

2. For the fifth objective, Acacia's research networks have been less fruitful in generating outcomes. Eight research networks report that a total of nine of their most significant outcomes *contribute to a formal body of knowledge in ICT4D.* In this case, the criteria appear to have been too restricted. In addition to being cited in peer-reviewed publications and contributing to university curricula, there are other equally valid criteria – for example, invitations to make scientific contributions in professional forums and to premium publications or even to the grey literature.

   The Acacia team explains that this objective was implicit and not clearly stated in the prospectus and made explicit only during this evaluation. Furthermore, the choice of metrics of these outcomes was considered ex post facto as most networked projects that were still in their first research phase and were still producing primary research outputs and had not yet contributed to a body of formal literature and discourse. They recognise that this could be a focus area for future research development, especially considering the structural deficiencies and availability of publications for African discourse. This requires programmatic focus and could inform future program plans.

3. The sixth and last objective is the one in which Acacia has had the least success. Four of the thirteen research networks consider their outcomes contribute to *applying meaningful gender analysis* or changing gender relations, and most of these are contributed by one research network devoted to "transformative" gender research.

Recommended points for discussion

In April 2009, these points for discussion were presented as guiding questions for the Acacia team discussion of the findings concerning the Acacia Approach. They were discussed in the May team meeting in Dakar but no conclusions were drawn.

1) The respondents to the survey recommend 21 goals that they considered as or more important than the nine stated goals. *Should one or more of those goals replace either or both a) building on-line capacities for research networking or b) serving to nurture the development of research ideas that research funders should support?*

2) In addition to the explanation of the weakness of the three Acacia Approach principles, Acacia team members and research network leaders suggested new ones. Therefore, if the Acacia Approach were to be applied again, *are there any new principles that should replace or be added to the nine current ones and what concrete measures should be implemented to improve the application of the three weakest principles?*

The process of harvesting the outcomes and then the analysis, interpretation and drawing conclusions generated these points that I suggest you Acacia consider for discussion.

3) In spite of the concept of outcomes as changes in a social actor that you influence being an IDRC innovation, few of the Acacia team members and the research network leaders had working knowledge or experience of outcomes so defined. Consequently, the process of identifying and formulating outcomes was a capacity-building exercise largely appreciated by the Acacia team members and the research network leaders. *How can IDRC support, if not require, the systematic monitoring of outcomes so that they can serve learning and accountability and eventually serve as a basis for an evaluation of impact?*

4) In the 85 outcomes, those that can be considered internal dominate. This may be acceptable because Acacia never emphasised the achievement of changes in social actors outside the networks, and certainly did not require that research projects report on them. Nonetheless, a number of the outcomes are questionable because of a lack of clear criteria for establishing the line between an output and outcomes.[33] *What then for Acacia is the difference between an output that Acacia controls and an output that it only influences?*

5) Two Acacia objectives are relatively under-represented by outcomes. Regarding the first, *is Acacia overly ambitious to aim to contribute to a formal body of knowledge in ICT4D as an outcome and should this objective remain stated as an output which achieves the project objectives but not necessarily the program objectives of academic discourse? Are, the criteria too limited? If they are, what should be more complete and reasonable African criteria or benchmarks for scientific excellence?*

6) For the second under-represented objective – gender analysis –, since Acacia-funded research networks are not making gains vis-à-vis gender inclusion and transformation, a set of questions might be addressed:

   - *Are the criteria too ambitious?*
   - *Were the project cycles too short to achieve gender outcomes of changed behaviour, compared with gender outputs?*
   - *Did the gender approach of training come too late in the program's implementation for full effect in this prospectus cycle?*
   - *Is the domain of research and research for information and communications technologies for development structured according to patriarchal inflexibility?*
   - *Is the Acacia Approach relevant and sufficient to address these stubborn social patterns or inappropriate to the needs and levels of capacity on gender of the research network members?*

[33] See *Differentiating between outputs and internal outcomes* on page 18.

Chapter 8: Annexes

Annex 1 – Results of the Acacia Approach Survey
Annex 2 – Network leaders' responses to the Acacia Approach Survey
Annex 3 – Acacia team's responses to Acacia Approach Survey
Annex 4 – Outcome format
Annex 5 – Acacia Research Network Outcomes 2006-2009

Results - Acacia Approach to Networking Survey

The survey was administered in February 2009.

1. **Your relationship to Acacia**:

8 – Acacia team member

11 – Network Research Director or Project Coordinator

4 – Other, please specify:

- Project coordinator
- Member of the RIA team and country leader for Uganda; Now a lead researcher as CEO Of ubuntunet Alliance
- Project Research Coordinator
- Research Project Manager for the Pan African Research Agenda for the pedagogical integration of ICT
- Former project lead; current subproject lead
- Project Manager of an Acacia funded project in south southern Africa

2. **Time involved in Acacia**:

3 – Less than 2 years 4 – 2-3 years 16 – Greater than 3 years

3. **Acacia's goals**: The Team explains the purpose of the Acacia Approach in terms of nine goals.

3.1 In the light of what you consider to be the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D, how important is each goal?

Acacia's Purpose	Top priority	Moderate priority	Neutral	Low priority	Not a priority
1. Stimulating innovation in research approaches to influence the development of ICT4D in Africa	**82.6% (19)**	13.0% (3)	4.3% (1)	0.0% (0)	0.0% (0)
2. Creating channels for dissemination, including publications, to ensure the development of bodies of knowledge	**78.3% (18)**	21.7% (5)	0.0% (0)	0.0% (0)	0.0% (0)

Acacia's Purpose	Top priority	Moderate priority	Neutral	Low priority	Not a priority
3. Fostering innovative forms for researchers to engage policy-makers, and other key policy-related bodies	**73.9% (17)**	26.1% (6)	0.0% (0)	0.0% (0)	0.0% (0)
4. Serving as a locus for new development-focussed research relevant to Africa	**69.6% (16)**	26.1% (6)	4.3% (1)	0.0% (0)	0.0% (0)
5. Enabling advanced researchers to serve as mentors for less experienced researchers in developing the field of knowledge in ICT4D	**65.2% (15)**	26.1% (6)	0.0% (0)	8.7% (2)	0.0% (0)
6. Facilitating a trans-disciplinary research approach integrating expertise from various disciplines	**65.2% (15)**	21.7% (5)	8.7% (2)	4.3% (1)	0.0% (0)
7. Creating forums for learning	**60.9% (14)**	30.4% (7)	4.3% (1)	4.3% (1)	0.0% (0)
8. Serving to nurture the development of research ideas that research funders should support	47.8% (11)	**52.2% (12)**	0.0% (0)	0.0% (0)	0.0% (0)
9. Building on-line capacities for research networking	30.4% (7)	**52.2% (12)**	17.4% (4)	0.0% (0)	0.0% (0)

3.2 If there are other needs of African researchers and research institutions to develop their research capacity in ICT4D in Africa that you believe the Acacia Approach should address, please describe briefly each one and mention its priority in your view: Top or Moderate.

	Need	Priority
-	Although this is captured in the following section on operating principles support for formal training in order to build the critical mass of well qualified researchers in this area, to fully benefit from the network effects of high level research and engagement, is much needed.	Moderate priority
-	Entrepreneur style training for researchers	Top priority
-	Regional forums for exchanging ideas - Africa is big too big, need to build regional capacity to exchange ideas	Top
-	To engage gender awareness and gender analysis in all research approaches and undertakings	High
-	Training Needs	Top
-	The most important need as I see it is gender awareness as part of a coherent and sustainable development approach. ICT4D is part of a development studies paradigm. It would be ironic, if ICT4D research, by neglecting the gender dimension would contribute to the growing gender digital divide and as such to the increase of under development of communities and societies in Africa.	This is top priority.
-	Develop new research capacities, especially in public research institutions	Top priority
-	Better linking of ICT4D/E and l10n. You're active in both areas (kudos) but integrating them is key.	
-	Access to good mentors	Top
-	Have access to intellectual resources to support their work	Top
-	Supporting new think-tanks and/or deepening existing ones as a mechanism for sustaining work supported by Acacia beyond funding periods	Top
-	Build evaluative thinking, and understanding of differences between outcomes and impact	TOP
-	Fostering a community of research and researchers who design, carry out, and promote rigorous and sound social science research on the multifarious effects of ICTs on African communities (speaks to sustainability of capacity building and evidence-based research design, implementation and communication)	Top Priority

Need	Priority
- Developing the researchers' capacity for research	Top
- Ensuring that Research is given higher priority in the formulation of national budgets	Moderate

4. **Operating principles**: These are the operating principles that the Acacia Team has used in its work to develop and support the ICT4D networks in Africa. In this question we wish to understand how well these principles have been applied in practice.

4.1. Based on your experience, has the application of the principle in Acacia been Strong, Acceptable or Weak?

Operating principles	Strong	Acceptable	Weak	No opinion
1. Diversification: use multidisciplinary teams, multi-country partnerships	**60.9% (14)**	30.4% (7)	8.7% (2)	0.0% (0)
2. Communicating evidence-based knowledge for policy and practice influence	**47.8% (11)**	39.1% (9)	8.7% (2)	4.3% (1)
3. Focus on poor communities and their development needs with regard to the development of ICT4D	**47.8% (11)**	39.1% (9)	13.0% (3)	0.0% (0)
4. Learning by doing (adaptive learning)	**47.8% (11)**	34.8% (8)	4.3% (1)	13.0% (3)
5. Building research capacity	**43.5% (10)**	**43.5% (10)**	13.0% (3)	0.0% (0)
6. Ensuring innovations and knowledge generation are based on specific intended uses.	**43.5% (10)**	39.1% (9)	13.0% (3)	4.3% (1)
7. Leveraging of other research funding opportunities and building sustainability for the research networks	13.0% (3)	**56.5% (13)**	21.7% (5)	8.7% (2)
8. Building research institutions capacity to manage the research	4.3% (1)	**52.2% (12)**	30.4% (7)	13.0% (3)
9. Building research management capacity	8.7% (2)	**39.1% (9)**	34.8% (8)	17.4% (4)

4.2 Do you have any suggestions for how any of the principles could be better applied? Do not forget to quote the principle! (Each bullet represents one respondent's comments)

- 4.1.1 The value of cross continental engagements of networks, to cross-pollinate research networks and provide support through lessons learnt, could be specifically considered.

4.1.2 As mentioned this might be considered more formally, than only through project exposure, as we have started to do in this Phase of RIA. 4.1.4 Institutions are often treated as safeguards for donor investments, but their bureaucracy, inefficiency or even corruption can be a liability for projects. Building institutional capacity or what is required very often, securing more fundamental institutional change, is unlikely to happen through the engagement of one or two projects. It is only likely to happen through fundamental change of governance frameworks and these very often require change at the political/national level. Due diligence of the financial accounting systems done by donors, is often not sufficient, and because they cannot really investigate often misleading about the capacity and willingness of institutions to manage research. 4.1.9 While the development of pro poor policies must be the focus of any ICT4D programme what research on the ground has shown us over the last few years is that (even privatised) public goods (particularly infrastructure industries) require national (and regional) solutions where the benefits accrue across the economy and society. Getting policies right at that level can achieve more in terms of providing affordable services to the poor than policies that do not enable such organic diffusion but focus (often but not always) narrowly on the poor in a unsustainable ways.

- 4.1.1 Diversification: use multidisciplinary teams, multi-country partnerships. A central point has to be developed for this using either the network co-ordinator or another structure. 4.1.2 Building research capacity. More workshops such as the one that IDRC sponsored on Outcomes Mapping (OM) in Cape Town should be held, especially when IDRC has a particular methodology that it would like to promote. 4.1.4 Building research institutions capacity to manage the research. More thought should go into this but I think that it should start at the micro level with the researcher then with the unit, the department and expand outward. Start with the smallest possible unit with an overall goal in mind for the institution. 4.1.7 Communicating evidence-based knowledge for policy and practice influence. We discussed this idea in principle but I believe that the whole policy angle lobbying is still being developed by IDRC. 4.1.8 Leveraging of other research funding opportunities and building sustainability for the research networks. This is a good idea and is definitely implementable. This would make a very good joint effort between the researcher and the program officer. There would be no better person to advise on how to go about applying for other sources of funding than the program officer. Together with the researcher they would make a formidable team in sourcing other areas of funding BUT the focus should shift from applying for donor funds all together as this is drying up for Africa, rather the focus should be on training/helping networks in becoming more self-sufficient and independent of donor funding.

- 4.1.7 I see less of the outputs such as those lovely connectivity maps that are sounds bites to start the conversation with policy makers. Its seems horrid to over simplify the research but I see that as missing.

- 4.1.1. Diversification – I do not think this has been always effective. I have not analysed the backgrounds of RIA researchers for example, but unless I am very mistaken, they tend to come from the hard backgrounds with greatest emphasis on telecoms. The D is marginalised in the teams. 4.1.2 Building Research Capacity should be Building Sustainable Research Capacity. This will then demand that we focus more on say country research teams that have an institutional base (in universities and research institutions) where young researchers are better positioned for both mentoring and later leadership. 4.1.3 Ditto Research Management Capacity – sustainability and spread have not been addressed. Currently, for example, LINK Centre has built this. I am not aware of any

other centre in RIA that has approached this (DICTS Makerere is I believe the only other centre where RIA is institutionalised).

- 4.1.1 By multidisciplinary teams, which teams are being referred to here? The network in our case is very multi-country, and the researchers have various disciplinary backgrounds/trainings 4.1.2 building research capacity has been a central focus of our project and our project coordination team. These are mostly questions and clarifications, rather than suggestions: 4.1.3 I don't understand who the subject is here - the project participants, the project coordination team? The project team has gained a lot of experience through the management of GRACE, and the research teams are independently managing their research projects 4.1.4 Some of the researchers we are working with are affiliated with or manage research institutes; others are academics, and some are activists. We are primarily building the capacity of the researchers, and in some cases this will directly affect the ability of the organizations to manage research as we are working with the leaders of these organizations. In other cases the individual in not connected to GRACE through her organization, but as the researcher's capacities are increasing these will contribute to the research capacity of the organizations she affiliates with 4.1.6 the knowledge generation is for the purpose of transformation, of the researcher her/himself, and regarding the issue/situation being researched 4.8.1 To me the sustainability of the network is evolving due to the increasing sense of affiliation and shared learning, shared experiences, shared ways of knowing and seeing that the researchers are encountering. However, the researchers, through their GRACE research, are applying (and being accepted) to present at conferences, raising their profile and influence, and that of the GRACE network. 4.1.9 the researchers focus on various income groups, and on issues that cross income inequality, including violence against women, gender discrimination

- Ensuring innovations and knowledge generation should be greatly stimulated. This way the knowledge gain can be easily be used for development purposes.

- No

    - 4.1.1- The networks financed by Acacia are still mainly concentrated in a limited number of African countries. These networks still find difficulty of boring in North Africa and West Africa. It will be necessary to find a happy medium in the approach or of the alternative approaches. For example, to create other networks for the areas not represented. [Freely translated from: *Les réseaux financés par Acacia sont encore majoritairement concentrés dans un nombre limité de pays africains. Ces réseaux trouvent encore de la difficulté à percer en Afrique du Nord et en Afrique de l'Ouest. Il faudra trouver un juste milieu dans l'approche ou des approches alternatives. Par exemple, créer d'autres réseaux pour les régions non représentées.*] 4.1.2 et 4.1.4- Acacia founded the principle of networks, but without concretely helping the institutions to learn how to manage networks. Networks change institutions hosts because of these difficulties. It will have to be made sure that the network is also used for financing and reinforcing the capacities of administration and management. Acacia will have to study the reasons for which the networks change institutions hosts and to learn the lessons from this experiment. [Freely translated from: *Acacia a instauré le principe de réseaux, mais sans concrètement aider les institutions à apprendre à gérer des réseaux. Des réseaux changent d'institutions hôtes à cause de ces difficultés. Il faudra s'assurer que le réseau sert aussi à financer et renforcer les capacités d'administration et de gestion. Acacia devra étudier les raisons pour*

lesquelles les réseaux changent d'institutions hôtes et tirer les leçons de cette expérience]

- 4.1.5- Nécessité de documenter et partager cet apprentissage.

- Specific research methodology training could enhance 4.1.2 Specific research management training could enhance 4.1.3 and 4.1.4 More meetings of all network leaders and key staff could enhance 4.1.14

- The principle of building research institutions' capacity to manage the research would be better applied if networks were encouraged to start small and grow slowly, instead of networks being encouraged to grow quickly; overly quick growth in the size of a network can undermine the capacity of the managing research institution to manage the research; building institutions' capacity to manage the research must be treated as a gradual, slow process.

- 4.1.8 - Sustainability strategies need to be worked out from the outset - applied and monitored through out the project cycle.

- 4.1.4 needs deepening. While Acacia programmes are often multi-year initiatives, it's likely that without strong institutional bases, such initiatives won't last long beyond IDRC's funding. Often there is emphasis on participation of individual researchers without sufficient support to the institution where the researcher is located. Likewise Acacia needs to support think-tanks or help found new ones around issues and causes they support. The immediate opportunity in this regard is turning individual research networks into formal organizations with some central coordinating office (or offices organized on regional basis).

- We recognised over time that managing research networks is complex. We have as such recognised the need to offer management support to network leaders and assess the capacity of the recipients to manage large projects.

- 4.1.1 IDRC funded projects are stand-alone; there is no integration between projects and same country partners. 4.1.3 Building research management capacity by sharing lessons learnt from existing project co-ordinators. I know Wireless Africa and ACA2K are doing this. 4.1.4 Research Institutions are busy with their own agenda, more effort required to inform the next highest power. 4.1.7 Expecting researchers (often engineers, lawyers, academics) to influence policy is a long shot. A specific development plan is required to build the policy entrepreneur.

- 4.1.1 - Need to create a framework for multidisciplinary teams and multi-country partnerships so that we have higher chances of success 4.1.2 - Building research capacity should be an integral part of every research project. A framework for mentorship should be created and more care taken in choosing the researchers

4.3 Are there other operating principles that you would delete or change or suggest be incorporated into the Acacia Approach?

- A lot of the issues mentioned above rely on building good, internal processes of a researcher which is excellent in terms of developing capacity. However, researchers move on so institutional capacity and sustainability in the long term become

important. Here entrepreneurship style training would benefit the institution as the overall, guiding ethos would then be on self-sustainability independent of donor funding and how to achieve this.

- Not quite a principle, but recognising the need to sometimes take chances as part of any natural growth process. Otherwise toddlers would never walk.
- None
- No
- 4.1.5- This principle should now be more explicit. To document the cases of success and to retort them; to document the cases of failure and to learn the lessons from them to be learned. [Freely translated from: Ce principe devrait maintenant être plus explicite. Documenter les cas de succès et les répliquer; documenter les cas d'échec et en tirer les leçons à apprendre.] 4.1.8- I am not certain that one will be able to ensure the durability of the networks of research (sustainability) in Africa. [Freely translated from: Je ne suis pas certain que l'on pourra assurer la durabilité des réseaux de recherche (sustainability) en Afrique.]
- 4.1.5 This principle should now be more explicit. To document the cases of success and to retort them; to document the cases of failure and to learn the lessons from them to be learned. [Freely translated from: *Ce principe devrait maintenant être plus explicite. Documenter les cas de succès et les répliquer; documenter les cas d'échec et en tirer les leçons à apprendre.*] 4.1.8 I am not certain that one will be able to ensure the durability of the networks of research (sustainability) in Africa. [Freely translated from *Je ne suis pas certain que l'on pourra assurer la durabilité des réseaux de recherche (sustainability) en Afrique.*]
-
- The principle of quality over quantity should be incorporated into the Acacia Approach to building research networks; smaller networks are likely to be more sustainable and manageable than big ones.
- Allow for in-country support as well and not only multi-country networks. Acacia Phase II evaluation showed that we had tangible outcomes in supporting individual countries and Uganda was picked as an example.
- A yearly meeting of project co-ordinators to share management lessons and to look for synergies across different projects. Why can't the OM specialist do more than one project in their country? Use seed funding to help develop funding proposals.

5. **Acacia Management Process**: Another way of assessing the Acacia Approach is to look at the different ways in which the Acacia Team members work with the networks. These are the processes that the Acacia Team has used. Not all of the below processes have been used with all networks.

5.1 We would like your opinion on how well these different processes have worked for you.

Acacia Management Processes	Very well	Well	Not well at all	Not applicable
1. Predevelopment stage: identify issues and researchers interested in these research domains, or encourage sector specialists to	**60.9% (14)**	34.8% (8)	0.0% (0)	4.3% (1)

Acacia Management Processes	Very well	Well	Not well at all	Not applicable
work in a multi-disciplinary way. This may require contracting consultants to do scoping work.				
2. Identify potential research directors and organisations that can host the network's administration and coordination	39.1% (9)	**47.8% (11)**	4.3% (1)	8.7% (2)
3. Frequently but not always sponsor a development workshop that brings all interested researchers together to lay the foundations of a network project proposal or of a coherent research approach and methodology.	**73.9% (17)**	13.0% (3)	4.3% (1)	8.7% (2)
4. Work with network project coordinator to develop a top quality grant proposal.	**60.9% (14)**	30.4% (7)	0.0% (0)	8.7% (2)
5. After approval, program officer takes a back seat and plays a demand-driven supporting role to the network research director, project coordinator and the research partners.	**47.8% (11)**	34.8% (8)	8.7% (2)	8.7% (2)
6. Project team develops its research methodology, with the program officer's assistance if necessary.	**52.2% (12)**	43.5% (10)	4.3% (1)	0.0% (0)
7. Network research director, with the help of the project coordinator oversees work by research partners, consulting with the program officer if necessary.	**65.2% (15)**	26.1% (6)	4.3% (1)	4.3% (1)
8. Program officer monitors progress and participates in the Acacia team.	**65.2% (15)**	30.4% (7)	0.0% (0)	4.3% (1)
9. Program officer stays engaged in the theme, serves as an intermediary between the network project and other actors (funding organizations, other research projects, sector experts) and is alert to new opportunities for the network project	**56.5% (13)**	30.4% (7)	8.7% (2)	4.3% (1)
10. Program officer provides a back stop in case of conflicts and risks.	**43.5% (10)**	39.1% (9)	0.0% (0)	17.4% (4)

5.2. Is there anything you would like improved or changed in these processes? If yes, please explain briefly.

- The process of securing a proposal is very resource intensive and as the project moves through the consultative system of approval with the IDRC, goal posts can shift. While dozens of iterations of a proposal can enhance the quality of the proposal it can

also deplete the resources of existing programmes (especially those without operational funding and the interest of those without, or possibly looking for smaller grants). 5.1.10 While individuals have sought to intervene personally where conflicts have arisen between the research leader for example and the institution, the nature of IDRC itself, together with the fact that it generally has other projects at the institution it does not wish to compromise, means it is unlikely to use its funding muscle to demand that certain things that should be done are done (though it will politely request them to be).

- The process above is perfect for making future IDRC projects in Africa successful. I would also recommend bi-monthly meetings between the network researcher and the IDRC project officer.
- 5.1.2 The identification of a research director worked extremely well. The identification of an organization as a host did not work at all. 5.1.3 I wasn't part of the project when this was held, so rather not comment on how well it worked. 5.1.4 I also wasn't involved in the initial project grant proposal. The proposal for GRACE 2 was developed by Ineke and myself, on the encouragement of our project officer and others within IDRC, and based on the interest of the researchers we work with.
- A more competitive approach might ensure better ownership among those who participate at the country level.
- None
- 5.1.2: I filled in N.A. because I had two "opposing experiences". The first "linking" with a host institution did not work, but when that became clear, ACAVIA acted fast and decisive and innovative and now we are fine.
- 5.1.8- makes no sense. Est-ce que vous voulez dire : .. "and participates in the project team". ???? 5.1.9- Ce principe ne marchera paa. C'est trop demander au PO (employée du CRDI) de s'impliquer de la sorte. Il est de la responsabilité des chercheurs et du coordinateur de la recherche de faire ce travail. C'est une question d'ownership.
- I think that there needs to be a careful look at how capacities and resource generation of Acacia's boundary partners happens. It's possible to participate in great projects and receive good funding, but not enough funding to maintain an organization or initiative. If the organization or initiative does not have other revenue streams they could be struggling for reasons that have nothing to do with the Acacia project design or process.
- Identifying specialist training in research methodology and research management would enhance the activities of the research leaders.
- I represent a network where a mix of the above was applied (except 5.1.9 & 5.1.10). The start was fairly smooth in some regards but turbulent in other ways. While getting researchers on the same table encourages participation and ownership, it can very well create a leadership vacuum making decision making fairly difficult. Our network suffered a bit of that because it was managed at multiple levels with financial systems based on existing operational systems of one institution which institution was not managing the rest of the administrative tasks. In a sense there was no sense of one point for decision making even on administrative issues. There is a need to balance control at the 'centre' or core (project manager/research lead) and the network/country nodes once the network is established and core areas of the research project are agreed upon.

- 5.1.8 Program officer monitors progress and participates in the Acacia team. Not sure about this question. Is it program officer monitors progress and participates in the project workshops? We all have to participate in the Acacia team meetings.
- I question the need for a "top quality proposal". Development is dynamic and the plan needs to be outlined with deliverables/budget but allowing for the details to evolve.
- General comment: Please note I have only been with the Acacia team since January 5, 2009. As such, the majority of my responses is based on my reading of documents, interactions with the Acacia team and partners over the years (while I worked in PAN), and observations over the past several weeks. Please note this critical caveat. Thank you.
- 5.1.2 Identify potential research directors and organisations that can host the network's administration and coordination - This could be improved to obtain the best people and institutions

6. **Respondents:**

Name	Position	Research Network
Alison Gillwald	Project research director	Research ICT Africa! (RIA!)
Chris Armstrong	Project research director	African Copyright and Access to Knowledge Project (ACA2K)
Dick Kawooya	Project coordinator	African Copyright and Access to Knowledge Project (ACA2K)
Enver Ravat	Project coordinator	African Virtual Open Initiative Resources (AVOIR)
Chris Morris	Project research director	First Mile First Inch (FMFI)
Ajay Makan	Project coordinator	First Mile First Inch (FMFI)
Ineke Buskens	Project research director	Gender Research in Africa into ICTs for Empowerment (GRACE)
Anne Webb	Project coordinator	Gender Research in Africa into ICTs for Empowerment (GRACE)
Tim Waema	Project research director	Local Governance & ICTs Research Network (LOG-In Africa)
Chris Seebregts	Project research director	Open Architecture, Standards & Information Systems (OASIS)
Dwayne Bailey	Project research director	Pan African Localisation Network (PanAfriL10n)
Don Osborn	Project coordinator	Pan African Localisation Network (PanAfriL10n)
Moses Mbangwana	Project research director	PanAfrican Research Agenda on the Pedagogical Integration of ICTs (PanAf)
Julian May	Project research director	Poverty and ICTs in Urban and Rural East Africa (PICTURE Africa)
F F Tusubira	Project research director	Promoting African Research and Education Networking (PAREN)
Edith Adera	Programme officer	Local Governance & ICTs Research Network (LOG-In Africa), Poverty and ICTs in Urban and Rural East Africa (PICTURE Africa)
Heloise Emdon	Programme manager	Research ICT Africa! (RIA!), African Virtual Open Initiative Resources (AVOIR), First Mile First Inch, Gender Research in Africa into ICTs for Empowerment (GRACE), Open Architecture, Standards & Information Systems
Alioune Camara	Programme officer	PanAfrican Research Agenda on the Pedagogical Integration of ICTs (PanAf)
Ramata Thioune	Programme officer	
Adel El-Zaim	Programme officer	Pan African Localisation Network (PanAfriL10n)
Khaled Fourati	Programme officer	Promoting African Research and Education Networking, African Copyright and Access to Knowledge Project
Genevieve Lefebvre	Research officer	
Mike Jensen	Consultant	

Chaitali Sinha	Program Officer

The Acacia Approach to Networking

1. 1. Your relationship to Acacia:			
		Response Percent	**Response Count**
Acacia team member		0.0%	0
Network Research Director or Project Coordinator		**73.3%**	**11**
Other		26.7%	4
		Please specify:	6
		answered question	**15**
		skipped question	**0**

2. 2. Time involved in Acacia:			
		Response Percent	**Response Count**
Less than 2 years		13.3%	2
2-3 years		26.7%	4
Greater than 3 years		**60.0%**	**9**
		answered question	**15**
		skipped question	**0**

3. 3. ACACIA'S GOALS: The Team explains the purpose of the Acacia Approach in terms of nine goals. We would like your opinion on the relative importance of each one of these goals. 3.1 In the light of what you consider to be the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D, how important is each goal?

	Top priority	Moderate priority	Neutral	Low priority	Not a priority	Response Count
3.1.1 Enabling advanced researchers to serve as mentors for less experienced researchers in developing the field of knowledge in ICT4D	**66.7% (10)**	26.7% (4)	0.0% (0)	6.7% (1)	0.0% (0)	15
3.1.2 Facilitating a trans-disciplinary research approach integrating expertise from various disciplines	**53.3% (8)**	26.7% (4)	13.3% (2)	6.7% (1)	0.0% (0)	15
3.1.3 Creating channels for dissemination, including publications, to ensure the development of bodies of knowledge	**66.7% (10)**	33.3% (5)	0.0% (0)	0.0% (0)	0.0% (0)	15
3.1.4 Creating forums for learning	**46.7% (7)**	40.0% (6)	6.7% (1)	6.7% (1)	0.0% (0)	15
3.1.5 Building on-line capacities for research networking	33.3% (5)	**46.7% (7)**	20.0% (3)	0.0% (0)	0.0% (0)	15
3.1.6 Serving as a locus for new development-focussed research relevant to Africa	**73.3% (11)**	26.7% (4)	0.0% (0)	0.0% (0)	0.0% (0)	15
3.1.7 Serving to nurture the development of research ideas research funders should support	**53.3% (8)**	46.7% (7)	0.0% (0)	0.0% (0)	0.0% (0)	15
3.1.8 Stimulating innovation in research approaches to influence the development of ICT4D in Africa	**73.3% (11)**	20.0% (3)	6.7% (1)	0.0% (0)	0.0% (0)	15
3.1.9 Fostering innovative forms for researchers to engage policy-makers, and other key policy-related bodies	**66.7% (10)**	33.3% (5)	0.0% (0)	0.0% (0)	0.0% (0)	15
					answered question	**15**
					skipped question	**0**

4. 3.2 If there are other needs of African researchers and research institutions to develop their research capacity in ICT4D in Africa that you believe the Acacia Approach should address, please describe briefly each one and mention its priority in your view: Top or Moderate.

	Response Percent	Response Count
Need:	**100.0%**	**11**
Priority:	90.9%	10
Need:	54.5%	6
Priority:	54.5%	6
Need:	36.4%	4
Priority:	36.4%	4
	answered question	**11**
	skipped question	**4**

5. 4. Operating principles: These are the operating principles that the Acacia Team has used in its work to develop and support the ICT4D networks in Africa. In this question we wish to understand how well these principles have been applied in practice.

4.1 Based on your experience, has the application of the principle in Acacia been Strong, Acceptable or Weak?

	Strong	Acceptable	Weak	No opinion	Response Count
4.1.1 Diversification: use multidisciplinary teams, multi-country partnerships	**60.0% (9)**	33.3% (5)	6.7% (1)	0.0% (0)	15
4.1.2 Building research capacity	33.3% (5)	**46.7% (7)**	20.0% (3)	0.0% (0)	15
4.1.3 Building research management capacity	13.3% (2)	**33.3% (5)**	**33.3% (5)**	20.0% (3)	15
4.1.4 Building research institutions capacity to manage the research	6.7% (1)	**46.7% (7)**	33.3% (5)	13.3% (2)	15
4.1.5 Learning by doing (adaptive learning)	**46.7% (7)**	40.0% (6)	6.7% (1)	6.7% (1)	15
4.1.6 Ensuring innovations and knowledge generation are based on specific intended uses.	**53.3% (8)**	26.7% (4)	13.3% (2)	6.7% (1)	15
4.1.7 Communicating evidence-based knowledge for policy and practice influence	**60.0% (9)**	26.7% (4)	6.7% (1)	6.7% (1)	15

4.1.8 Leveraging of other research funding opportunities and building sustainability for the research networks	20.0% (3)	**53.3% (8)**	20.0% (3)	6.7% (1)	15
4.1.9 Focus on poor communities and their development needs with regard to the development of ICT4D	**46.7% (7)**	40.0% (6)	13.3% (2)	0.0% (0)	15
4.2 Do you have any suggestions for how any of the principles could be better applied? Do not forget to quote the principle!					12
			answered question		**15**
			skipped question		**0**

6. 4.3 Are there other operating principles that you would delete or change or suggest be incorporated into the Acacia Approach?

	Response Count
	6
answered question	**6**
skipped question	**9**

7. 5. Acacia Management Process: Another way of assessing the Acacia Approach is to look at the different ways in which the Acacia Team members work with the networks. These are the processes that the Acacia Team has used. Not all of the below processes have been used with all networks.

5.1 We would like your opinion on how well these different processes have worked for you.

	Very well	Well	Not well at all	Not applicable	Response Count
5.1.1 Predevelopment stage: identify issues and researchers interested in these research domains, or encourage sector specialists to work in a multi-disciplinary way. This may require contracting consultants to do scoping work.	**53.3% (8)**	40.0% (6)	0.0% (0)	6.7% (1)	15
5.1.2 Identify potential research directors and organisations that can host the network's administration and coordination	33.3% (5)	**46.7% (7)**	6.7% (1)	13.3% (2)	15
5.1.3 Frequently but not always sponsor a development workshop that brings all interested researchers together to lay the foundations of a network project proposal or of a coherent research approach and methodology.	**73.3% (11)**	6.7% (1)	6.7% (1)	13.3% (2)	15
5.1.4 Work with network project coordinator to develop a top quality grant proposal.	**53.3% (8)**	40.0% (6)	0.0% (0)	6.7% (1)	15
5.1.5 After approval, program officer takes a back seat and plays a demand-driven supporting role to the network research director, project coordinator and the research partners.	**53.3% (8)**	40.0% (6)	6.7% (1)	0.0% (0)	15
5.1.6 Project team develops its research methodology, with the program officer’s assistance if necessary.	**60.0% (9)**	33.3% (5)	6.7% (1)	0.0% (0)	15
5.1.7 Network research director, with the help of the project coordinator oversees work by research partners, consulting with the program officer if necessary.	**80.0% (12)**	13.3% (2)	6.7% (1)	0.0% (0)	15
5.1.8 Program officer monitors progress and participates in the	**73.3% (11)**	26.7% (4)	0.0% (0)	0.0% (0)	15

Acacia team.					
5.1.9 Program officer stays engaged in the theme, serves as an intermediary between the network project and other actors (funding organizations, other research projects, sector experts) and is alert to new opportunities for the network project	**66.7% (10)**	20.0% (3)	6.7% (1)	6.7% (1)	15
5.1.10 Program officer provides a back stop in case of conflicts and risks.	**53.3% (8)**	26.7% (4)	0.0% (0)	20.0% (3)	15
5.2 Is there anything you would like improved or changed in these processes? If yes, please explain briefly.					11
			answered question		**15**
			skipped question		**0**

8. 6. That is it! Thank you. We assure you that we will protect the confidentiality of your responses to the survey. We would appreciate, however, if you would share with us your name, email(s) and telephone number(s) in case we have follow-up questions for clarification or deeper understanding about your views.

		Response Percent	**Response Count**
Name:		**100.0%**	**15**
Email(s):		**100.0%**	**15**
Telephone numbers:		**100.0%**	**15**
	answered question		**15**
	skipped question		**0**

The Acacia Approach to Networking

1. 1. Your relationship to Acacia:			
		Response Percent	**Response Count**
Acacia team member		**100.0%**	**8**
Network Research Director or Project Coordinator		0.0%	0
Other		0.0%	0
	Please specify:		0
	answered question		**8**
	skipped question		**0**

2. 2. Time involved in Acacia:			
		Response Percent	**Response Count**
Less than 2 years		12.5%	1
2-3 years		0.0%	0
Greater than 3 years		**87.5%**	**7**
	answered question		**8**
	skipped question		**0**

3. 3. ACACIA'S GOALS: The Team explains the purpose of the Acacia Approach in terms of nine goals. We would like your opinion on the relative importance of each one of these goals. 3.1 In the light of what you consider to be the needs of African researchers, including women, and research institutions to develop research capacity in ICT4D, how important is each goal?

	Top priority	Moderate priority	Neutral	Low priority	Not a priority	Response Count
3.1.1 Enabling advanced researchers to serve as mentors for less experienced researchers in developing the field of knowledge in ICT4D	**62.5% (5)**	25.0% (2)	0.0% (0)	12.5% (1)	0.0% (0)	8
3.1.2 Facilitating a trans-disciplinary research approach integrating expertise from various disciplines	**87.5% (7)**	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	8
3.1.3 Creating channels for dissemination, including publications, to ensure the development of bodies of knowledge	**100.0% (8)**	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	8
3.1.4 Creating forums for learning	**87.5% (7)**	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	8
3.1.5 Building on-line capacities for research networking	25.0% (2)	**62.5% (5)**	12.5% (1)	0.0% (0)	0.0% (0)	8
3.1.6 Serving as a locus for new development-focussed research relevant to Africa	**62.5% (5)**	25.0% (2)	12.5% (1)	0.0% (0)	0.0% (0)	8
3.1.7 Serving to nurture the development of research ideas research funders should support	37.5% (3)	**62.5% (5)**	0.0% (0)	0.0% (0)	0.0% (0)	8
3.1.8 Stimulating innovation in research approaches to influence the development of ICT4D in Africa	**100.0% (8)**	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	8
3.1.9 Fostering innovative forms for researchers to engage policy-makers, and other key policy-related bodies	**87.5% (7)**	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	8
					answered question	**8**
					skipped question	**0**

4. 3.2 If there are other needs of African researchers and research institutions to develop their research capacity in ICT4D in Africa that you believe the Acacia Approach should address, please describe briefly each one and mention its priority in your view: Top or Moderate.

	Response Percent	Response Count
Need:	**100.0%**	**4**
Priority:	**100.0%**	**4**
Need:	25.0%	1
Priority:	25.0%	1
Need:	0.0%	0
Priority:	0.0%	0
	answered question	**4**
	skipped question	**4**

5. 4. Operating principles: These are the operating principles that the Acacia Team has used in its work to develop and support the ICT4D networks in Africa. In this question we wish to understand how well these principles have been applied in practice.

4.1 Based on your experience, has the application of the principle in Acacia been Strong, Acceptable or Weak?

	Strong	Acceptable	Weak	No opinion	Response Count
4.1.1 Diversification: use multidisciplinary teams, multi-country partnerships	**62.5% (5)**	25.0% (2)	12.5% (1)	0.0% (0)	8
4.1.2 Building research capacity	**62.5% (5)**	37.5% (3)	0.0% (0)	0.0% (0)	8
4.1.3 Building research management capacity	0.0% (0)	**50.0% (4)**	37.5% (3)	12.5% (1)	8
4.1.4 Building research institutions capacity to manage the research	0.0% (0)	**62.5% (5)**	25.0% (2)	12.5% (1)	8
4.1.5 Learning by doing (adaptive learning)	**50.0% (4)**	25.0% (2)	0.0% (0)	25.0% (2)	8
4.1.6 Ensuring innovations and knowledge generation are based on specific intended uses.	25.0% (2)	**62.5% (5)**	12.5% (1)	0.0% (0)	8
4.1.7 Communicating evidence-based knowledge for policy and practice influence	25.0% (2)	**62.5% (5)**	12.5% (1)	0.0% (0)	8

4.1.8 Leveraging of other research funding opportunities and building sustainability for the research networks	0.0% (0)	**62.5% (5)**	25.0% (2)	12.5% (1)	8
4.1.9 Focus on poor communities and their development needs with regard to the development of ICT4D	**50.0% (4)**	37.5% (3)	12.5% (1)	0.0% (0)	8
4.2 Do you have any suggestions for how any of the principles could be better applied? Do not forget to quote the principle!					3
			answered question		**8**
			skipped question		**0**

6. 4.3 Are there other operating principles that you would delete or change or suggest be incorporated into the Acacia Approach?

	Response Count
	2
answered question	**2**
skipped question	**6**

7. 5. Acacia Management Process: Another way of assessing the Acacia Approach is to look at the different ways in which the Acacia Team members work with the networks. These are the processes that the Acacia Team has used. Not all of the below processes have been used with all networks.

5.1 We would like your opinion on how well these different processes have worked for you.

	Very well	Well	Not well at all	Not applicable	Response Count
5.1.1 Predevelopment stage: identify issues and researchers interested in these research domains, or encourage sector specialists to work in a multi-disciplinary way. This may require contracting consultants to do scoping work.	**75.0% (6)**	25.0% (2)	0.0% (0)	0.0% (0)	8
5.1.2 Identify potential research directors and organisations that can host the network's administration and coordination	**50.0% (4)**	**50.0% (4)**	0.0% (0)	0.0% (0)	8
5.1.3 Frequently but not always sponsor a development workshop that brings all interested researchers together to lay the foundations of a network project proposal or of a coherent research approach and methodology.	**75.0% (6)**	25.0% (2)	0.0% (0)	0.0% (0)	8
5.1.4 Work with network project coordinator to develop a top quality grant proposal.	**75.0% (6)**	12.5% (1)	0.0% (0)	12.5% (1)	8
5.1.5 After approval, program officer takes a back seat and plays a demand-driven supporting role to the network research director, project coordinator and the research partners.	**37.5% (3)**	25.0% (2)	12.5% (1)	25.0% (2)	8
5.1.6 Project team develops its research methodology, with the program officer’s assistance if necessary.	37.5% (3)	**62.5% (5)**	0.0% (0)	0.0% (0)	8
5.1.7 Network research director, with the help of the project coordinator oversees work by research partners, consulting with the program officer if necessary.	37.5% (3)	**50.0% (4)**	0.0% (0)	12.5% (1)	8
5.1.8 Program officer monitors progress and participates in the	**50.0% (4)**	37.5% (3)	0.0% (0)	12.5% (1)	8

Acacia team.					
5.1.9 Program officer stays engaged in the theme, serves as an intermediary between the network project and other actors (funding organizations, other research projects, sector experts) and is alert to new opportunities for the network project	37.5% (3)	**50.0% (4)**	12.5% (1)	0.0% (0)	8
5.1.10 Program officer provides a back stop in case of conflicts and risks.	25.0% (2)	**62.5% (5)**	0.0% (0)	12.5% (1)	8
5.2 Is there anything you would like improved or changed in these processes? If yes, please explain briefly.					3
			answered question		**8**
			skipped question		**0**

8. 6. That is it! Thank you. We assure you that we will protect the confidentiality of your responses to the survey. We would appreciate, however, if you would share with us your name, email(s) and telephone number(s) in case we have follow-up questions for clarification or deeper understanding about your views.

		Response Percent	**Response Count**
Name:		**100.0%**	**8**
Email(s):		**100.0%**	**8**
Telephone numbers:		87.5%	7
	answered question		**8**
	skipped question		**0**

ANNEX

Outcome Format

Outcome Title #1*: In a sentence, summarise the change in the social actor – who did what that was different?*

Outcome: *Describe* ***who*** *changed,* ***what*** *changed in their behaviour, relationships, activities or actions,* ***when****, and* ***where.***

Significance: *Briefly explain why the outcome is important. Also, contextualise the outcome so that a reader who does not have country and topical expertise will be able to appreciate why this outcome is significant.*

Contribution of the research network*: Please indicate the evidence of the research network's contribution. How do we know that the outcome was a result—partial or total, intentional or unintentional—of the research network's activities? Please be concise. In a sentence or two, describe what was done, by whom, when and where as specifically as possible*

Classification: *Please indicate which of the following dimensions of Acacia's overall objectives the outcome contributes to (or in the case of a negative outcome, detracts from), bearing in mind that IDRC recognizes that not every project/network will make a significant contribution to (or undermine) all of these objectives. (Please select as many as you feel apply by marking an ~~–~~X" or highlighting):*

Fostering on-going, robust policy dialogue among:

- ☐ ICT4D researchers
- ☐ Policy-makers
- ☐ Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- ☐ Strengthen weak institutions through mentoring relationships
- ☐ Serve as fora for knowledge diffusion
- ☐ Are a vehicle for parallel funding activities

Increasing research capacity in ICT4D through:

- ☐ Improved research methodologies and practices
- ☐ Increased numbers of ICT4D researchers
- ☐ More research institutions with a specific ICT4D focus

Stimulating social and technical innovation in ICTs, including:

- ☐ Mobile telephony
- ☐ Wireless broadband
- ☐ Alternative, innovative telecom and IT policy models for Africa
- ☐ Alternative intellectual property regimes
- ☐ Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its

expressed purpose being to provide solutions for individual and community problems.[1]

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:

- Cited in peer-reviewed, third-party publications (i.e., not by IDRC or the research networks) .
- Incorporated into university curricula.

Applying meaningful gender analysis:

- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa
- Reduction in the magnitude and evolution of the observed gender gap

Changing gender relations in:

- Access and patterns of use
- ICT literacy
- Education and skills
- ICT employment.

[1] OECD LEED Forum on Social Innovations, 2009 (http://www.oecd.org/document/53/0,3343,en_2649_34459_39263221_1_1_1_1,00.html)

Acacia Research Network Outcomes 2006-2009

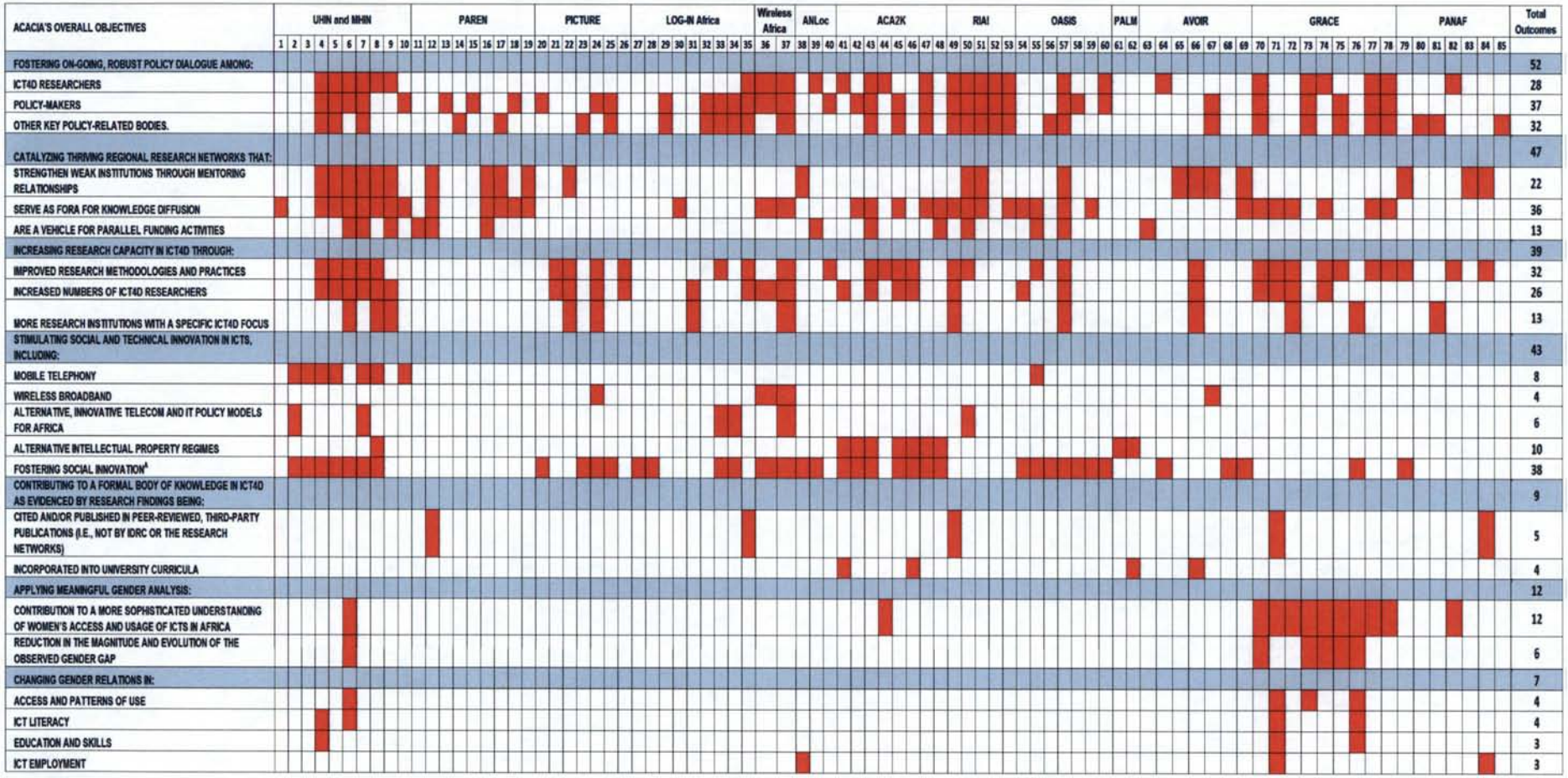
Compilation by Jennifer Vincent and Ricardo Wilson-Grau
18 December 2009

Introduction

Here are 85 most significant outcomes of the 13 Acacia research networks that we harvested between June and November 2009. First there is a summary that displays the one-sentence titles of the outcomes compiled. Following, we present in a table a simple analysis of the outcomes in relation to Acacia's overall objectives in 2006-2009. Then, we present the full outcome formulations.

Summary – Titles of Outcomes

Outcomes of 13 research networks 2006-2009, by Acacia objectives



[a] Broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

Outcomes in Full

I UHIN/MHIN

Name of research network: Uganda and Mozambique Health Information Networks
Project numbers: 103920, 103850, 104819, 103746
Sources of information:
103920: Development and Testing of African Access Point (AAP), July 2006 – March 2007 (Final Report)
103850: Rolling Project Completion Report (Stage 3 interview with Edith Adera, 1 May 2008); Interim Technical Report (Submitted December 7, 2006); Technical Report (Submitted August 24, 2007)
104819: Interim Technical Report for the period November 2007 – October 2008 (submitted 26 November 2008).
103746: Rolling Project Completion Report (Stages 1 and 2 interview with Khaled Fourati, 2 February 2009 and 5 February 2009); Interim Technical Report,
Reporting Period: November 2006 – October 2008 (submitted 26 November 2008).
Reviewers: Jennifer Vincent and Ricardo Wilson-Grau
Respondents: **Holly Ladd**, Berhane Gebru, Edith Adera, Khaled Fourati

1. In March 2007, a large percentage of participating health care workers in Uganda indicated that they refer to health information available on their PDA and that this information has changed their patient-care practice.

Description: In a March 2007 user survey of health care workers in the Rakai, Lyantonde, Mbale, Manafwa and Bududa districts of Uganda, 83 percent indicated that health information broadcast through the Health Information Network had changed their practice in caring for their patients. Many of the users reported that they do refer to the content on their PDA.

The Uganda Health Information Network utilizes handheld computers (also known as Personal Digital Assistants, or PDAs) for supporting health information dissemination, data collection and reporting, and email exchange. Data transfer from/to PDAs is facilitated using AED-SATELLIFE-developed wireless access points called African Access Points, or AAP, and a server located in Kampala. Health workers use the PDAs to collect public health data at the community/clinic level. They then upload that data and outgoing e-mails to a shared AAP via infrared. The AAP sends the data and messages over the cellular network to the server in the capital, which routes them to the correct recipients and sends back messages, data, and health information needed by clinicians. As a result, health workers in remote locations with no electricity receive health information relevant for providing improved healthcare through the network three times a week.

Furthermore, an impact assessment of the project conducted by a team of health professionals from the Faculty of Medicine at Makerere University showed health workers in the affected districts are providing improved clinical care to patients with malaria and diarrhea as a result of having received health information broadcast through the network.

Significance: Access to health information through PDAs has improved health workers' management of the target diseases (malaria, pneumonia, and diarrhea) in Bududa, Lyantonde, Manafwa, Mbale, and Rakai districts. Health workers were able to:

- Make quicker and more accurate diagnoses;

- Diagnose more complicated cases, which would normally have been referred to a higher level health facility;
- Refer to the PDA regarding choice of drugs;
- Keep informed about new or alternative drugs and their side effects;
- Select appropriate treatment options (e.g. use coartem instead of fansidar or chloroquine); and
- Provide valuable information to patients regarding drug administration, preventive measures, and alternative treatment options (e.g. oral treatment for certain conditions instead of the preferred injection).

Out of 56 districts nationally, in 2003 Rakai district ranked 22nd in treatment and care of tuberculosis (TB) and seventh in 2004. In 2005, Rakai was ranked the "best performing district" in TB care and treatment and received a trophy of excellence in early March 2006 from the Ministry of Health of Uganda. The district health director of Rakai cites the services of UHIN as one of the key contributing factors for the success.

Contribution of the research network: From 2005 onward, UHIN has been delivering regular broadcasts consisting of local and international content via PDA, with an emphasis on diarrhea, pneumonia, and malaria, which were identified to be the major health problems in Uganda.

Classification:

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

2. In 2007, the Ugandan district health services of Rakai and Lyantonde developed PDA-based data collection instruments for the monitoring and evaluation of community hygiene and sanitation.

Description: In 2007 the Ugandan districts of Rakai and Lyantonde developed PDA-based data collection instruments for the monitoring and evaluation (M&E) of community hygiene and the sanitation situation at village/community levels. Sanitation data related to slaughter houses, butchers, food selling places, eating houses, community water supply hygiene and maintenance, and school sanitation and hygiene are captured on PDAs and directly hot-synched to the district database for further analysis. The district health services of Rakai and Lyantonde assert that the use of PDAs for this program is helping them to run an efficient[1] community hygiene and sanitation program.

Significance: Prior to the introduction of PDAs, the Rakai and Lyantonde districts were using paper-and-pen for gathering M&E data for widely dispersed locations, most of them inaccessible to motorized vehicles. The districts attest that the pen-and-paper data gathering was time consuming and that data were often erroneous as there were no quality control mechanisms due to the sheer dearth of workers in the health sector. Furthermore, prior to the introduction of PDAs, data analysis was usually done on paper as there was no expertise for conducting electronic analysis of the data. Such analysis was time consuming and more often than not, the data became obsolete before any action was taken.

The use of PDAs for M&E of community hygiene and sanitation programs resolved these problems. This approach enabled the districts to gather data rapidly and accurately, and inbuilt data validation routines serve as quality control measures (for example, if data entered is out of a valid range, the system alerts the user. Now data entered in PDAs is seamlessly synchronised to a computer at the district, enabling rapid analysis and rapid, results-based action.

[1] "Efficient" in this context is used to indicate the following: better understanding of hygiene and sanitation needs of the community; rapid response/action based on better understanding of community needs; better planning/allocation of resources based on findings made through the use of PDAs.

Contribution of the research network: The UHIN team provided ongoing and modular training to technical personnel of the districts including Health Management Information System (HMIS) officers, records officers and assistants, and directors of health sub-districts. Through this training, the district technical team, especially the HMIS and records officers, learned how to create electronic forms for use on PDAs, synchronizing this data to a desktop/laptop computer and allowing data analysis.

The district technical team realized the potential for using PDAs for data collection/transmission and developed PDA-based tools for M&E of community-based hygiene and sanitation programs. Development of the data tools, data collection and analysis was entirely done by the districts based on the lessons they learned from UHIN.

Classification:

Stimulating social and technical innovation in ICTs, including:

- Mobile telephony
- Alternative, innovative telecom and IT policy models for Africa
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

3. From 2005 to 2008, the Ugandan districts of Rakai and Mbale implemented health management information system data gathering and reporting as a cost-effective alternative compared to paper-and-pen-based approaches.

Description: Beginning in 2005, the districts of Rakai and Mbale in Uganda began using HMIS. District Health Services (DHS) receive data from various levels of health centres through UHIN, including monthly HMIS reports, disease surveillance data, and reports related to HIV/AIDS, TB, and malaria. The DHS also uses the network to receive data for monitoring drug usage and stocks, which informs the ordering process. Additional tools for electronic data collection of non-routine sources of information, especially in relation to community-based health care, nutrition and environmental sanitation programs, have been developed and rural health facilities are using the network for data capture and reporting to DHS.

Rural hospitals use PDAs for capturing data on daily register forms such as PMTCT (preventing mother-to-child transmission), inpatient, lab, HIV counselling, ART (anti-retroviral therapy) administration, ART and pre-ART unit daily registers. Record officers at the rural hospitals hotsynch the data captured on these forms to a laptop or desktop in the hospital and data is analyzed regularly and the results compared with national indicators. The information obtained assists in daily surveillance of patients and diseases, monitoring resource allocation and utilization, and the generation of reports for management and control purposes.

Significance: A cost-effectiveness study of UHIN conducted by independent consultants in 2004/5, when only two of the fourteen standard forms were included, showed that the network delivered a 24 percent savings per unit of spending over the traditional manual data collection and transmission approaches. A second cost-effectiveness study, with all of the forms and continuing education included, is being conducted and results of the study will be available in December 2009. In the meantime, the two districts have reported benefits, including improved data quality at point of collection, more timely access to data for analysis and decision-making, and more rapid response to emerging situations.

Contribution of the research network: The UHIN team worked with the districts of Rakai, Lyantonde, Mbale, Manafwa and Bududa to identify data collection needs for electronic transmission

through the network. The UHIN technical team developed data collection forms for data entry to the handhelds and wireless transmission through the wireless access points. The UHIN team also trained district health offices on data gathering and transmission using the network. The objective was to allow sufficient development of skills within the district health team for creation and utilization of diverse HMIS forms for local use and transmission from one district health system level to the next through the network. In addition to routine HMIS forms, the districts developed (with minimal or no support from the Uganda Chartered HealthNet team) several non-routine health-related forms for data collection at the point of care or point of service delivery using PDAs.

The cost-effectiveness assessment comparing the use of UHIN vis-à-vis traditional paper-based approaches was conducted by independent researchers from Makerere University to avoid bias.

Classification:

Stimulating social and technical innovation in ICTs, including:

- Mobile telephony
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

4. Since 2006, managers at hospitals where UHIN is operational, in five districts in Uganda, have increased the frequency and quality of their monitoring and planning.

Description: As a result of information received from the system implemented by UHIN, managers at hospitals where UHIN is operational, in five districts in Uganda, have increased the frequency and quality of their monitoring and planning. For example, record officers at Kalisozo Hospital hot-synch the data captured on the forms - such as registers for birth, death and dental - using handhelds connected to a laptop in the hospital on a daily basis. The overall objective of these registers is to provide information that can be used to manage the hospital on a daily basis. The hospital administration has set as its objective the attainment of informed decisions using PDAs and the network as a tool. There is a clear difference in performance data on UHIN districts in terms of disease surveillance reporting before and after using UHIN.

It is noteworthy that close to 80 percent of health workers and data collectors trained by UHIN on the use of handheld computers for data collection and accessing health content are women. A gender study is currently underway to assess the impact of UHIN in empowering women through ICT training and skill creation, for example. Outcomes of the study are pending. However, based on surveys conducted thus far, it is clear that women users account for the largest proportion. These users virtually never touched a computer before the introduction of UHIN. The project clearly built the skill base of women with respect to the use of ICT solutions for development. This comment is valid for all outcomes where gender is indicated as one of the classifications.

Significance: According to the new system, information from the HMIS is used in part for reporting to the District Health Committee, where it is used in planning, monitoring, and evaluating progress of the district and national objectives. As a result of UHIN, there was marked improvement in the timeliness of epidemiological disease reporting to the Ministry of Health from the participating districts.

Data is analyzed regularly, and the results are compared with national indicators. The hospital monitors its performance on a daily basis and can chart its progress towards the achievement of the national indicators. The information obtained assists in daily surveillance of patients and diseases and monitoring of resource allocation and utilization. Benefits also include the ease with which reports can be generated for management and control purposes, as well as the fact that researchers and

academics can avail of the data, given that Kalisozo is a study site for Makerere University Medical School and the School of Health Sciences at Nkozi University (Uganda Martyrs University).

Contribution of the research network: While UHIN partners acknowledge that the improvements in terms of disease surveillance reporting may not be attributable solely to the use of the network for data capture and transmission, they and the districts note that the project played a vital role in improving the districts' performance in on-time reporting of surveillance data to the Ministry of Health.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Mobile telephony
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

Applying meaningful gender analysis:

Changing gender relations in:

- ICT literacy
- Education and skills

5. From 2006 to 2007 Mozambique's Ministry of Health replicated the UHIN project.

Description: In 2006, Mozambique's minister of health decided to implement a replication of UHIN solution and established the Mozambique Health Information Network (MHIN). Representatives of SATELLIFE, including Executive Director Holly Ladd, and the International Development Research Centre (IDRC) visited Mozambique in February 2006, at the invitation of the Minister of Health and the Minister of Science and Technology, to determine the feasibility of developing a health data collection and information system similar to UHIN.

MHIN utilizes similar technology for data gathering, two-way communication and deployment of content and applications to remotely located health facilities. Like UHIN, MHIN employs low-cost handheld computers, the existing cellular telephony network, and wireless access points for data collection and transmission from remote health centers to district, provincial, and national MISAU (Ministerio da Saude, or Ministry of Health) offices.

Significance: MISAU has been charged with developing a program of evidence-based polices and practice for health care in Mozambique. MISAU, however, has insufficient data upon which to base such a program and has no consistent cost-effective way to collect such data. The implementation of MHIN will improve access to reliable health information System (Sistema de Informação em Saúde,

or SIS) data collected from health facilities and thus foster effective policy making, resource management, program coordination, and monitoring and evaluation of MISAU programs.

Contribution of the research network: Prior to the World Summit on the Information Society (WSIS) meeting in mid-November 2005, SATELLIFE met the Mozambican Minister of Health earlier in the month in New York during the TIME Global Health Summit, at which SATELLIFE presented UHIN. The minister saw the opportunities of UHIN for his country and asked SATELLIFE to implement a similar network in Mozambique for facilitating health information data capture and transmission from remote health facilities to district, provincial and national health services.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Mobile telephony
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

6. Since 2006, the District Health Services of Lyantonde, Uganda developed and is using PDA-based tools for improving nutritional surveillance in the district.

Description: Lyantonde District's health service started using PDAs in 2006 for assessing malnourishment among children admitted to hospital wards, mothers coming to health centres for antenatal care, and outpatient children. Based on the training that the Uganda Chartered HealthNet team provided, the district technical team developed data collection tools for nutritional surveillance. Data collected using PDAs is used for decision support in relation to Lyantonde district's program of improving the diet and health of children by providing them with nutrient-rich foods and demonstrating to mothers how to prepare nutritious meals. The use of handhelds is supporting district health officials in making informed decisions by enhancing timely information exchange between the nutrition units and the managers at Lyantonde Hospital.

Significance: The project aims at improving the diet and health of children by putting them on nutrient rich foods as well as demonstrating to the mothers how to prepare the meals. The project was conceived on the realization that most of the children admitted to the hospital were suffering from severe malnourishment and that the process of recovery was slow due to this condition. Food portions are prepared and served at the hospital to malnourished children. Some of the ingredients in the food include; soy beans, neem, G/nuts, fruits and vegetables.

PDAs are used for surveillance of cases of malnourishment among the children admitted in hospital wards, mothers who come for antenatal care and children who are brought to the outpatients

department. The information collected on PDAs includes the number of children reporting on average per month and their condition. This information is used to plan for the nutritional interventions of the program in response to identified needs. The program enhances information exchange between the nutrition units and the managers at district hospitals, and display of information to stakeholders.

Contribution of the research network: Lyantonde district is one of the users of UHIN for HMIS data exchange, establishing health information access to health workers and email exchange. As part of UHIN's work, over one hundred health workers in Lyantonde district were trained on PDA use for gathering data and information exchange. UHIN also trained district HMIS and records officers on developing PDA based data collection tools and data management. The district HMIS and records officers developed PDA data tools for the nutritional surveillance. The District Health Officer of Lyantonde was also instrumental in the expansion of the PDA-based nutritional surveillance tool.

The nutritional surveillance program was conceived in 2005 by the district staff at Lyantonde hospital during a meeting at which the issue of nutrition was identified as one of the leading causes of poor health among children within the community. The program was proposed and included among the priorities for the following financial year with a budgetary allocation. The program enlisted and received support from the National Strategy for Advancement of Rural Women in Uganda (NSARU) in January 2006. Since then the program has been receiving logistical and technical support from a subsidiary of NSARU called Community Based Integrated Nutrition (COBIN). COBIN provides seeds and seedlings for the establishment of a nutrition demonstration garden located at the hospital.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

Applying meaningful gender analysis:

- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa
- Reduction in the magnitude and evolution of the observed gender gap

Changing gender relations in:

- Access and patterns of use
- ICT literacy

7. As of 2009, health workers in 45 health centers in Kamuli, Uganda refer to a PDA-accessible mobile library to diagnose, treat and care for patients.

Description: As a result of the successful implementation of Uganda Health Information Network, in 2005 the then Director General for Health Services of the Ministry of Health (MoH), Professor Omaswa, formally asked AED-SATELLIFE and Uganda Chartered HealthNet (UCH) to expand the use of the handheld technology for CME (continuing medical education) dissemination and access throughout the country.

In a memorandum of understanding (MOU) signed by the MoH, UCH and SATELLIFE in 2005, the parties agreed "to collaborate in the development of appropriate information and communications technology (ICT) for the health sector in Uganda including further development and expansion of the UHIN to support the Government's dissemination of CPD[2] to health workers in Uganda".

Although the national rollout has not materialised, there have been localized actions taken by the Ministry in collaboration with AED-SATELLIFE for expanding the use of PDAs for delivery of health information. For example, during 2009 the district health services of Kamuli and AED-SATELLIFE are deploying a "Mobile Library" to 45 health centers. A suite of health information is preloaded on PDAs (including treatment guidelines of various health problems) and provided to health workers in those 45 health centers. They refer to the mobile library to diagnose, treat and care for patients.

Significance: Access to CPD has been difficult because of the cost and time requirements to participate and the disruption caused at the health delivery sites when workers take time to travel to centralized training programs. The use of UHIN for delivery of CPD materials to health workers minimizes the need for health workers to leave their workplace to attend residential-type trainings and minimize disruption of services to communities.

Contribution of the research network: UHIN influenced the Director General's decision through example. The 2005 MOU signed between the MoH and SATELLIFE/UCH recognises that "UHIN has proved to be dependable and cost effective for transmission of both data and text material", and that UHIN has "shown that health workers at all levels can be easily trained and supported to use the hand-held computers and the network". Furthermore, it was noted that "the Government wishes to extend in-service training and Continuing Professional Development (CPD) to all health workers at all levels" through the use of UHIN.

The Ministry still wishes to expand the use of UHIN for nationwide CPD delivery; however, due to funding constraints, the rollout has not yet materialized.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Increasing research capacity in ICT4D through:

[2] CPD includes a broader scope of content than CME, including management of health centers, HR, and other topics beyond those that are medical or health-specific. The Ministry of Health prefers the term 'continuing provider development', which encompasses CME and other topics.

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Mobile telephony
- Alternative, innovative telecom and IT policy models for Africa
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

8. Since 2006, remotely located health units and district health services in Uganda and Mozambique are facilitating two-way data exchange using the wireless access point called African Access Point (AAP).

Description: Since 2006, remotely located health units and district health services in Uganda and Mozambique are facilitating two-way data exchange using the wireless access point called African Access Point (AAP). Suitable for poor ICT infrastructure settings and based on an open source platform, the use of AAP represents a shift from UHIN's use, from 2004 to 2006, of a proprietary wireless access point called WideRay Jack, which is manufactured by a U.S.-based commercial company.

While the use of the WideRay Jack proved to be technologically viable, the device is built on proprietary software and hardware and is highly specialized, with very limited flexibility or freedom for maintenance or expansion by third parties without access to the source codes. Adding additional functionalities and/or maintaining the Jacks would therefore have entailed contracting with WideRay, making operation and maintenance of the device prohibitively expensive. To overcome these problems, SATELLIFE, in close consultation with IDRC, and with financial support from IDRC, developed the AAP on an open source platform.

Significance: This shift is important because it is more cost-effective and it allows changes to functionalities of the device to suit emerging needs. UHIN partners had successfully demonstrated that a network using handheld computers and WideRay Jack significantly improves communication, access to information, and the accuracy of data collection and analysis among health workers at the facility and district level in Uganda. The AAP has expanded on this because it is built on an open source platform, which provides users with the ability to expand the utilities and maintain parts of the device locally. The AAP works in a similar manner to the Jack, but adds functionalities that are not supported by the WideRay model, such as the ability to exchange data/information via Bluetooth and Wi-Fi. In summary, the open-source nature of the AAP provides flexibility and freedom to maintain and expand its functionalities by third parties.

Contribution of the research network: When the Jack was in use, UHIN gathered extensive data from UHIN users to better understand their needs and the limitations of the WideRay Jack to meet those needs. The results of those surveys informed the development of the AAP. For example, the WideRay Jack did not have an internal battery, so the AAP is equipped with an internal battery capable of powering up the AAP for about give hours during power outages. This design consideration was based on user comments indicating that they wanted to have an access point that is less dependent on the limited electricity available in rural areas.

The development of the AAP was done by a South Africa-based company called Thalamic Systems under AED-SATELLIFE guidance. Any interested party can purchase the AAP from S-Curve Technologies, a South Africa-based company specializing in the production of AAPs. The source code and binaries of the AAP applications are available to the public at http://www.thalamic.net/TS-AAP-V2/

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Stimulating social and technical innovation in ICTs, including:

- Mobile telephony
- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

9. Since 2005, UHIN collaborating partner Uganda Chartered HealthNet has applied the capacity it has developed in implementing ICT projects using mobile technologies to related PDA-based projects in eight countries.

Description: Since 2005, based on the capacity it developed through UHIN, UCH has successfully implemented several PDA projects. Thus, UCH played a key role in expanding the use of mobile computing devices for health information/data exchange and conducting surveys in several parts of Africa. The UCH team received successive trainings through SATELLIFE and institutions affiliated with SATELLIFE on the use of mobile computing devices for conducting surveys and delivery of content in different formats.

UCH supported several initiatives, particularly in the design and delivery of training on mobile computing devices for various purposes, conversion of data tools to the appropriate electronic format, database design, and facilitating data capture and transmission using a range of mobile computing devices, such as PDAs, cell phones, bar-code scanners, long-range Wi-Fi transmitting devices, global positioning systems and Intel's ultra mobile platforms.

UCH is now the leader in the use of mobile technologies for research and development work in Uganda. A few examples of UCH's work include:

- Ghana, 2008: Developed NetMark-Ghana household survey questionnaire to PDA format (USAID-funded AED project); pre-test and modify the PDA program in the field as necessary; train data collectors and field supervisors in Accra on data collection, storage, and transfer to a database and uploading data to FTP site via mobile Internet connection.

- Nigeria, 2008: Developed NetMark-Nigeria survey questionnaire to PDA format using Pendragon; pre-test and modify the PDA program in the field as necessary; train field supervisors in Lagos on data collection, storage, and transfer to a database; and uploading data to FTP site via mobile Internet connection.

- Uganda, 2008: Conducted a Micronutrient Baseline Survey in Uganda. The survey is designed to guide the planning of effective A2Z national interventions and set a baseline for the project to measure successes.

- Botswana, 2007: Trained Tebelopele Voluntary Counselling and Testing (VCT) Centre staff and general PDA end users in preparation of rolling out PDA use for data collection and transmission within the Centre.

- Uganda, 2006: Conducted NetMark-Uganda end-line national-scale household survey, which will document progress toward achieving NetMark's objectives of improved availability, equity and appropriate use of nets and Insecticide-treated Nets (ITN).

- Ethiopia, 2005; Nigeria, 2005; Swaziland, 2006: Trained World Health Organization and MOH staff in Ethiopia, Nigeria and Swaziland. Data collection officers and database personnel were trained in-country on the use of PDAs for Service Availability Mapping (SAM) data collection, data transmission to central databases, and forms creation using Pendragon.

- Rwanda, 2004: Trained staff members of Rwanda National Electoral Commission (NEC) and the dot-ORG project team in Kigali on the use of PDAs for Voter Registration Verification Pilot activity; including how to collect and validate voter information using PDAs, improve the process of updating national voter database.

Significance: The ability of the UCH team to implement other ICT projects in the region is vital for sustaining the efforts and derived benefits of the project, and for expanding the lessons learned that have the potential to be replicated or scaled up in similar settings. UCH's focus is on ICT4D, and the strengthening of UCH's capacity to conduct ICT4D research and development work will contribute to the proliferation of strong ICT4D institutions in the region.

Contribution of the research network: Prior to the launch of UHIN in late 2003, UCH was a small project staffed by volunteers. UCH became a registered non-profit organization at the end of 2003 as part of UHIN's capacity-building plan. UCH staff received successive training from AED-SATELLIFE in Uganda and the U.S.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Increasing research capacity in ICT4D through:

- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

10. In 2008 the Ugandan Ministry of Health asked the UHIN project team to play a key role in the development of a national health information system policy and strategy, based on UHIN's experience.

Outcome:

UHIN has reached the critical moment when the research and practice – applied research – are now part of the cornerstones in the development of a new health information policy for Uganda. The Ministry of Health (MoH) now fully understands the value of UHIN for facilitating data/information exchange, views rapid information exchange from rural facilities to district level information exchange using ICT solutions as a key component in its overall plan for a national health information

system, and sees the project partners (AED-SATELLIFE and Uganda Chartered HealthNet) as important stakeholders in the process of developing the national strategy.

Vision 2012 is the Ugandan Ministry of Health Resource Centre[3]'s comprehensive approach for improving health data collection and reporting (including HMIS, electronic medical record system and the national patient identifier mechanism), fully staffing the Resource Centre and districts with data personnel, and creating or adopting platforms for data management. The MoH is deeply engaged in the implementation of UHIN, as evidenced by the fact that the project's steering committee is chaired by the MoH to ensure that the project addresses the needs and priorities of the Ministry as well as the research agenda of the project. Thus, the MoH is keen to integrate UHIN in line with the Resource Center's "Vision 2012". AED-SATELLIFE and UCH started working closely with the MoH at the end of 2008 in developing the strategic plan for Vision 2012 and to ensure that the experience and knowledge gained through the implementation of UHIN are integral to Vision 2012.

This demonstrates a clear recognition of UHIN's success and is a key milestone in influencing the behaviour of the Ministry as the potential role of UHIN was not recognized earlier on by the Ministry. When UHIN was first introduced in 2004, the MoH exhibited reservations about the viability of using "hi-tech" solutions at rural health facilities and expressed concern that rural health workers may not have the skills to use the system and that recurrent costs for operation, maintenance and replacement of components of the network may not be manageable using local expertise and resources. However, through the research outcomes of the project, such as the results of the cost-effectiveness study of the project and user testimonials, the project proved its viability and the sustainability of the system.

Significance:

Timely and reliable health information is vital for effective planning and resource allocation based on the needs and priorities of the population. It is also important for the accurate evaluation of health services delivered to the population, the efficient management of health interventions, and for improving accountability and promotion of evidence-based policy development. The ability to gather health data and the capacity to analyze and use it for evidence-based decisions, resource allocation, planning, and policy formulation are essential elements for success in all efforts to improve health care in Uganda.

However, the establishment of an effective and efficient national health information system in Uganda has been seriously hampered by fragmented health information flows at public, private and community levels and a lack of adequate ICT infrastructure and standardization of ICT tools for health, as well as other factors. Against this backdrop, UHIN piloted the use of a system for facilitating timely delivery of accurate health information from communities to district health services and up the channel to the Ministry of Health. The network also documents lessons learned and best practices in the use of mobile computing devices for improving health information systems. Thus, the incorporation of UHIN's experiences in the development of the national health information system is essential to minimize problems in the use of mobile computing devices as an integral part of the national strategy.

Contribution of the research network:

UHIN successfully demonstrated the cost effective application of a network that uses handheld computers (PDAs), wireless access points and cellular network for HMIS data collection and reporting. The following factors increased understanding among officials from the MoH and other interested parties of the potential roles of UHIN, which laid the groundwork for the project's enhanced participation in the formulation of a national health information system strategy:

[3] The Resource Centre is responsible for carrying out activities that support the management of information of Uganda's health sector (Cabinet Directive – 1999).

a) User testimonials: testimonials of users that the system works and that it is more efficient than pen-and-paper based approaches;
b) A cost effectiveness assessment conducted by independent consultants showed that the network delivered a 24% savings per unit of spending over the traditional manual data collection and transmission approaches;
c) A best practices study of the project documented the best practices and the lessons learned from the project planning, implementation and operation that may be applicable to data collection and information dissemination in similar settings. This study identified eight[4] best practices that the UHIN project was implementing to improve healthcare services delivery to the Ugandan population.

Classification:

Fostering on-going, robust policy dialogue among:

- ☐ Policy-makers

Catalyzing thriving regional research networks that:

- ☐ Serve as fora for knowledge diffusion

Stimulating social and technical innovation in ICTs, including:

- ☐ Mobile telephony

II PAREN

Name of research network: Promoting African Research and Education Networking (theme)
Project numbers: 103722, 103753, 104584, 103137, 102896
Sources of information:
103722: UbuntuNet Alliance for Research and Education Networking project completion report, Stage 3 (interview with Khaled Fourati, Program Officer); Support for Establishment of UbuntuNet Alliance for Research and Education Networking (final report for phase 2, Dec. 2006 - July 2007); Support for the Establishment of the UbuntuNet Alliance for Research and Education Networking (Final Project Report, 1st April – 30th November 2006);
103753: AAU Research and Education Networking Unit Progress Report to IDRC, September 2006-May 2007; "AfriNIC reduces its fees for Research & Education Institutions" (news article on website of Association of African Universities, 26 June 2007); UPDATED SECOND PROGRESS REPORT (June 2007-December 2008).
103137: Connectivity Africa External Review Report May 12th 2007 by Simon Batchelor (pp. 25-26); PAREN: Preparation and Conference for WSIS 2 - Final Technical Report (July 2006, SARUA); Project Completion Report of Promoting the African Research and Education Networking (PAREN): Preparation and Conference for WSIS 2 - Stage 3 (interview with Khaled Fourati);
102896: Interim Technical Report (Fourth reporting period) by Martin Belcher; Final technical report (including project extension period in 2007) by Martin Belcher; Project Completion Report of Supporting Training for the Optimizing University Bandwidth in Africa - Stage 3 (interview with Khaled Fourati);

[4] The eight best practices from UHIN relate to: data collection and entry in health units for HMIS; data transmission from health units to the district for HMIS; health education and professional development: enhancing public health and sanitation among communities using the network; nutritional program for enhancing nutrition of children; data collection when doing surveys; improvement in resource management; and improving the quality of safe blood

104584: Project Completion Report, Stages 1 and 2 (interview with Khaled Fourati); FINAL TECHNICAL REPORT (1st April 2008 – 31st March 2009); Interim Technical Report (Covering Period: 1st April 2008 – 30th November 2008); Proposal for Phase 2: Implementation.
Reviewers: Jennifer Vincent and Ricardo Wilson-Grau
Respondents: Margaret E. Ngwira, Boubakar Barry, Dr. Francis F. Tusubira, Ben McGarry, Martin Belcher, Duncan Martin, Akilagpa Sawyerr, and **Khaled Fourati**

11. The Carnegie Foundation and Swedish International Development Cooperation Agency (SIDA) sent representatives to the first UbuntuNet-Connect Conference in November, 2008.

Description: At the first UbuntuNet-Connect Conference, which was held in Lilongwe, Malawi in November, 2008, the Carnegie Corporation committed to provide support to UbuntuNet Alliance as an organisation to enable the integration of African universities and research institutions into the global research and education community through the provision of intra-African connectivity as well as access to sufficient and affordable international bandwidth. However, SIDA was not able to fulfil its commitment and Carnegie had to pull out, at least for now. The financial downturn seems to have affected SIDA.

Significance: The process of completing the Carnegie grant application was very arduous; the fact that the application was approved (although it has yet to be implemented) is affirming for the Alliance and contributes to its global visibility. Carnegie was considering a grant of 900K USD while SIDA was considering 1,000,000 USD, although neither materialised.

The EU is considering supporting the cross-border connection for the development of the regional REN, which would amount to a total investment of 15million EU. Money would be channelled through DANTE (Delivery of Advanced Network Technology to Europe), the UK-based organisation that manages GÉANT, the European academic and research backbone. UbuntuNet will be involved in the implementation and receive some funding in order to carry out its role.

Contribution of the research network: The project enabled the project team to put the UbuntuNet Alliance's agenda on the radar of various development partners and initiatives at the international level. The result that emerged is being seen very recently where various donors, such as Carnegie Corporation, agreed to provide direct funding to support the UbuntuNet Alliance subject to matching grants from other partners.

The grant application development was participatory in that it grew out of the consultative strategic planning activity, particularly thee Rolling Strategic Plan of Dar es Salaam, September, 2008

Classification:

Catalyzing thriving regional research networks that:

- Are a vehicle for parallel funding activities

12. Since 2006, the European Commission has worked closely with the UbuntuNet Alliance for the development and support of ICT infrastructure for sub-Saharan Africa.

Description: In 2006, the European Commission's Directorate-General of Information Society & Media (DG-INFSO) established a partnership with the UbuntuNet Alliance for the development and support of ICT infrastructure for sub-Saharan Africa. The relationship with the EU is slow-growing but multifaceted. The FEAST (Feasibility Study for African - European Research and Education

Network Interconnection) study leading up to the AU-EU AfricaConnect seems to point to UbuntuNet Alliance as a partner of choice in implementing the long-awaited Africa-Connect initiative[5].

In July, 2009 a meeting was held in Cambridge between the DANTE team (including Mike Nowlan, who is part of the FEAST team) and Tusu Tusubira, the Alliance's CEO, Margaret Ngwira of the Secretariat, Meoli Kashorda of KENET (Kenya Education Network Trust, a national research and education network) and Duncan Greaves of TENET (Tertiary Education and Research Network of South Africa)[6], and Bjorn Pehrson of KTH (The Royal Swedish Institute of Technology). The objective was for the Alliance to work with DANTE for a clear and common understanding of our joint objectives as DANTE worked towards a project proposal for the implementation of AfricaConnect. On December 16, 2009 the final FEAST report came out clearly that UbuntuNet would partner.

So far, the UbuntuNet router linking into the DANTE hub has been the only tangible evidence of UbuntuNet as a physical network but with the implementation of AfricaConnect, there should be a great increase in the traffic being exchanged. Nevertheless it was reassuring at the DANTE Network Operation Centre to see traffic passing through the UbuntuNet router just as any other REN or NREN traffic

In addition, UbuntuNet is now a member of two EU FP7 (Seventh Framework Programme) Research Consortia - GLOBAL and ERINA4 Africa - and seems to be a partner of choice for reaching African researchers. The first GLOBAL twelve-month review was very positive. A second phase of GLOBAL with stronger relevance for Africa has been submitted. The Alliance has presented (virtually) to audiences or has provided speakers at a variety of EU fora in Europe, Latin America, India, and South Africa. Furthermore, a peer-reviewed paper was presented on the EU FP7 project GLOBAL at an international meeting (IST-Africa '08[7]), and three other EU FP7 projects have been submitted for possible funding, with the Alliance as a proposed partner: two on grid computing and one on advanced infrastructure applications.

Significance: The UbuntuNet Alliance has become the partner of choice for development partners such as the EC, fostering the development of affordable fibre infrastructure for higher education in the region and encouraging the introduction of national research and education networks. The European Union has extended connectivity to South America and North Africa through REDCLARA[8] and EUMEDCONNECT[9] respectively, but there was a gap in sub-Saharan Africa. However, as of 2010, funding will be available for interconnecting several African NRENs, and whereas in North Africa and South America, there was no regional partner for the EU to work with, the existence of UbuntuNet Alliance has made the work of the EU in sub-Saharan Africa more straightforward.

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[5] The joint AU-EU AfricaConnect Initiative was commissioned by the European Commission to explore the feasibility of deploying a regional backbone connecting dedicated national research and education networks (NRENs) to each other and to similar resources on other continents (Pehrson et al, 2009, www.wideopenaccess.net/files/FEAST-paper-2009-11-01.pdf).

[6] KENET and TENET will run the regional network operating centres.

[7] *The UbuntuNet Alliance for Research and Education Networking: One More Piece in the Puzzle* by Margaret NGWIRA, Duncan MARTIN, Tiwonge Msulira BANDA (2008), IST-Africa 2008 Conference Proceedings, Paul Cunningham and Miriam Cunningham (Eds), IIMC International Information Management Corporation, 2008.

[8] As noted on the ALICE website (http://alice.dante.net/server/show/nav.119), the RedCLARA network provides IP research network infrastructure within the Latin American region and towards Europe.

[9] As noted on its website (http://www.eumedconnect.net/), the EUMEDCONNECT project is an initiative to establish and operate an IP-based network in the Mediterranean region. The EUMEDCONNECT network serves the research and education communities of the Mediterranean region, and is linked to the pan-European GÉANT2 network.

The Acacia program has been involved in promoting the vision of African research and education networking for more than five years. In Africa, it costs about 100 times more to connect to the Internet than it does in developed countries. The average African university bandwidth is roughly equal to that of a single home user in North America or Europe. In order to reverse this trend the Acacia-Connectivity Africa (CA) program has worked on developing partnership and networking opportunities between various actors. IDRC has also collaborated with several donors such as, SIDA, OSI and the Partnership for Higher Education.

The Acacia team tried to influence and inform various stakeholders. This was achieved by supporting background studies and by supporting partners to attend high level meetings.

The first step was a study conducted in collaboration with the AAU, which was presented at their annual meeting in Cape Town in January 2005. The study mapped out the current activities on the continent, and the AAU identified bandwidth as a key agenda item going forward. IDRC then collaborated with SARUA to map out the policy and regulatory environment for fibre connectivity in Africa. The study was presented at a SIDA and IDRC funded workshop in Maputo in May 2005. The results of this study helped promote the idea of the UbuntuNet alliance which was launched officially that same year.

IDRC supported an AAU UbuntuNet Alliance meeting in Tunis on the margin of the World Summit on the Information Society (2005). The AAU officially announced its commitment to promoting African research and education networking and to the establishment of a unit to support this. In addition, Acacia-CA's support allowed members of the Alliance to connect with their policy makers, highlighting the issue of open access to cable infrastructure which became on the agenda of African ministers specifically in the context of a meeting with the World Bank to discuss the EASSY under sea cable. All these activities culminated in a meeting in March 2006 with the European Commission (EC), where the Alliance was endorsed as an African counterpart to GEANT.

Since then, Acacia-CA has partnered with the Partnership for Higher Education in Africa (PHEA) to support a Research and Education Networking unit at the AAU. IDRC's strong presence in this area and its close work with PHEA led to their request in early 2007 for IDRC to assist them in transitioning their own satellite-based university bandwidth consortium based at the African Virtual University to an independent entity. IDRC has also hosted the consortium and worked to assist its transition jointly with the UA to a fully independent African R&E networking institution modeled on academic networking institutions elsewhere in the world such as GEANT in Europe and RED CLARA in the Americas.

Over the last three years, IDRC has been responsible for bringing a wide variety of institutions and initiatives together to discuss a collective response to African university bandwidth challenges, including NEPAD, the European Commission, CERN, Internet2, the ITU, and others.

Contribution of the research network: The Alliance was the obvious choice because of its growing membership, maturing organisational structure and positive track record. It was also the only African regional REN.

The relationship started at WSIS in 2005 when the embryonic Alliance met with Carmen Mena Abela of DG-INFSO. Now the Alliance partners with the EU in EU FP7 e-Infrastructure projects and supports the FEAST team's data gathering. As noted above, the Alliance is also likely to be a key element in the implementation of the AfricaConnect initiative.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:

- Cited and/or published in peer-reviewed, third-party publications (i.e., not by IDRC or the research networks).

13. In 2007, Professor Venâncio Massingue, Minister of Science and Technology, Republic of Mozambique, requested that the UbuntuNet Alliance assist in preparing a communiqué from the SADC Science and Technology Ministers to SADC Secretariat on utilisation of EU funding for research and education networking and catalysing the economy through ICT innovation.

Description: The Board of UbuntuNet Alliance met Professor Venâncio Massingue, Minister of Science and Technology, Republic of Mozambique in Maputo at the IST Africa Conference & Exhibition in 2007. He sought guidance from the Alliance Directors on preparation of a communiqué from the South Africa Development Community (SADC) Science and Technology Ministers to SADC Secretariat on utilisation of EU funding for Research and Education Networking and catalysing the economy through ICT innovation. Dr. Duncan Martin, Professor Bjorn Pehrson and Dr. Americo Muchanga initiated the compilation, then expertise was contracted and the resulting document was passed to the Minister through Dr. Muchanga.

Significance: Prof. Venâncio Massingue used the communique to influence other policy makers in the Mozambican cabinet. This led to the speedy authorization of, for instance, the landing of the SEACOM submarine cable in Maputo, second for creation and equipment of MoRENet, the Mozambican NREN, the reduction of backbone internet connection prices for government and some strategic stakeholders.

Contribution of the research network: The Alliance was personally requested by the Minister to prepare a document outlining the practical reasons for a country to invest in ICT. Initial work was done on site but the final document was subcontracted by TENET and submitted to Prof. Massingue

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers

14. In May, 2007 the West Africa Telecommunications Regulators Assembly invited PAREN research director Boubakar Barry to make a presentation on NetTel@Africa, a trans-national network which facilitates knowledge creation and sharing in ICTs, policy, regulation, applications, and research.

Description: On 23-24 May 2007, WATRA invited PAREN research director Boubakar Barry to make a presentation on NetTel@Africa, a trans-national network aimed to facilitate knowledge creation and sharing in ICTs, policy, regulation, applications, and research, at the fifth annual general meeting of the organisation, which was held in Niamey. WATRA now shows a strong interest in activities related to research and education networks, a concept that the organization was not previously familiar with, and WATRA has committed to providing strong support for such initiatives through advocacy among its members.

Significance: The meeting gave the opportunity to discuss with regulators their role helping the education and research institution access more bandwidth at lower cost. The presentation was an occasion to appeal to West Africa's regulatory authorities to be more involved in finding solutions for the bandwidth access problem of African higher education institutions. This was recorded in the final communiqué of the AGM.

We have noticed a continuous and greater involvement of WATRA in the activities of the Association of African Universities (AAU). We have also seen more support for national research and education

network initiatives by national telecommunications regulatory authorities (e.g. in Senegal). This is extremely important as some telecommunications regulation measures constitute barriers for substantial reductions of bandwidth cost in Africa. Having them as partners participating in an inclusive policy dialogue may facilitate the reduction of these barriers.

Contribution of the research network: The invitation to participate in the WATRA AGM was a result of Boubakar Barry's involvement in NetTel@Africa before he joined the AAU. This was seen by the AAU as an excellent opportunity to also present the newly established REN Unit to WATRA and to invite WATRA to cooperate with the AAU for the improvement of African universities' connectivity. Subsequently, WATRA invited the AAU to its meetings and has provided a platform to the AAU for advocacy for affordable bandwidth for African higher education institutions.

Subsequent invitations were extended to Boubakar Barry as Coordinator of the AAU REN Unit. The fact that neither WATRA nor the telecommunications regulatory authorities knew about the concept of research and education networks prior to the actions on the part of the AAU REN Unit suggests that subsequent interest for and support to the establishment of research and education networks are results of the Unit's activities.

Classification:

Fostering on-going, robust policy dialogue among:

- Other key policy-related bodies.

15. In 2008, the Economic Community of West African States invited the Association of African Universities to a workshop on business models and regulatory implications for alternative network infrastructure provision in West Africa.

Description: At the invitation of the Economic Community of West African States invited the Association of African Universities (ECOWAS), the AAU's Research and Education Networking Unit Coordinator, Boubakar Barry, participated in a workshop on business models and regulatory implications for alternative network infrastructure provision in West Africa, held in Cotonou, Benin on 26-27 June 2008. The workshop, which was jointly organised by the West African Power Pool, ECOWAS and the World Bank, treated issues related to the use of excess capacity on fibre infrastructure owned by power utility companies. The AAU was invited to this workshop by ECOWAS in order to express needs of the higher education and research community with regards to fibre capacity on the planned interconnection of network infrastructure installed on power lines. A feasibility study is planned in which a business model, financing and ownership structures as well as an implementation schedule will be proposed. As for WATRA, the invitation of the AAU to participate in this workshop and the participation of ECOWAS in three AAU events so far shows the interest of ECOWAS in the activities around affordable access to bandwidth for African higher education institutions and research and education networking.

Significance: The fact that the AAU has been invited to this workshop is a good sign and shows that ECOWAS has been receptive to AAU efforts aiming to get the higher education and research community needs be taken into consideration in regional network infrastructure projects.

ECOWAS made a commitment to also involve the AAU in activities dealing with telecommunications infrastructure, telecommunications policy, etc. at the 2008 African research and education networking forum (AfREN) held in Rabat, Morocco in May, 2008, to which AAU invited ECOWAS.

Contribution of the research network: The invitation followed the effort of the AAU to get ECOWAS involved in AAU activities in West Africa. As a regional economic community, ECOWAS is a key organisation for the harmonisation of policies and regulations at the sub-regional level in

various sectors, including the telecommunications sector, and several directives are taken at this level with direct impact on the regulatory environment and the market of the member states. Hence, it is important for the AAU to approach such organisations and establish a strategic partnership with them in order to ensure concerns of the higher education community are taken into account in decisions that are likely to have an impact on the education and research sector.

There are no records of previous collaboration between ECOWAS and the research and education community on these issues.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers

16. Since 2006, policy dialogue has been established in several African countries, which has led to commitments on working together to establish research and education networks in several countries.

Description: Up until as recently as 2006, there was little communication between stakeholders of research and education networking from North Africa and sub-Saharan Africa. Furthermore, there was clearly no trust (indeed, there was suspicion) between the stakeholders in Eastern/Southern Africa and in West/Central Africa. Today, there is frank dialogue and collaborations have been established between these stakeholders from academia, researchers, regulators as well as governmental bodies from Côte d'Ivoire, Ghana, Nigeria, and Senegal. They sit together and discuss issues related to access to affordable bandwidth for African higher education institutions. In almost all these countries there was a certain mistrust among the stakeholders. Now, however, there is an exchange of experience. For example, a few months ago, UbuntuNet Alliance members made available to countries in West Africa documents they developed in the establishment process of their national research and education networks (NRENs), to be used as templates and starting points.

Significance: Research and education networks (RENs) are about collaboration and sharing resources. If there is no trust among the stakeholders (at national, regional and international levels), these networks cannot be established. Trust among the stakeholders is a fundamental requirement for RENs; infrastructure and other resources are only means to achieve the collectively agreed-upon goals. The long-term goal of the AAU is to see the establishment of a continent-wide REN in Africa. This cannot be achieved if there is no trust and collaboration among the various stakeholders. There potentially will be opportunities to partner in order to get common projects funded, although this has not happened yet.

Contribution of the research network: Before the establishment of the AAU REN Unit, there was clearly some misunderstanding between stakeholders of African research and education networking in Africa. It is sure that the AAU, which was seen as a neutral actor, has made the establishment of this dialogue happen. Many actors in West and Central Africa (especially West Africa) did not appreciate the effort of the UbuntuNet Alliance to expand in these regions. The idea was rather to build an UbuntuNet-like network in these regions. This was clearly noticeable in 2006 in West and Central Africa, when the PAREN research director, Boubakar Barry, took office.

The AAU has clearly contributed to the building of trust among regions and within nations. Participation in each others' events at regional levels has been sponsored by the AAU, as well as national policy dialogue meetings. It was through bringing all actors together in events organised by the AAU, and also through a strategy change within the UbuntuNet Alliance (that is, the decision to concentrate its efforts in Eastern and Southern Africa) that the situation was changed. It is now common to see the UbuntuNet Alliance invited and involved in events organised by actors of research and education networking in West and Central Africa.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

17. In 2008, Professor Abdelrahim Osman Mohammed, Vice Chancellor of El-Imam El-Mahdi University in Sudan, successfully lobbied the incumbent telecom company, SUDATEL, and the Higher Education Council to establish the Sudanese Universities Information Network.

Description: Professor Abdelrahim Osman Mohammed, Vice Chancellor of El-Imam El-Mahdi University in Sudan, participated in the first UbuntuNet Alliance Council of Members meeting in Nairobi in 2007. When he returned to Sudan, he successfully lobbied the incumbent telecom company, SUDATEL, and the Higher Education Council to establish the SUIN (Sudanese Universities Information Network) for the universities around Khartoum. One of the more energetic national research and education networks, SUIN contributed a female board member to the Alliance and sent female engineers to the African Network Operators' Group (AfNOG) training.

Significance: Very shortly after the network was started, the universities were able to increase their bandwidth several fold, although it is still very limited. The SUIN initiative did not require a great deal of proposal writing or funding; the Alliance provided the inspiration for the founding of the network.

The Alliance is a regional network with member NRENs from Arabic-speaking, Anglophone, Lusophone and francophone countries, and it conducts its activities without boundaries, meaning that it is about the network and developing the interaction among people to build research and education networking. The networking and collaboration-based nature of the initiative should be a powerful political message to areas where countries with different histories find it hard to see a common future. For example, in West Africa it is taking longer for countries to overcome history and work towards a common goal.

Furthermore, the Alliance's membership includes countries where it is often difficult to get participation, yet there is full payment of fees from the members, which seems to be indicative of their recognition of its value. Indeed, as recently as late November, 2009, SomaliREN was admitted as the eleventh member of the Alliance.

Contribution of the research network: The principal contribution was the presentation of SUIN made by its inspirational leader Prof Abdelrahman. SUIN went on to become the sixth member of the Alliance (and the first non-founding member). The CEO of SUIN, Dr. Dr Iman Abuel Maaly Abdelrahman, is a board member of the Alliance and she has represented the Alliance at a variety of fora. She has written about what the Alliance means to her: "And to me UbuntuNet is a success in itself, because this successful human network is a clue of a bright future for Africa. To me it is a real: I AM because WE ARE".

Classification:

Fostering on-going, robust policy dialogue among:

- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion

18. On 18 January 2008, Malawi's Ministry of Information granted an international gateway licence to the Malawi Research and Education Network (MAREN) without charge.

Description: At its launching ceremony in Malawi on 7 July 2007, the Hon. Patricia Kaliati, then Minister of Information and Civic Education, which is responsible for ICT, handed an international gateway licence[10] to Ulemu Nyasulu, a MAREN representative. The licence was later gazetted by Parliament with fuller details. Previously, only Malawi Telecommunications Limited (MTL) and ESCOM (the power utility company) had such licenses.

Significance: The granting of another IGL in a country where they were held by very limited partners is an indication of the recognition of the role of the national research and education network (NREN). It has raised the awareness of the NREN and its role, and it positions the NREN to participate in regional Alliance initiatives. For the academic network to cross borders, it is generally necessary for the NREN to have an IGL. Malawi will interconnect UbuntuNet with Mozambique, Tanzania and Zambia. The IGL means that there will be no legal or policy barriers to this interconnection. When there is an occasion for license holders to be consulted (e.g., about decisions about fibre cables) MAREN is always invited. For example, MAREN was represented at NEPAD broadband infrastructure meetings nationally and in South Africa and was also part of the World Bank consultation on the Malawi fibre backbone

Contribution of the research network: This long pursuit and ultimate success would not have occurred without the guidance of UbuntuNet Alliance. Each country has a communications and regulatory authority that manages such things as spectrum allocation, licensing of cellular providers, and granting of TV and radio licences. The fees received by such authorities go into a public service fund for expanding access into less-serviced areas. MAREN made presentations to the Malawi Communication and Regulatory Authority (MACRA), lobbied the permanent secretaries and the minister, gave examples from Mozambique and Kenya, and kept up the lobbying until there was success. This entailed about two years of effort.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

19. In 2006 the Association of African Universities recognised the UbuntuNet Alliance as a partner and agreed to nominate the chair of the Alliance.

Description: The UbuntuNet Alliance works with universities. Its aim is to support the development of national research and education networking so that universities can come together for improved and cheaper access to connectivity. It was important to build a partnership relationship with the AAU, as the body that brings together universities in Africa. The support of the AAU was crucial from that perspective

Significance This recognition gives the UbuntuNet Alliance a certain level of legitimacy, allowing it to interact directly with universities in Africa. Without this close partnership it would have been difficult for the Alliance to pursue its vision of supporting the emergence of national research and education networking.

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[10] As noted in 2007 by Michael Malakata of Infoworld , the international gateway license allows individual service providers to have their own signalling access codes. Critics say that many African countries have highly priced their IGL as a way of restricting service providers from acquiring the license. Reducing the costs of acquiring international gateway licenses is seen as a first step toward lowering the high cost of African telecommunications.

Contribution of the research network: In July, 2006 Akilagpa Sawyerr, then Secretary-General of AAU, was contacted by the Secretary of the Alliance regarding a specific role for AAU in the governance of the Alliance. He responded positively and congratulated the Alliance. On 16 August 2006 UbuntuNet board members Albert Nsengiyumva and Victor Kyalo visited the Secretary-General to brief him on developments and to request his assistance in managing the process of identifying a suitable chair of the Alliance in consultation with regional bodies such as Southern African Regional Universities Association (SARUA) and Inter-University Council for East Africa (IUCEA), where appropriate. The first chairman, Prof. Z D Kadzamira, Vice Chancellor of University of Malawi, was appointed on 12 February 2007.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
-

III PICTURE

Name of research network: Poverty and Information and Communication Technology Systems in Urban and Rural Eastern Africa (PICTURE Africa)
Project numbers*: 103876
Sources of information: rPCR Stages 1 and 2 (interview of Edith Adera); Interim Third Technical Report (April-October 2008); Acacia Networking Approach, 27th October 2008; FOURTH INTERIM TECHNICAL REPORT, APRIL 2008 – OCTOBER 2008; INTERIM TECHNICAL REPORT, Nov 2006 – June 2007; INTERIM TECHNICAL REPORT
July 2007 – March 2008; Summary Trip Report (Rwanda), 13-17th February 2009, by Edith Adera
Reviewers: Jennifer Vincent and Ricardo Wilson-Grau
Respondents: Professor Julian May, Professor **Ophelia Mascarenhas, Edith Adera**

20. Rwanda's State Minister for Planning engaged Rwandan members of PICTURE in the development of the 2nd Economic Development and Poverty Reduction Strategy (EDPRS) for Rwanda and requested the results of the first PICTURE survey.

Description: Regarding collaboration with the PRSP (EDPRS) Unit in Rwanda, the State Minister for Planning, in whose office the PRSP unit falls, requested that the final PICTURE survey be shared with her so that she could appoint a liaison officer to work directly with the team. This was done and, though nobody had been assigned at the time of writing, the team is organizing, with the RIA research network, a joint stakeholder awareness-raising workshop to which the EDPRS unit will be invited. It is expected that the Minister will assign somebody at this point or soon after. The (then) State Minister also linked PICTURE to the National Institute of Statistics as the official national data bank. They are the people in charge of the data used in EDPRS monitoring.

Significance: The findings from the PICTURE Africa project are perceived as being relevant especially in the monitoring of the EDPRS. In recognition of this interest and relevance, IDRC is providing additional funds to support technical collaboration with the unit as potential users of the project results. The statistical bureau in Rwanda might likely adopt some of PICTURES questions in their EDPRS surveys or other regular surveys hence achieving the original objective of the state minister of linking PICTURE Rwanda with the statistical bureau.

Contribution of the research network: In 2007, members of PICTURE Africa took part in the review of the 1st phase of the PRSP and the development of the 2nd Poverty Reduction Strategy, renamed Economic Development and Poverty Reduction Strategy (EDPRS) for Rwanda. The Acacia program officer met with the state Minister and informed her of PICTURE's work and the PICTURE team pursued the discussions.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

21. In 2007 the South African National Research Foundation and the Norwegian Research Council provided the Research Director of PICTURE with a grant so that an experiment similar to the one being performed in Tanzania could be undertaken in South Africa.

Description: In 2007, the Research Director of PICTURE mobilized additional funding for his own research on the impact of ICT on poverty through a grant obtained from the South African National Research Foundation and the Norwegian Research Council. These funds have enabled the PICTURE Research Director to conduct a study entitled CLIQ - Community-Based Learning, ICT and Quality-of-Life - using an experiment methodology in South Africa similar to the case study being undertaken by PICTURE in Tanzania as a special component of PICTURE. It is planned that there will be interaction between the research teams including Dr. Einar Braathen of the Norwegian Institute of Urban and Regional Studies.

CLIQ has been acknowledged by the new Minister of Communication, Minister Nyanda, as being of importance to South Africa's goal of using ICT for socio-economic upliftment and he has corresponded with the Universal Service and Access Agency of South Africa to this effect. Currently CLIQ is finalising a grant from USAASA (Universal Service and Access Agency of South Africa), which will assist in the refurbishment of telecentres in KwaZulu-Natal and further research on the ICT/poverty nexus. The collaboration with PICTURE is important in this regard, both due to the exchange of knowledge and access to PICTURE's Scientific Advisory Group, as well as in terms of increasing the credibility of the work being undertaken by CLIQ.

Significance: Although the grant was not given to PICTURE, the findings from the studies in Tanzania and South Africa will together contribute substantially to a better understanding of the impact of ICTs on poverty reduction. There are few studies that have looked at the impact of ICTs, so these studies will fill an important gap in the understanding of the poverty-ICT nexus. The studies will also validate the usefulness of a methodology that is seldom used in social science research but is effective in providing credible evidence.

Contribution of the research network: A research proposal was sent to the two organisations and they both approved funding.

The methodological rigour of the proposal, the importance of the work and the CVs of the researchers were the major drivers behind the decision to fund. Nonetheless, it seems reasonable to accept that the methodology proposed, and the arguments that were advanced for doing so, were substantially influenced by the research director's involvement in PICTURE. It would not be a study that adopts a similar methodological approach to the case study component of PICTURE had he not been exposed to the ideas of colleagues in PICTURE. The study would not be making use of an outcomes management approach for both data collection and policy engagement had he not attended the IDRC

course on this as a PICTURE participant. And the case made for an ICT/poverty study was certainly enhanced by the reading and thinking that he did during the preparations for PICTURE. In sum, his involvement in PICTURE changed his behaviour, which influenced the way in which he developed the proposal, helping to persuade two research foundations to provide him with CAD350 000 to do a study using a similar methodology to PICTURE in South Africa.

***Classification*[11]:**

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

22. The South African National Survey and another IDRC programme called upon the PICTURE network of PDA experts within Eastern Africa to advise on the use of PDAs by other research programs outside the Eastern Africa Region.

Description: In each country where PICTURE is being undertaken, one of the team members became an expert in Computer Assisted Personal Interviewing (CAPI) using Personal Digital Assistants (PDAs) in the East African Region. In the course of implementing the PICTURE quantitative survey in 2007 and 2008 in the four East African countries, capacity building in electronic data collection arising from PICTURE has resulted in a network of young researchers working together, writing together and reinforcing each others capacity – a team of experts in the use of PDAs emerged. This expertise, especially that pertaining to the use of a new, more adaptable software known as Epihandy, was completely missing prior to the implementation of the PICTURE study. The experts from each country also learned to use electronic networking with each other to solve any issues regarding the use of the PDAs and Epihandy and the conversion of the data thereby collected into SPSS for data analysis. Two PICTURE researchers (Hezron from Tanzania and Obadia from Kenya) are being used by other research and survey programmes to introduce CAPI within their programs, including the use of PDAs (Hezron and Obadia for the national survey in South Africa and Obadia for an IDRC project called eARN). As well, they have influenced others to take action to begin using PDAs for data collection – e.g. an eARN advisor asked Obadia to help them and to assist with the South African research being done by Professor Woolard.

Significance: The evolution of local expertise in CAPI skills is essential for scientific research in East Africa and for raising the status of the research institutions and researchers involved in PICTURE. CAPI has many advantages, including improved data collection, storage and analysis, ability to handle large sets of data, and savings in time and financial resources. Furthermore, the researchers changed their attitude towards the use of PDAs from scepticism to full support.

Professor Woolard will provide information on panel studies (PICTURE is a panel study). The four experts are planning to write a paper on the experiences of using PDAs and one has already prepared a manual on the use of the technology.

Contribution of the research network: This has been achieved through peer-networking within PICTURE and externally through this capacity used to assist others going into electronic data collection. At the start of the PICTURE study, the four teams had to depend almost entirely on an external expert who was using PDAs in another IDRC-funded study through RIA, including downloading the Epihandy software from the Web, turning the Microsoft Word version of the questionnaire into an XML version that was compatible with Epihandy, synchronizing this version with the PDAs and using the PDAs in the field. Now they are totally capable of handling any of these aspects, as was illustrated in a recent workshop in Tanzania, where the four met for the first time and showed that they no longer needed the external expert to modify the questionnaire for the second

[11] We were a bit surprised that you did not indicate that this outcome contributed to the Acacia objective "Catalyzing thriving regional research networks that are a vehicle for parallel funding activities."

phase of the PICTURE study. In fact, two of the four will be going to South Africa to work with the coordinator of a South African study which envisages using PDAs.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

23. Trainers for small and medium businesses in Tanzania's Small Industries Development Organisation (SIDO) decided[12] to include the use of ICTs in the training curricula.

Description: One of the interventions for the experiment study in Tanzania was a general training in business skills for the micro and small business owners who were selected for the study, and the institution that was selected to carry out the training was SIDO. During the business training, a member of COSTECH (a participating institution for the PICTURE project) presented a brief overview to the participants of the usefulness of ICTs such as the mobile telephone and the Internet. The SIDO trainers were very impressed with the positive reaction of the participants and decided that all future training for small business owners would include an ICT component.[13]

Significance: SIDO has been entrusted to impart critical business skills to female and male small business owners who are currently the target for stimulating economic growth in the country. The inclusion of ICTs in such training will increase the awareness of the potential of ICTs to enhance business opportunities and productivity among this category of the self-employed and in the process improve their socio-economic development.

Contribution of the research network: The decision to include ICTs in the training curricula has come about directly as the result of the involvement of SIDO in the PICTURE experiment study.

Classification:

Fostering on-going, robust policy dialogue among:

- Other key policy-related bodies.

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

24. In 2009, the Director-General of Tanzania's Commission of Science and Technology (COSTECH) adopted a policy of ICT mainstreaming within the key activities of the Commission, which can influence government policy and the effective use of ICTs in research.

[12] When, in which year was this decision made?

[13] Since we want these outcomes to be intelligible to people who are not familiar with the technicalities or with the context (for example, people in IDRC who do not work in ICT4D or in Africa will want to understand each outcome) can you, in a sentence or two, characterise what about ICTs will be included in the training curricula?

Description: COSTECH has had a change in its top leadership. The new Director-General, who has extensive research experience, has embarked on a process of mainstreaming ICTs in all its activities, including administration, information storage and dissemination of scientific research and innovations. Because of his experience in conducting the PICTURE field survey, the PICTURE IT/digital data expert has been called upon to use his expertise in formulating questionnaires for surveys and for designing websites.

COSTECH has sponsored a number of projects designed to promote ICTs in the rural areas such as establishing telecentres, using the fibre optic for enhancing local e-government and e-governance and improving the quality of health services. The focus has been on the technology - PICTURE is seen as the supplement with its focus on use and improvement of livelihoods. COSTECH is holding a two-day workshop on all these initiatives and PICTURE has been invited to present the "livelihoods" perspective based on the findings from the first PICTURE quantitative and qualitative surveys. Mainstreaming ICTs in its program enhances the status of COSTECH as a promoter of ICTS for rural development.

Significance: COSTECH is the umbrella research organisation in Tanzania and works closely with the government, especially the Ministry of Higher Education, Science and Technology and Communications. As an appointee of the President of Tanzania, the Director-General has close relationships with the President. COSTECH has a number of networks with other research institutions and it is currently assessing the level of usage and proportion of the budget used on innovations and technology (including ICTs) in research institutions and business enterprises. It therefore has considerable potential to influence the effective use of ICTs in research and to influence government policy. COSTECH can only do this effectively if the institution itself is promoting the use of ICTs internally.

Contribution of the research network: The IT expert consulted by COSTECH was employed in 2007 to work with PICTURE. His influence over COSTECH's mainstreaming policy occurred as a result of his involvement with PICTURE, and PICTURE's briefings with the COSTECH and the outputs that have been submitted to the Director-General, especially the baseline report.[14]

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Stimulating social and technical innovation in ICTs, including:

- Wireless broadband
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

[14] Please briefly explain how PICTURE's briefing of COSTECH and the baseline report submitted to this organization influenced their decision to engage the IT expert to provide advice on ICT mainstreaming?

25. In 2008, the National Statistics Agency in Uganda began to use personal digital assistants (PDAs) to collect data and to incorporate an 'ICT and poverty' component in key national statistical surveys.

Description: Key statisticians in the National Statistics Agency, which is responsible for planning and conducting national surveys, were persuaded by the then Principal Investigator of PICTURE to use PDAs for collecting data for the national surveys and also to incorporate a component on the use of ICTs at the household level in surveys such as the "living conditions survey."

Significance: The National Statistical Agency conducts major national surveys. The data and analysis of such surveys is used to formulate national socio-economic policies and strategies and for monitoring change. Data on ICTs correlated with other economic and social indicators will provide insights that could lead to increased investment into ICTS for development.

Contribution of the research network: This was influenced by the former principal investigator of PICTURE, Dr. Fred Muhumuza, who was also the economic adviser to the Minister of Finance in Uganda and therefore in a strategic position to influence the Agency. Dr. Muhumuza was consulted about the surveys and was aware of the use of PDAs in the PICTURE surveys and was able to use his position to influence the National Statistics Agency, which is an agency of the Uganda Ministry of Finance. He was able to do the same for the inclusion of questions on the use of the ICT in those surveys.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers
- Other key policy-related bodies.

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

26. In 2006, the University of Nairobi promoted a PICTURE researcher.

Description: In 2006, the University of Nairobi's Institute for Development Studies promoted Mary Omosa, a PICTURE researcher.

Significance: The significance is that the promotion of the PICTURE researcher indicates that the university is interested in research on ICTs. The institution is thus likely to sponsor more research on ICTs outside the PICTURE project.

Contribution of the research network: The University of Nairobi appreciated the work being carried out by Dr. Omosa in PICTURE to the extent that they considered her for promotion.

Classification:

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

IV LOG-IN AFRICA

Name of research network: Local Governance and ICT Research Network for Africa Project number(s): 103517
Sources of information: Acacia Networking Approach 27th October 2008; Draft Final Technical Report (January – June 2008); First Interim Technical Report (March – December 2006); Conference Report 9th March 2009, To 13th March 2009; REPORT OF THE MID-TERM REVIEW WORKSHOP LOG-IN-AFRICA, MAURITIUS 7-9 JUNE, 2007
Reviewers: Jennifer Vincent and Ricardo Wilson-Grau
Respondents: Professor Timothy Waema, Edith Adera

27. In 2007-2008, the Moroccan municipalities of Marrakech, Essaouira, Midelt, Casa, Taza, Jerada, Mekness, and Sefrou launched electronic civil registration projects.

Outcome: In Morocco, the municipal governments of Fez and Larache voted in favour of budgets to implement an electronic civil registration system. As a consequence, they received further support from the respective municipal governments for ICTs in general. They obtained an increased budget for ICTs, which was to support the implementation of the registration system as well as the development of ICT in the municipalities. No budget had been allocated for ICTs before the introduction of the civil registration system.

The implementation of a civil registration e-governance system in both Fez and Larache has had phenomenal success. It has obliged and convinced Morocco's decision makers of the merit and need to replicate in several local governments, including Marrakech, Essaouira, Midelt, Casa, Taza, Jerada, Mekness, and Sefrou.

Significance: The outcome is important because one of the most critical factors in beginning to automate is to convince key decision makers that it is important for them to commit resources. The electronic civil registration was the first computerized application in these municipalities. The benefits convinced the municipalities that it was worthwhile to invest in ICTs.

Contribution of the research network: The municipalities indicated their interest in the electronic civil registration system during workshops in which the system and the successes in Fez and Larache were demonstrated. The benefits enjoyed as a result of these projects convinced the other municipalities that it was worthwhile to invest in ICTs.

Classification:
Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

28. In 2007-2008 the city government of Addis Ababa launched a program which involved training employees in basic computer applications.

Outcome: The city government of Addis Ababa launched a program called "ICT for Community" which organized and sponsored the training of employees representing 55 'kebeles,' the smallest

administrative unit of the Ethiopian government. These employees received training on basic computer applications.

Significance: The demonstration with the prototype on the computerization of life events registration (that is, the registration of significant events in the life of a person from birth to death, including marriage) convinced the City of Addis Ababa's government that computerization was important. The LOG-IN research team had sensitized the city government to the fact that it was important to offer basic ICT training before the computerization of life events registration.

Contribution of the research network: The city government was involved in the development of the prototype for life events computerization and key national dissemination workshops organized by the Ethiopian LOG-IN team. The city government was an interested and close partner in the research carried out by the Ethiopian team.

The Ethiopian team conducted three major awareness campaigns targeting both decision makers and kebele officials. The intent of the campaigns was sensitization and awareness creation and it had an immediate effect with the city government of Addis Ababa.

Classification:

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

29. In 2008, the Kenyan officials in charge of the country's e-government strategy invited Professor Waema, LOG-IN Project Leader, to lead a team that would review the current strategy and elaborate a national e-government strategy for the next five years.

Outcome: In Kenya, Prof. Waema was requested to lead a team to review the existing national e-government strategy and develop the next five-year strategy. This strategy borrowed a lot from the LOG-IN e-local governance roadmap and had a very strong component of e-local governance, an issue that was discussed and agreed with the top e-government and public sector reform bosses during the June 2008 conference. In addition, IDRC Program Officer Edith Adera had been requested by the e-government director to sit on the reference committee for this exercise.

Significance: This was a consultancy but the top e-government officers were convinced that Prof. Waema was the right person to do it, given his work in LOG-IN Africa, which the director of e-government was aware of. Prof. Waema created the next e-government strategy for five years and it was influenced a lot by the LOG-IN e-local governance roadmap that was created in LOG-IN Africa. The strategy is now under implementation.

Contribution of the research network: This strategy will have a very strong component of e-local governance (that is, the application of ICT at the level of local government), an issue that was discussed and agreed with the top e-government and public sector reform bosses during the June 2008 international e-governance conference. During this conference, the LOG-IN Africa countries managed to invite the top persons in charge of e-government and governance or public sector reform. This was a demonstration of the strong partnership that had been created between the researchers and government officials in charge of governance as well as e-government. In the conference, these partnerships deepened and behavioural changes were evident.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers
- Other key policy-related bodies.

30. Ekurhuleni metropolitan municipality in South Africa requested training on ICT for managers in local government, which led to the development of a course by the LINK Centre which was delivered to 20 municipal officials in 2008.

Outcome: In South Africa, the LINK Centre designed a one-week course entitled "Information and Communications Technologies for Development: ICT for Managers in Local Government (IT for non IT managers)" following a request by the Ekurhuleni metropolitan municipality. The course was presented to a cohort of 20 municipal officials between 11 and 19 June 2008. The course curriculum included some of the key literature relating to local e-governance, as well as a full session on the *e-Governance for Social and Local Economic Development* report of LOG-IN Africa's South African project[15]. The design and presentation of such new courses contributes to the long-term sustainability of the research organisation, namely the LINK Centre, which hosts the South African research.

Significance: This course sensitized local government managers on the benefits and impacts of ICTs in local governments.

Contribution of the research network: The course was designed by the South African researchers in collaboration with other colleagues in the LINK Centre. The course was delivered by the LOG-IN Africa Team Leader for South Africa in collaboration with colleagues in the LINK Centre.

Classification:
Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

31. In 2006, two organizations within the University of Nairobi - the Institute for Development Studies and the School of Computing and Informatics - entered into a collaboration which involved the joint supervision of doctoral students of ICT4D.

Outcome: In 2006, the University of Nairobi's Institute for Development Studies (IDS) entered into the first collaboration with the School of Computing and Informatics, which has led to joint supervision of doctoral students in ICT4D.

After this project, several other collaborative projects were created. One of the latest involves the collaborative supervision of a PhD student by the Institute for Development Studies and the School of Computing and Informatics (the supervisors are the researchers who worked on LOG-IN Africa in Kenya). This collaboration will increase research capacity in ICT4D at the University of Nairobi. Other results are collaboration on ICT and poverty (the PICTURE project) that is on-going between the School of Computing and Informatics and the Institute for Development Studies.

Significance: The Kenyan LOG-IN Africa research team believes that this collaboration marks the beginning of further research in ICT and governance. It was critical in LOG-IN that an ICT researcher collaborated with a governance researcher. The collaboration that has been built between these two units of the University of Nairobi has created an exciting chapter in inter-disciplinary collaboration between departments or faculties/schools at the University of Nairobi. Perhaps an inter-disciplinary

[15] *e-Governance for Social and Local Economic Development: Gauteng City Region Perspective*, LINK Public Policy Research Paper No. 9, November 2008, www.link.wits.ac.za/papers/eGov4SLED-s.pdf

centre for ICT and governance could be born out of this collaboration.

Contribution of the research network: This collaboration started with the collaboration between researchers who were members of the Kenyan node of LOG-IN Africa.

Classification:
Increasing research capacity in ICT4D through:

- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

32. In 2008 one of the Mauritius LOG-IN team members was appointed to a key e-Government committee at the national level.

Outcome: In 2008 one of the members of the Mauritius node of LOG-IN was invited to participate in the e-regulation project committee, a key national e-government project which aims to enable 117 business permits to be applied for and received on-line. As far as business facilitation is concerned, the following components of the project have been identified:

- Simplifying Business Licensing Procedures;
- Improving Access to Commercial Justice;
- Improving Land Title Registration Services;
- Extending the Credit Reference Bureau to Improve Access to Finance; and
- Streamlining the Legal Framework for Business.

Significance: The main goal of the project is to improve the business climate in Mauritius as an attractive destination for investment. With the participation of the LOG-IN team member in the e-regulation project implementation, he will be able to influence this project for the development of Mauritius.

Contribution of the research network: The LOG-IN Africa project in Mauritius acquired a high visibility in the eyes of the government. This visibility contributed to the appointment of one of the LOG-IN team members to this high profile e-Government project implementation committee.

The Mauritius team had had a very successful national workshop at which the Mauritian LOG-IN team shared the results of the research. The workshop was attended by the Mauritian Minister of Local Government, the Honourable James Burty David, as well as a delegation from Uganda led by Hon. Hope Mwesigye, Uganda's Minister of State for Local Government. This profiling of the work of the Mauritius LOG-IN team contributed to this person being appointed to the national e-Government committee.

Classification:
Fostering on-going, robust policy dialogue among:

- Policy-makers
- Other key policy-related bodies.

33. In 2008, the business processing mapping methodology and tool developed by the LOG-IN Africa Egypt team was adopted by the Egyptian Ministry of State for Administrative Development.

Outcome: The business processing mapping methodology (BPM) and tool developed by LOG-IN Africa's Egyptian team was adopted, which means that the Ministry of State for Administrative Development (MSAD) plans to use the BPM tool developed to model business functions of other e-government projects. The initial adoption involved the ministry in charge of local government

accepting to test the BPM methodology and tool in e-government projects. Furthermore, MSAD committed to provide funds for further development of the methodology and tool as long as IDRC provided additional funding for the second phase of LOG-IN Africa. This commitment was made publicly by the minister when he opened the International Conference on e-Governance organized by LOG-IN Africa in Cairo in June 2008.

Significance: The minister was involved in the conceptualization of the Egypt LOG-IN Africa project proposal to develop the BPM methodology and tool. This was motivated by the fact that not all e-government projects that had been implemented had gone through business process mapping and the associated re-engineering. As a result, the e-government systems were not efficient, with cases where the computerized business processes were not agreed upon by all being common. In other words, the research work done by the LOG-IN Africa research team was solving a problem experienced by MSAD.

The minister was impressed by the work the team had done and decided to test it in e-government projects with a view to adopting it. The adoption of this methodology and tool would go a long way in enhancing the developmental outcomes/benefits of e-Government projects in Egypt, given that all the e-government projects in Egypt had been implemented without the benefit of business process re-engineering. Phase II of LOG-IN research was to test this BPM methodology and tool in a number of other African countries with a view to influencing these governments to adopt a formal business process mapping and re-engineering standards and/or tool.

Contribution of the research network: The Egyptian LOG-IN project became key in influencing further implementation of e-government projects in Egypt. Specifically, the appreciation by the minister of the need to carry out business process mapping using the tool developed as part of e-government implementation was crucial. With this influence, it is possible that the MSAD will evolve a policy that business process mapping and re-engineering is mandatory for all e-government projects.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers
- Other key policy-related bodies.

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices

Stimulating social and technical innovation in ICTs, including:

- Alternative, innovative telecom and IT policy models for Africa
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

34. In 2008/2009, the City Government of Addis Ababa requested the upgrading of the life events prototype system developed by LOG-IN Africa's Ethiopian team and started implementing it in one of the city's administrative units.

Outcome: LOG-IN Africa's Ethiopian team developed a prototype system to computerize the 'life events' registration (registration of all of a person's life events from birth to death) in local governments as part of their research work. The City Government of Addis Ababa was a key partner from the beginning. The Ethiopian team sought the City Government's permission to develop a pilot on life events computerization, discussed with them the results of the prototype, and shared the results of the research and demonstrated the prototype at the national workshop.

After the LOG-IN project came to an end, the City Government requested the source code (computer program) and manuals so that they could start implementing the system. The City officials also requested the LOG-IN Ethiopian team to upgrade the prototype into an operational system ready for implementation, which the team did for free. The new operational system has been installed in one of the kebeles (the smallest administrative unit in Ethiopia) and data entry was on-going as of October, 2009. It is hoped that the Ethiopian LOG-IN team can further contribute if phase II of LOG-IN Africa's research is funded by IDRC.

Significance: The Ethiopian research team found ineffective and inefficient delivery of life event services to citizens due to the fact that the life events registration system was still manual. The City Government of Addis Ababa's adoption of the life events system, which was developed in the local language (Amaric) is significant as it will significantly improve service delivery to the citizens and at the same time contribute towards efficiency and effectiveness in the kebeles.

Contribution of the research network: The adoption of the life events system in kebeles will hopefully fuel interest in the use of ICTs in local governments in Ethiopia. The sensitization by the LOG-IN Ethiopian team on the need for training on ICTs in local governments and the actual training that followed was the starting point.

Classification:
Fostering on-going, robust policy dialogue among:

- Policy-makers
- Other key policy-related bodies.

Stimulating social and technical innovation in ICTs, including:

- Alternative, innovative telecom and IT policy models for Africa
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

35. Between 2007 and 2009, several organizations invited LOG-IN Africa to share research findings in various fora, and several peer-reviewed journals accepted papers written about the results/findings of LOG-IN research.

Outcome: The LOG-IN Africa Team Leader was invited to share LOG-IN Africa research at high-level policy and research meetings between 2007 and 2009. Some of the key meetings include:

- Egypt as a presenter in the international INFOS conference organized at Cairo University in 2007;
- China as a paper presenter in the first international conference on e-Governance in 2007;
- Canada to present LOG-IN research work to a visiting Haitian ministerial delegation to Canada in Ottawa in 2007;
- Kenya as a presenter in an East African e-Government forum for local governments in 2007;
- Ethiopia as a presenter in the IFIP World IT Forum 2007 (WITFOR 2007) in 2007;
- Uganda as a presenter in a Commonwealth Telecommunications Organisation (CTO) e-Government forum held in conjunction with the Uganda's Ministry of ICT in 2008;
- South Africa as an external keynote speaker in the GovTech conference organized by the State Information Technology Agency (SITA) in 2008; and
- Brazil as a key note speaker in the V South American Conference in Science and Technology applied to Electronic Government – CONeGOV in 2009.

In addition, LOG-IN Africa researchers have published in peer-reviewed journals and had papers accepted, through a peer review process, for presentation at respected international conferences such as the ones listed above In total, over 30 peer-reviewed journal and conference papers from LOG-IN research work have been published.

As an example, the GovTech conference organized by the State Information Technology Agency (SITA) in 2008 wanted the results of LOG-IN shared with the South African e-Government stakeholders. Another example is the CTO e-Government forum in Kampala which was interested in sharing the results of the LOG-IN research with policy makers from African governments. Furthermore, the following papers were published in peer-reviewed journals:

1. Waema, T.M. (2009). E-local governance: a case study of financial management system implementation in two municipal councils in Kenya, *International Journal on Electronic Governance (IJEG)*, 2 (1), 55-73.
2. Waema, T.M., Mitullah, W. and Adera, E. (2009). Research in African e-Local Governance: Outcome Assessment Research Framework, *African Journal of Science, Technology, Innovation and Development (AJSTID)*, 1(1),227-256.
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6. Prof. Driss Kettani Michael Gurstein, and Asmae Elmahdi (2008). eFez Good Governance Outcomes in a Developing World Context, *The Journal of Community Informatics*, Vol 4, No 2 (2008) Special Issue: E-Governance and Community Informatics.

We believe that the research results shared in the numerous fora and the papers published in academic journals and conference proceedings have helped influence policy and strategy in e-Government planning and implementation, as well as influenced research on e-governance.

Significance: The e-Local governance research results and roadmap that was shared in these fora could be useful in influencing policy and strategy in implementation of e-local governance projects as well as influencing research on e-governance.

Contribution of the research network: The presentations and publications are many and varied and went a long way in influencing research and practice in ICTs in local governments, as demonstrated by the examples provided in the preceding sections.

The LOG-IN Africa website (www.loginafrica.net) goes a long way in helping to publicize the network's research. Furthermore, some have learned about LOG-IN through various national fora organized in different countries by the national team, as well as through published papers.

The invitation to present LOG-IN research work to a visiting Haitian ministerial delegation to Canada came about after Michael Clarke, IDRC's Director of ICT4D, learned about LOG-IN's work from Prof. Waema. Another invitation resulted from a presentation about LOG-IN's work, this time during an East African e-government forum for local governments in 2007 in Kenya, where Prof. Waema was asked by two municipal councils to advise them on the planned computerization of a financial management system as well as other ICT issues.

Classification:

<u>Fostering on-going, robust policy dialogue among</u>:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Increasing research capacity in ICT4D through:
- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:
- Cited and/or published in peer-reviewed, third-party publications (i.e., not by IDRC or the research networks).

V WIRELESS AFRICA

Name of research network: Wireless Africa (FMFI and Wireless Africa projects)
Projects numbers: 101981, 104477
Sources of information:
101981 (Comparative Study of 'First Mile' and 'First Inch' Technologies): A Case Study: Shared Connectivity Between Schools in Inhambane, Workshop de disseminacao de resultados do projecto FMFI; Final Technical Report; Developing Sustainable Models for Rural Communications: The case of the MICTI FMFI Project Slideshow; eHealth Program Slideshow; FMFI Health: Tele-health Tsilitwa Slideshow; FMFI in Mozambique/Angola: Meeting social needs through low-cost, innovative telecoms; FMFI Project: UCM's Experiences Slideshow; FMFI HTML Translation; Innovation Succeeds in Delivering Improved Health Care to Rural Poor; MUTI Project: Eastern Cape Tele-health; Chapter 1: MUTI; Open Phone; Peebles Valley Mesh Project; Comparative Study of 'first mile' and 'first inch' technology in different low density contexts slideshow; Rooiwal PLC Project; Serving under-serviced areas in South Africa: the potential for Wi-Fi community network deployment and the role of regulation; Shoestring Technologies Improve Information Flow to Poor in Developing Nations; FMFI Project Evaluation (104976).
104477 (Wireless Africa): Interim Report No. 1; IT46 Progress Report; Wireless Africa Outcome Mapping Ghana Workshop Report; WISP in a Box Project Report March-Nov. 2008; "How doe we make community owned information networks work for the poor?"
Reviewers: Ricardo Wilson-Grau and John-Harmen Valk
Respondent: Chris Morris, Heloise Emdon, Adel El Zaim

36. Telecommunications regulators in Angola, Mozambique and South Africa bent[16] the rules to extend licenses after engaging in a dialogue with Wireless Africa's First Mile, First Inch partners.

Description: Telecommunication officials have begun responding to FMFI partners[17] by granting licenses or at least some form of approval, even when it required making concessions and bending the rules. For example, the South African regulator was very supportive of the Council for Scientific and Industrial Research and discussed the idea of a license exemption for research. In Mozambique the regulator simply requested a letter from the Ministry of Education to grant a license exemption. Each partner (Angola, Mozambique and South Africa) engaged with the regulator early on in the project. In

[16] Can you please indicate the year, or range of years, when this action was taken so that this outcome title can be made consistent with the others. Please do the same for all other outcome titles.

[17] Who and where specifically? Or if too many, how many per country?

South Africa, UWC approached the regulator for a license which they were told had to be renewed after 3 months for a fee. The CSIR did not pay for a license but chose rather to engage with the regulator to get their support. This strategy proved to be successful.

Significance: In order to provide wireless communications a license is required, both for spectrum as well as an operators license which is usually held by the state TELCO or one or two companies who can afford very high license fees. For the first time, dialogue has occurred with key telecommunication policy officials in discussing ICT for development challenges.Thus, in countries where the regulatory environment is less stringent and regulator is more open to discussion and accessible, rapid progress is possible and FMFI partners effectively circumvented or complied with the constraints to be able to deliver on their original First Mile and First Inch objectives.

There was no difficulty in making appointments at short notice and speaking directly to the key people in ministries and the regulator in these countries. This access and openness is probably the reason why the WiFi applications in these countries are all endorsed and legal, even though some partners may be overstepping the mark technically and financially. In the light of their relationship with the government structures, the threat of enforcement is not a serious consideration..

Contribution of the research network: FMFI did not change the regulatory policy but it did promote the dialogue between project partners with their respective telecommunications regulator, sometimes for the first time. Policy dialogue between researchers and regulators from Angola, Mozambique and South Africa was rare before FMFI partners started engaging with them.

In South Africa public hearings are quite common. Thus, FMFI partners were able to influence government regulators to open up channels of communication between people, providing meaningful grassroots research evidence, building lasting relationships. At the interpersonal level, FMFI partners have therefore been able to influence individuals through their drive and enthusiasm.

Classification[18]:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Wireless broadband
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

[18] Please bear in mind that only the objectives to which this particular outcome contributes should be highlighted in the classification section. Your selections should make sense to the reader in light of the information you provided in the preceding sections. Those that do not make sense to us as evaluators have been excluded.

37. The Mozambican communications regulator invited[19] Mozambique Information and Communication Technology Institute (MICTI) to participate in policy development workshops.

Description: The communications regulator, Mr. Chate, invited Constantino Sotomane of MICTI to participate in policy dialogue. He attended some working meetings for the development of the Universal Access Policy and its implementation strategy and the MICTI project was identified as an innovative idea that could be used by local entrepreneurs to provide access in remote areas. Frequent meetings held between these parties established an interaction channel between the regulator and MICTI to develop and implement innovative communication solutions for communities.

Significance: Wireless communications in rural areas have proven to be a viable solution in creating rural access to ICTs and the MICTI project was used as a case study in support of governments Universal Access Policy.

Contribution of the research network: MICTI was the organisation responsible for the wireless network and they invited the regulator to the launch of their project. Following this the invitation for policy dialogue was extended by the regulator.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Stimulating social and technical innovation in ICTs, including:

- Wireless broadband
- Alternative, innovative telecom and IT policy models for Africa
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

VI ANLOC

Name of research network: PanAfrica Localization Network (African Network for Localisation)
Project numbers: 104475
Sources of information: Project Completion Report of Pan African Localization Network - Stage 1 (interview with Adel El Zaim); "Achievements and lessons learned by the African Network for Localization" (presentation by Martin Benjamin at IDRC's Ottawa office in June 2009, available at http://www.idrc.ca/en/ev-135300-201-1-DO_TOPIC.html); First year report (1 October 2008 – 31 March 2008), submitted April 2009; ANLoc – African Network for Localisation – Interim Technical Report
Reviewers: Jennifer Vincent and Ricardo Wilson-Grau

[19] When, what year?

Respondents: Richard Dwayne Bailey, Adel El Zaim

38. Between July 2008 and July 2009, five Africans volunteered their services for software translation and 30 volunteers worked on the ANLOC locales project and two on the terminology project, which added two additional languages, Somali and Afrikaans, as volunteer-driven initiatives.

Description: Volunteers have completed 100 percent of the work on about 30 locales. Although only starting, the localisation of software has already one active volunteer and a new ANLoc partner brought a team of volunteer Swahili translators of Firefox.

The activities to which volunteers contribute varies between the sub-projects, but all volunteers have had to contribute time and expertise, and some have had to connect with linguists and other experts in their language to get specialist input. Many have had to use their own internet connectivity or make arrangements for such connectivity in order to get their work done.

Common amongst all volunteers has been a personal commitment to give towards enabling their languages on computers. While some of the locales and terminology volunteers are already connected with ANLoc, most are not directly connected with ANLoc and have been enabled by ANLoc. That is, ANLoc has a number of locale contributors who localised because someone met them at a conference or they heard about the locale project through another mailing list or the African Languages Facebook group. For ANLoc, generally volunteers are "off-budget" and support for them is not a part of foreseen expenditures.

For example, one volunteer, Anthony Musaluke, found out about the locales initiative in March of 2008 and sent an email asking to work on Bemba. Bemba is one of the main languages of Zambia, spoken by between three to six million people, yet almost no ICT resources exist for the language. Mr. Musaluke had the necessary computer skills and access to use AfriGEN[20] for the creation of a Bemba locale. He completed the work within a few days, in time to make our deadline for the first batch of languages. Now the data has been shared with Google and the Wikimedia Foundation, and will soon be upstreamed to the Common Locale Data Repository, the consequence of which is that it will be used by OpenOffice.org, Java, Microsoft and others.

Another example: The Localise Software sub-project has two sets of volunteers active even as the project is only starting. The first is a Northern Sotho localiser of Firefox who is able to do this work because of the assistance from ANLoc participants. The second is the Swahili localisation of Firefox, ANLoc cannot claim to have created the volunteerism, as this happened before connection between the Swahili localisers and ANLoc; however, ANLoc has provided a home and encouragement to these localisers.

Significance: Volunteerism is an indicator to us that the message and importance of what is being done is reaching a certain set of ears. Localising software is highly technical and in some cases lonely and thankless. To find a group of people who are excited about what you do, encourage you and can help you achieve your goal makes it easier for a volunteer to be effective and to find mutual interests. These volunteers have a number of impacts. Firstly, they allow the work to get done so that it is possible to create momentum. Secondly, all volunteers bring with them networks of influence and a local situation. The information about their work and activities is shared with their networks. The importance of their changes are potentially shared within their country and language. For example, a volunteer for Tsonga approached Martin, the locale sub-project lead. The volunteer is someone that the project leader works with on a standard committee in South Africa. The volunteer raised the issues of locales in this committee and now they are working together to address locales within the

[20] AfriGEN is a web-based tool that the locale project developed to make it easy for a non-technical person to submit the data needed for a locale.

SABS committee 37[21]. Now the SABS knows about locales and is actively working on them. This is ironic, since the project leader could have done that but didn't and now the work has more weight.

Volunteering is not enough to sustain this kind of work. However, it is required to start such work in addition to the research support provided by IDRC. Since the national market size is not large enough to interest companies like Microsoft, some languages are still not supported by commercial software. The researchers' and volunteers' work is the starter which allows us to prove the concept, the feasibility and the interest. Then we hope the big enterprises - or the open source community - will make the rest.

Contribution of the research network: The visibility of the project attracted new interested researchers and developers. In April of 2009, the project invited newcomers to attend a workshop in Egypt to familiarise them with the project and involve them.

We are paying close attention to the paths that bring volunteers into the project, such as the Facebook African Languages group, announcements to other groups and organizations, use of Twitter, and professional networks. At the conclusion of the project, we intend to publish a research paper regarding the use of social networks in the creation of resources for African languages.

The means of attracting volunteers has depended on the type of volunteer that a project has needed. This, of course, has also affected the medium used to attract volunteers. The key message in the locales sub-project has been that Africans can do something for their language. Mostly we have found that people are waiting for Microsoft to do something for their language, and the ANLoc project leader has attended too many conferences where people complain about the damage that computers are doing to their language. With its projects, ANLoc has enabled these same people to be active participants who shape the reality that they want to see. This has also worked successfully for the localise software volunteers, although it is evident with most of those volunteers that they are active for other reasons, namely creation of business opportunities for their skills created in this activity or for the parallel businesses. Some people are localising software into African languages to promote open source software. They are often starting or running businesses that sell open source software. Our Northern Sotho volunteer, who is female, is motivated by language but also aware that being the Firefox localiser for Northern Sotho is a walking business card for their translation business. Therefore, in these cases it is not really persuasion but the creation of mutually beneficial opportunities.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

Applying meaningful gender analysis:

Changing gender relations in:

- ICT employment.

39. In 2008, several actors who are or have the potential to be important players in the localization endeavour – for example Mozilla and Google – have been moved to action by the work of the ANLoc network.

Description: Since mid-2008. The Wikimedia Foundation, Mozilla, Creative Commons and the

[21] Can you please spell out what "SABS committee 37" means in a sentence?

Fedora Fonts Special Interest Group as well as commercial companies Google, Adobe and Opera are taking initiatives such as helping promote ANLoc's work, testing tools developed by ANLoc, and providing assistance through programming and offering funding for meetings. The following are examples:

- The Adobe Typography team (a large commercial font creator) is actively working on addition to fonts files they sell and requested list of characters and features ANLoc produced. Thomas Phinney from Adobe also asked to publish the fonts requirements presentation at ATypI '08, a conference for typographers, on his blog, which is followed by many typographers. The presentation was mentioned on a few OpenSource typography and graphic design mailing lists.
- Nicolas Spalinger, packager of several fonts for Ubuntu and Debian, is continuously requesting information about the fonts of the ANLoc subproject and Nicolas Mailhot of the Fedora Fonts Special Interest Group says that he will push the ANLoc fonts into Fedora.
- Opera, the maker of the web browser of the same name, and also known for the web popular browser in mobile phones is now testing an initial deployment of Pootle. Mozilla Corporation are also now actively adapting Pootle to their own needs in their internal Verbatim project.
- The Mozilla Corporation would like to see the localisation of Firefox into more African languages. They do not contribute financially towards such localisations, but they are willing to provide support such as helping to fund a meeting of localisers.
- Staff at Mozilla, Opera and Creative Commons volunteer with the tools subproject.
- Google got word of what [ANLoc] was doing and said 'we don't want to wait for CLDR, can you please give us the data, whatever data you have right away.'
- Wikimedia foundation is taking the data pretty much the day that we say it is ready and putting it into their systems so that they can start doing wiki projects in various languages. They are also looking at ways in which they can use and promote the African fonts to help develop African Wikipedias.

Significance: With this increasing uptake we hope to see more exposure of localisation through tools like Pootle, making it easier for Africans to localise more software applications to the benefit of their languages and communities.

These activities can be grouped into fonts, locales and tools. Their significance is as follows:

Fonts: The increased awareness around African fonts has made all of these players aware of what is needed for African fonts. The lack of African fonts has a negative impact on access to knowledge, content creation, content sharing and publishing; since users can't see the information, they cannot read and create.. All font designers, such as Adobe, are now able to measure and test how well they cover African fonts. The dissemination happening with Fedora, Ubuntu and Wikimedia means that the sharing of these fonts broadened beyond ANLoc's abilities to have a much wider impact.

Locales: Google needs locales to do things like make African search possible, find African documents and recognise African languages. These locales make it much easier to deliver local language solutions. The Common Language Data Repository (CLDR) impacts almost all major software creators, which means that even though we aren't directly in contact with Microsoft, in the long term the CLDR will mean that what is happening with Google, the adoption of these locales, will happen on all platforms.

Tools: The tools aim to make localisation easier and more effective for less skilled people. The contribution of Opera and Mozilla have multiplied the number of developers active on these platforms and enable the ANLoc tools partners to influence the design of the tools to help African localisers.

They also bring credibility to the work and promote wider adoption as many people are followers of trends set by these types of organisations.

Contribution of the research network: The contribution has been through active sharing and active listening. Active sharing of results resulted in the link with all players: Adobe, through a conference presentation, Google through them reading about ANLoc locale activities, the others through active sharing at events in which the tools have been showcased.

The tools also demonstrate active listening. Both Opera and Mozilla started their investigations before actually contacting the ANLoc tools partners. The tools are older then the ANLoc project, so the level of credibility is larger than simply the sum of ANLoc's activities. However, the ANLoc project allowed the tools team to spend time with the Mozilla and Opera coders and align objectives as needed.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers

Catalyzing thriving regional research networks that:

- Are a vehicle for parallel funding activities

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

40. In 2009, Canada's Translation Bureau accepted to contribute its ICT glossary to the project.

Description: Though this Canadian organisation doesn't have the direct mandate to work on international projects, through a dialogue started in late 2008, by March 2009 the Translation Bureau accepted to collaborate with ANLoc and provide support via an agreement signed between the Bureau and IDRC. IDRC requested the help of the Bureau for the benefit of ANLoc.

The Bureau agreed to share their French terminology that was developed for ICT, which allowed Martin Benjamin from the terminology sub-project to validate and improve his definitions of English ICT terminology. It also became possible to allow terminology to be developed from French rather then English, which opened opportunities for French-African linguists. The Translation Bureau has, in the past, trained terminologists in various French-speaking African countries. This experience became a resource from which the terminology sub-project could draw. Representatives from the Bureau were present in April 2009 at the ANLoc meeting in Egypt.

The Translation Bureau (TB) has begun a slow process of sharing more of their information. The ANLoc intervention has helped people within the TB demonstrate the value of sharing in that it allows resource to be more widely used while helping to promote the work and activities of the TB.

Significance: This collaboration is very important because it will allow ANLoc to base its work on a highly recommended and important glossary produced and validated by the Translation Bureau. It will be used as the French-English basis for a new glossary covering 12 African languages. The sharing of this information has made it possible for ANLoc to develop high-quality local language terminology in French-speaking African countries.

Contribution of the research network: The Bureau was identified by ANLoc, and IDRC Program Officer Adel El Zaim contacted the Bureau and made the request. However, the final acceptance came after the Bureau was convinced of the credibility and the seriousness of ANLoc. The Bureau's director of terminology attended the ANLoc workshop in April 2009.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices

VII ACA2K

Name of research network: African Copyright and Access to Knowledge (ACA2K) Network
Project numbers: 104501
Sources of information: Project Completion Report, Stages 1 and 2 (interview of Khaled Fourati); "Copyright and Access to Educational and Learning Materials in Africa: Evidence from an eight Country Study Project" (presentation by Dick Kawooya to the ACA2K/IQsensato Geneva Seminar on Development Research, Geneva, Switzerland, 20 May 2009); Interim Technical Report to IDRC (for the 12-month period Oct 07 to Sept 08); PROGRESS REPORT, Morocco, 2008-09-23; ACA2K Network Strategy for Influence & Change (16 March 2009); Development of an equitable Information Society: The role of African parliaments (presentation by Dick Kawooya and Chris Armstrong, 4-5 March 2009): Chris Armstrong written inputs 31 July to 3 August 2009;
Reviewers: Jennifer Vincent and Ricardo Wilson-Grau
Respondents: **Chris Armstrong, Khaled Fourati**

41. In January 2009, University of Ottawa Law Professor Jeremy de Beer launched a law course on Global IP Policy and Social Justice that draws in part from ACA2K's work.

Description: ACA2K Principal Investigator Prof. Jeremy de Beer of the University of Ottawa, Canada, launched a course on Global IP Policy and Social Justice that includes coverage of the theme of access to knowledge for development (A2K4D) that draws from ACA2K's work, among other sources. The course provides an introduction to the issues connected to the developmental approach to copyright and other intellectual property rights.

Significance: The more that ACA2K's research agenda/approach finds its way into university curricula, the more 'mainstreamed' the ACA2K approach to copyright – an access-oriented, developing-world-oriented approach – will become within the international scholarly/research community, thus building an academic base for the movement for progressive, access-friendly copyright legal frameworks in Africa. As a case in point, the University of Ottawa course is an excellent avenue for popularising ACA2K's work to a new generation of intellectual property scholars at that university. The course is being offered to first year Law Faculty students, all the course readings are open-access and freely available on the Internet, thus synergising with ACA2K's dissemination strategy. Since ACA2K partners represent law schools at major institutions around Africa, it is hoped attempts can be made to replicate Prof. de Beer's course in some of the eight study countries.

Contribution of the research network: For Prof de Beer to be able to build an African A2K component into the course it was necessary that there be a body of work to draw on, and the ACA2K project is providing the first multi-country African body of work in the area of copyright and access to knowledge, and ACA2K is providing this body of work in a manner that is methodologically sound and undertaken by leading African scholars, thus giving the project's work the credibility/authority necessary for it to be included in the curriculum of an Ottawa U's Law Faculty course. Thus, the

ACA2K project's existence bolstered Prof. de Beer's inclination and ability to build, propose and implement an holistic Global IP Policy and Social Justice course with meaningful African-developed materials representing the developing country situation/perspective.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers

Increasing research capacity in ICT4D through:

- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:

- Incorporated into university curricula.

42. In May 2009, the Honourable (Mrs.) Betty Mould Iddrisu, Attorney-General and Minister of Justice of Ghana, decided to delay introduction in Ghana's Parliament of subsidiary legislation to Ghana's Copyright Act until after release of the ACA2K country report and policy brief and staging, in June, of the ACA2K National Policy Dialogue Seminar in Accra.

Description: The Attorney-General/Justice Minister held a stakeholder forum in Accra in April 2009 to get inputs on pending reform to the Ghana Copyright Act, to be instituted through subsidiary legislation, also known in Ghana as a Legislative Instrument (L.I.). Ghana ACA2K research team member Kwame Anyimadu-Antwi, who is a Member of Parliament and formerly a Regional Copyright Administrator, is one of the Attorney-General's main sources of advice on copyright matters.

Significance: It remains to be seen what will be the contents of the L.I., and the degree to which the contents will include elements recommended by the Ghana team at the 30 June seminar, but it is significant that the Attorney-General changed her legislative schedule in order to be able to consider ACA2K Ghana team inputs.

Contribution of the research network: In this case, the behaviour change by the Attorney-General was a direct and intentional result of the existence and outputs of the ACA2K network. ACA2K member Anyimadu-Antwi helped chair the April session, at which the Attorney-General gave stakeholders just two weeks to give their inputs as to what the necessary reforms to the Copyright Act, after which she would move to table the L.I. in Parliament. However, Anyimadu-Antwi alerted the Attorney-General to the imminent release of the ACA2K research findings, and the A-G then agreed to wait until after the release of the ACA2K findings and recommendations before tabling the L.I. The Ghana ACA2K team – Kwame Anyimadu-Antwi, Poku Adusei and Naana Halm - publicly released its findings and recommendations at its National Policy Dialogue Seminar in Accra on 30 June, with the Attorney-General and Mr. Bernard Bosumprah, Ghana's Copyright Administrator, as the keynote speakers at the workshop.

Thus, a member of the Ghana node of the network was able, on the basis of the existence of the ACA2K research and network, to convince the Attorney-General to delay finalisation of draft legislation related to the core area of concern of the network.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

Stimulating social and technical innovation in ICTs, including:

- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

43. The global consumer watchdog Consumers International (CI) convinced two international donors to fund its Public Education Network on Access to Knowledge (A2K) project, and subsequently CI co-hosted an access stakeholders' workshop with ACA2K in Nairobi.

Description: Consumers International (CI) was able to help convince Open Society Institute (OSI) and the Ford Foundation to fund a set of A2K-related research and advocacy activities, including in Africa, based to some extent on a rigorously sound approach (via the ACA2K Methodology Guide) to the intersection between copyright and user access to knowledge. The Guide outlines two methodologies – doctrinal analysis and qualitative analysis – by which a researcher can determine a country's copyright 'environment' (law and practice) in relation to learning materials access. Subsequently, CI began collaborating with ACA2K in African policy influence activities.

Significance: The significance of this outcome was that Consumers International, and funders the Open Society Institute and the Ford Foundation, were all assisted in their quest for deepened involvement in the A2K space by the presence of the ACA2K project. Organisations seeking funding (e.g., CI), and organisations seeking to fund (e.g., OSI, Ford), to some extent rely on the existence of strong, rigorous models (e.g., the ACA2K Methodology Guide) when motivating for, or justifying, engagement in relatively new areas of activity.

Subsequently, CI has quickly begun to make its presence felt alongside ACA2K in the African A2K space, as evidenced on 22 May 2009 when CI, as part of its new A2K project, co-hosted, co-funded and helped publicise and blog on an ACA2K/CI national access stakeholders workshop in Nairobi at which the ACA2K Kenya team's research results and recommendations were publicised. The workshop explicitly aimed to raise awareness among 'access stakeholders' in Kenya regarding the imminent reform, scheduled for late 2009, of Kenya's Copyright Act. Speakers from both ACA2K and CI presented. CI's emphasis on the rights of consumers synergises with ACA2K's emphasis on the rights of users to have improved access to learning materials, and both the development of the ACA2K Methodology Guide and Nairobi workshop were premised on the belief, shared by ACA2K and CI, that knowledge access is a fundamental human right.)

Contribution of the research network: The contribution of the ACA2K network was twofold: it provided CI, OSI and Ford with an intellectually rigorous research methodology (the April 2008 Methodology Guide) which bolstered CI's ability to establish the legitimacy of the A2K terrain for its prospective funders OSI and Ford, and ACA2K also provided CI with an already-planned advocacy moment/vehicle via the May 2009 Nairobi ACA2K access stakeholders workshop.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

44. The Executive Director of the Kenya Copyright Board, Marisella Ouma, tried to deepen the gender elements in her investigation of Kenyan copyright law.

Description: Marisella Ouma, who is also an ACA2K Kenya team researcher, was compelled to consider whether copyright, which she had previously viewed as gender-neutral, might in fact have differing impacts between men and women in terms of learning materials access.

Significance: The outcome is important because Ouma, who has a PhD in intellectual property and is Executive Director of the Kenya Copyright Board, had not previously considered whether or not there were gender differentials in the impact copyright law. Though follow-up interviews, which Ouma initiated upon ACA2K Gender Consultant Salome Omamo's advice, did not yield many significant findings, it was still an important behaviour change for Ouma.[22]

Contribution of the research network: Ouma attended an IDRC gender training workshop in Johannesburg in late 2009, and was introduced in late 2009 to ACA2K Gender Consultant Salome Omamo, who, like Ouma, is based in Nairobi. Omamo advised Ouma – and Ouma accepted the advice – to initiate a second set of interviews with certain Kenyan copyright stakeholders in an attempt to deepen the gender element of the ACA2K Kenya research findings.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices

Applying meaningful gender analysis:

- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa.

45. A number of official national delegates from countries in the African Group at the World Intellectual Property Organisation (WIPO) approached the ACA2K/IQsensato delegation at the Geneva meeting of the WIPO Standing

[22] As a related aside, the ACA2K network's search for expertise on the topic of the intersection between gender and copyright (eventually Salome Omamo was identified via the GRACE network) drew the ACA2K network into consultations with American University, thus strengthening a linkage that had already been established a few months earlier when American University approached ACA2K to commission research around the application of the 'fair dealing' copyright exception in Africa (ACA2K researchers Tobias Schonwetter of South Africa and Jeroline Akubu of Uganda both subsequently conducted commissioned research for American U, and Schonwetter latere helped convene an American U Cape Town meeting on fair dealing.

Committee on Copyright and Related Rights (SCCR) in May, 2009 to find out how to connect with the ACA2K project.

Description: Africa delegates to the WIPO SCCR meeting 25-29 May 2009 approached members of the ACA2K/IQsensato delegation to ask why their countries were not included in the initial ACA2K study; whether the research was going to be done their countries in the future; what they needed to do for this work to be done in their countries; and whether there would be a special briefing by ACA2K for the Africa Group. African WIPO delegates are apparently accustomed to there being a dearth of research looking at their countries' copyright environments through a developmental/A2K lens, and the behaviour change can be detected in the fact that the African country delegates now saw, and wanted to take advantage of, an opportunity to bolster presentation of African/developmental concerns at WIPO. A few days earlier, on 20 May, at the Geneva seminar hosted by IQsensato/ACA2K to introduce the project to the Geneva intellectual property community, Carole Croella of the World Intellectual Property Organization (WIPO) Copyright Law Division, who was on the panel at the seminar, welcomed ACA2K's study, noting that it was the first empirical study from Africa and, therefore, an important contribution to the debate. She specifically encouraged ACA2K to make the research findings available to government delegations so that they have sufficient evidence in their interventions at the different committee meetings especially the Standing Committee on Copyright and Related Rights. Croella was quoted in an IP Watch article a saying "It is very important that governments who take the lead on this item are provided with all relevant information."

Significance: The significance is that representatives of countries not represented in the ACA2K study sample were proactive in wanting to find out more about ACA2K and to take steps to get their countries included. Also significant is the fact that ACA2K clearly managed to make its presence felt at WIPO SCCR (a highly-specialised, highly bureaucratic forum that is not easy to penetrate) and within the WIPO bureaucracy via Carole Croella of the WIPO Copyright Division.

Contribution of the research network: The ACA2K network contributed directly to bringing about this outcome, through the following steps: 1) development of an intellectually rigorous Methodology Guide; 2) production of significant research results in 8 countries; 3) writing of a Briefing Paper targeted specifically at the May 2009 SCCR meeting and outlining preliminary ACA2K findings relevant to the exceptions and limitations that are the core of the SCCR's work; 4) working together with Geneva-based non-profit research group IQsensato to hold a seminar on 20 May 2009 introducing ACA2K findings to the Geneva intellectual property community, including WIPO; 5) attending the SCCR meeting as part of IQsensato's Observer accreditation; 6) ACA2K South Africa team member Pria Chetty reading out an IQsensato/ACA2K statement to the floor of SCCR on 27 May 2009 (the third day of the 5-day meeting) outlining ACA2K's findings and recommendations. It should also be noted that members of four ACA2K country research teams – Egypt, South Africa, Kenya and Uganda – as well as a specialist from ACA2K project co-funder the Shuttleworth Foundation – were part of the ACA2K activities in Geneva in May 2009, along with staffers from ACA2K Geneva partner IQsensato.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

46. In 2009, researchers in Zimbabwe and Zambia, two countries not formally a part of ACA2K, are applying the ACA2K research methodology.

Description: In 2008-09, Tavengwa Runyowa, a Zimbabwean national now living and working in Canada, did a study of copyright and education in Zimbabwe based in part on the ACA2K Methodology Guide, as part of his law degree studies at University of Ottawa under ACA2K Principal Investigator Jeremy de Beer. In 2009, another University of Ottawa student supervised by Prof. de Beer, Adrienne Jarabek, did a scan of the copyright environment in Zambia, again making use of the ACA2K Methodology Guide. Most recently, in July 2009, a Legal Advisor to the Zimbabwean Ministry of Labour and Social Services, Precious Sibiya, contacted IDRC to ask how she can become involved in ACA2K (her law degree dissertation was on copyright), and she has now been put in contact with Ottawa-based Zimbabwean Tavenga Runyona who did the study under Prof. de Beer.

Significance: The importance of the outcome is that while neither Zimbabwe nor Zambia were targeted as part of the ACA2K project, scholars from both countries, and a government official in Zimbabwe, are now interacting with ACA2K's methodology and approach – and a researcher from Cameroon is also expressing interest. The ACA2K approach, which looks at learning materials access as a human rights issue that copyright should support, is not yet a mainstream copyright perspective internationally, and so each time an additional scholar, government official, or country, becomes engaged in this approach it is an important building of momentum for the ACA2K network's strategy for change.

Contribution of the research network: The ACA2K network has contributed directly to this outcome, by developing the publicising its Methodology Guide and by its Principal Investigator Jeremy de Beer supporting his students to do research based on the ACA2K methodology into countries not originally targeted by ACA2K.

Classification:

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:

- Incorporated into university curricula.

47. ACA2K Network members from different countries have begun to collaborate in a decentralised fashion that was not actively fostered by the network leadership.

Description: Egypt team member Bassem Awad has in recent months been supporting finalisation of country reports by the Morocco and Senegal teams. As well, Kenya team member Marisella Ouma was not sent to the May 2009 Geneva WIPO SCCR meeting by ACA2K, but was there as part of the Kenyan delegation, and yet she used one of her official speaking opportunities to encourage SCCR to pay close attention to the ACA2K project and its findings, thus bolstering the lobbying work being

done at WIPO SCCR by ACA2K network members from Uganda, South Africa, Egypt and the Shuttleworth Foundation. Finally, country teams have been proactively identifying members of other country teams to attend their national policy dialogue seminars. The Kenya team invited ACA2K Uganda team member Jeroline Akubu to its 22 May Nairobi workshop; the Ghana team invited ACA2K Kenya team member Ben Sihanya to its 30 June seminar; the Uganda team invited ACA2K Kenya team member Marisella Ouma to its 9 July seminar; and the Morocco team has invited members Bassem Awad of ACA2K Egypt and Asane Faye of ACA2K Senegal to its seminar scheduled for 2-3 October.

Significance: When this network was designed, the decision-making process was concentrated at the centre, with a core team of five people interacting, designed the proposal and the Methodology Guide. The January, 2008 Methodology Workshop in Johannesburg, with assembled all network members, changed the power dynamic significantly. The core team presented the theoretical framework for the methodology guide, but the county research teams felt they were being left out, and so the workshop was turned around and the theoretical framework and hypotheses were put up for critique, with the workshop structured more in a working-group modality. The trend toward decentralisation of power continued at the Cairo Mid-Project Workshop in January, 2009, where teams pushed for there to be more opportunities for collaboration between country teams, not just between a country team and the centre of the project. This created the momentum towards decentralised activity within the network.

This cross-fertilisation of thinking on copyright and access between different African countries is significant because there does not tend to be much of this kind of cross-fertilisation except in meetings convened by Northern, non-African players such as the World Intellectual Property Organisation (WIPO). It is an important outcome for ACA2K that its network is providing a space for scholars and other stakeholders from more than one African country to share information and experiences around copyright and access without the mediation of a non-African body.

Contribution of the research network: The ACA2K network contributed to this outcome by recruiting top scholars from a wide range of African countries – eight countries representing a diversity of legal, colonial, linguistic and socioeconomic realities -- thus providing network members with the opportunity to spread information and ideas around copyright from their countries into other countries, and vice versa. As well as funding the research in the eight countries and two large-scale meetings of the network, the project is specifically supporting the country-based dissemination/policy engagement processes by: funding DTP/design and printing of country Executive Policy Briefs; funding National Policy Dialogue Seminars; and funding travel by network members from other countries to the Seminars.

Classification:

<u>Fostering on-going, robust policy dialogue among</u>:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

<u>Catalyzing thriving regional research networks that</u>:

- Serve as fora for knowledge diffusion

<u>Stimulating social and technical innovation in ICTs, including</u>:

- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

48. In 2009, the German non-profit group InWEnt approached ACA2K with the idea of learning and possibly collaborating.

Description: InWEnt (Capacity Building International), is a German-government-funded organisation focussing on human resource development. InWEnt's main headquarters are in Bonn. They have 14 regional centres throughout the Federal Republic of Germany, making them accessible in every region. They are represented by offices in Dar es Salaam, Hanoi, Cairo, Kiev, Lima, Managua, Manila, Moscow, New Delhi, Peking, Pretoria and São Paulo, primarily in partnership with other German development cooperation organisations. InWEnt approached ACA2K with the idea of learning from ACA2K and possibly collaborating with ACA2K on InWEnt's capacity-building programme entitled "Train for Trade, Component 3 - Intellectual Property: Harnessing the Knowledge Commons for Open Innovation in Africa." InWEnt's Senior Project Manager: ICT for Development, Balthas Seibold, in late July 2009 (after a meeting with Khaled Fourati, IDRC Senior Programme Officer, ICT4D Acacia Program), emailed ACA2K saying "Dear members of the ACA2K network, Thanks a lot to Khaled for introducing me through this e-mail to you and for briefing me last week about the interesting work, which you are accomplishing in the field of copyright and access to learning materials! We are much interested in learning more about your experiences. Also I am trying to find out how we might be able to leverage these experiences and networking endeavours for our upcoming initiative."

Significance: InWEnt, feeling there is a gap to be filled in the area of "Open Innovation in Africa" sees the importance of aligning its strategy and work with a unique existing multi-country African "knowledge commons"-oriented project such as ACA2K. Without the existence of pioneering projects such as ACA2K, InWEnt would be forced to start largely from scratch in conceptualising non-governmental, non-WTO, multi-country African interventions related to copyright and other intellectual property (IP) matters.

Contribution of the research network: The ACA2K network, through its size (eight countries), through the academic quality of its members, through its rigorous approach to research, and through its popularising/championing by network members, the Shuttleworth Foundation, and the IDRC (particularly Senior Programme Officer Khaled Fourati), has made itself a vehicle for learning and potential collaboration for any African-oriented project focussing on more-access-friendly copyright or, more broadly, focussing on building the knowledge commons via open innovation in relation to any element of intellectual property (e.g., copyright, patents).

Classification:

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Stimulating social and technical innovation in ICTs, including:

- Alternative intellectual property regimes
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

VIII RIA

Name of research network: Research ICT Africa (RIA)
Project numbers: 103114, 105266
Sources of information:
103114: Rolling Project Completion Report (Stage 3 interview with Khaled Fourati, 16 February 2009); TECHNICAL REPORT July2006 – June 2007; Technical Report July 2006 – August 2008.
105266: No technical reports available to evaluators, but the success of the ICTD2009 paper by C. Stork et al. was taken into consideration
Respondents: Alison Gillwald, Khaled Fourati
Evaluators: Jennifer Vincent, Ricardo Wilson-Grau

49. In 2007 and 2008, the International Telecommunications Union and the Organisation for Economic Co-operation and Development increasingly drew on RIA research and formally collaborated on dissemination.

Outcome: Ongoing collaboration with the International Telecommunications Union (ITU) in Geneva has resulted in ITU drawing on RIA demand-side data from the 2007/2008 Household and Individual Access and User Survey and 2006/2007 ICT Sector Performance Review in the development and verification of their supply-side and demand-side data. The ITU's West African representative decided to replicate RIA's methodology.

The production of rigorous, far more current indicators, through RIA's supply- and demand-side data allowed it to enhance the data collected by the ITU and provide timely coverage of ICT developments on the continent. This data was incorporated by the ITU into their indicator reports.

The Organisation for Economic Co-operation and Development (OECD) subsequently developed a similar collaborative relationship with RIA. The *2009 African Economic Outlook,* which focuses on innovations in ICTs, draws extensively on the RIA research.

Significance: Globally, the ITU is the primary source of ICT indicators. Historically, the reporting by African countries to the ITU has been patchy, leaving gaps in the coverage of Africa. Even when country indicators are reported, by the time they are published they are two to three years out of date. On a continent primarily served by dynamic mobile services, three-year-old data does not provide the current evidence of policy outcomes to identify points of intervention.

The same is true for the OECD, which, historically, has not been able to include demand-side data in their analysis of African ICT developments. As a result, their analysis was largely dependent on the dated ITU data referred to above, which only included supply-side data. Now the OECD is able to extend their data sources to include independent public domain research conducted by RIA, instead of just multilateral agencies and governments.

Contribution of the research network: RIA engaged directly with the ITU on the basis of RIA's data and how the ITU could incorporate it in their reporting on ICT developments on the continent. RIA participated in World Summit on the Information Society (WSIS) thematic meetings on *Measuring the Information Society* from 2005 to 2008. In June 2008 the Ivorian Coast RIA member attended the ITU Regional Meeting in Dakar and, for the first time, created a formal link with the ITU West African regional representative and the network. In 2009 RIA collaborated on ITU training of national statistical offices participating in a workshop mid-year in Geneva and assisting in ITU/LIRNEasia training in Thailand in September.

RIA influenced the OECD mainly through interaction between Acacia program managers and the OECD. Acacia Program Manager Heloise Emdon was invited in December 2008 to present at the OECD, where she presented the RIA data. The OECD was interested to see the data, so Heloise followed up with an email to RIA network leaders Christoph and Alison and to Acacia Program Officer Khaled Fourati and made the introductions. These three have been interacting with the OECD since that time.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:

- Cited and/or published in peer-reviewed, third-party publications (i.e., not by IDRC or the research networks).

50. In 2009 Namibian and South African ICT regulators agreed to reduce interconnection prices.

Description: This outcome title represents two inter-related outcomes, one of which led to the other. RIA has been working in Namibia for some time and therefore has constant interaction with the country's regulator and policy makers. Following a successful tender, RIA was commissioned to conduct a study in Namibia. Utilising the network's national research base, RIA conducted an interconnection[23] termination rate benchmarking[24] study which resulted in a reduction of interconnection rates by almost 50 percent in Namibia. The RIA study influenced Namibia and the policy makers.

In 2009, under political pressure by the new telecommunications minister and parliament, the Independent Communications Authority of South Africa (ICASA), South Africa's telecommunications regulator[25], entered into an arrangement to reduce prices within the next six

[23] The World Trade Organization defines interconnection as "Linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken." (Telecommunications Services: Reference Paper, 24 April 1996. Downloaded from http://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm)

[24] Benchmarking is the process of establishing interconnection rates based on rates in other jurisdictions. For example, the rate charged to long distance carriers for terminating calls on a local network might be based on rates for this function in other jurisdictions. (ICT regulation toolkit, March 2007, InfoDev. Downloaded from http://www.ictregulationtoolkit.org/en/Section.2130.html)

[25] The Independent Communications Authority of South Africa (ICASA) is the regulator for the South African communications, broadcasting and postal services sector. ICASA was established by an Act of statute the Independent Communications Authority of South Africa Act of 2000, as Amended. (http://www.icasa.org.za/)

months and shift their original price estimates to align them with those identified in the Namibian benchmarking study.

In South Africa, debate followed the publicity which resulted from the discussion of the Namibian determination (including that which came from a public forum funded by the Shuttleworth Foundation). The South African prices that eventually emerged aligned with those proposed in the Namibian study.

Thus, the lowering of interconnection prices in Namibia influenced South Africa's decision. The price changes in Namibia put pressure on South Africa to react, which is significant, considering the relative size of Namibia.

Significance: Although the high interconnection prices in Namibia and South Africa were symptomatic of more widely overpriced services resulting from poorly structured markets and ineffectual regulation, the pricing reform described above has provided a hinge on which to hang broader policy reviews and regulatory interventions. Further, in and of themselves, interconnection charges constitute a significant portion of the total cost of services and a reduction in this wholesale component provides the potential for a reduction in retail (that is, end-user) prices.

It should also be noted that the actual work done in Namibia drew on RIA research but the Namibian Communications Commission paid RIA separately to conduct the benchmarking study, which is now being used to extend the research within RIA.

Contribution of the research network: In order to conduct this research successfully, RIA used its long-established relations with regulators in Botswana, Kenya, Tanzania and Uganda to acquire information for the benchmarking study for the Namibian Telecommunications Commission.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices

Stimulating social and technical innovation in ICTs, including:

- Alternative, innovative telecom and IT policy models for Africa.

51. In March 2009 African parliamentarians responsible for oversight of ICTs for development requested training in ICT initiatives.

Description: RIA collaborated with the United Nations Department of Economic and Social Affairs (UNDESA) and the Africa Parliamentary Knowledge Network to deliver a workshop for parliamentarians responsible for oversight of ICTs in Kigali in March 2009. The parliamentarians responded very positively to policy issues raised at the meeting and indicated a desire to implement effective policy and regulatory frameworks and oversee their implementation more effectively.

RIA presented the indicators from their supply and demand side surveys and the telecommunications regulatory environment in order to demonstrate the relative, and generally poor, status of most ICT sectors in South Africa. We also presented a number of case studies demonstrating the possibilities with effective policy and regulatory environment in the area of mobile banking and the end of roaming charges in East Africa.

Several attendees requested customised training and support for in-country ICT initiatives. Representatives of several countries in which RIA had not conducted the access and usage survey demanded that studies be conducted in their country so that they could move toward evidence-based policy. A further round of training for South African Development Community parliamentarians in communications portfolio committee will be held in Cape Town with RIA facilitation.

Significance: While parliamentarians have responsibility for legislative outcomes, due to their turnover and general lack of ICT understanding, experience or skills, they are unable to perform the specialised functions within parliamentary committees. This training provided them with a basis for more effectively legislating and providing more effective oversight of the sector.

Contribution of the research network: RIA developed the programme and expertise for the training, drawing extensively on RIA research.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers (legislators)
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion

52. In 2008 the communication commissions in Uganda and Botswana committed to engaging more fully with RIA on its research findings.

Description: Following the presentation of the findings of the 2006-2007 Telecommunications Regulatory Environment (TRE) survey at the ITU Telecom Africa 2008 forum the Botswana and Uganda regulators expressed their dissatisfaction with the findings. Following a one-on-one meeting with commissioners it was agreed that in the future the RIA reports that are shared by the Botswanan and Ugandan commissions the network partners with the respective regulators will receive a formal response[26]. It was agreed that in the future there would be far greater engagement on the findings with the regulator before they are made public.

A similar agreement to cooperate was reached with Mr. Katse from the Botswana Telecommunications Authority (BTA), which had not engaged actively with those conducting the RIA research in Botswana.

Significance: The negative ranking of Uganda and Botswana in the TRE survey contrasted with the perception of both countries as regulatory success stories in best practice case studies published by the ITU some years before. Analysis of these suggest that rather than having successful regulatory frameworks their perceived success reflected strong leadership, but was not reflected in the performance of their ICT sectors which were not amongst the best. RIA's attempt to measure their

[26] In fact, staff from the Uganda Communication Commission had worked on RIA's research in Uganda and had made available the findings to the UCC board.

success and compare this to other jurisdictions in the TRE survey was important in prompting the regulators to reflect on their effectiveness and, in the case of Uganda, to consider how they might improve their rankings/performance in future.

It also evidentially challenged dominant research in this area through the linking of sector performance to a perception survey of the regulatory environment. Basically now the regulators in general - not only in Uganda, but also in Rwanda and other countries - want to engage with the RIA researchers around the TRE. This represents a dramatic change; when RIA conducted the first TRE the regulators would not even answer, and now they want to see the survey and comment on it.

Contribution of the research network: The negative ranking of Uganda and Botswana based on RIA's research findings, which contrasted with the ITU's praise for both countries, spurred the UCC and the BTA to increase their engagement with RIA in advance of the publication of future research findings.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers (Regulators)
- Other key policy-related bodies.

53. In 2008, Namibia passed an act of parliament which created a ministry of ICT and a telecommunications regulator.

Description: In Namibia and South Africa the 2006 Telecommunications Sector Performance Review (SPR) was extensively profiled to several line departments and the president's office. In Namibia the research and analysis has become a lynchpin of the reform processes that is underway there,

The 2007/8 Household and Individual ICT Access and Usage results were available in time to support a national review of the policy and regulatory environment in Namibia. These results were used to demonstrate the sub-optimal impact of a constrained market structure and the absence of an autonomous regulator.

Presentations to the president's office led to invitations to lead policy reform initiatives in the country. The household survey formed the basis for a dialogue with the regulator and Telecom Namibia (the national telecommunications operator), Mobile Telecommunications Limited (MTC) and other stakeholders. The data was used for research reports, policy briefs and articles in a Namibian current affairs magazine. A cabinet reshuffle saw the formation of an ICT ministry for the first time in April 2008.

In South Africa, several rounds of presentations on the supply and demand side surveys and regulatory analysis have resulted in several requests by the government for RIA members to advise and participate in workshops and advisory panels. RIA was called in to brief the new director-general prior to her maiden presentation to parliament, and was also invited to participate in a workshop to advise the planning commission on monitoring and evaluation indicators and targets.

Significance: With the use of RIA data and analysis there is some indication of a movement towards implementing evidence-based policy, which is RIA's primary objective and the key to successful sector reform.

Contribution of the research network: The SPRs were showcased extensively by RIA in South Africa and Namibia, including presentations to government officials, regulators and industry. In

Namibia the response was more direct than in South Africa, where the political and policy environment is more complex, with different layers of decision-making. In South Africa, the results were filtered through the media, including an extensive opinion-editorial campaign, and a public seminar series around the issue of broadband in South Africa, which was conducted in partnership with the Shuttleworth Foundation. RIA also entered the debate around interconnection that led to various high-level meetings and, ultimately, to the decision of ICASA to reduce interconnection prices.

As indicated above, RIA had extensive interaction with policy makers in Namibia, which led to specific reforms such as the act to parliament to create a ministry of ICTs and the regulator. RIA also worked closely on the interconnection reforms mentioned in an earlier outcome.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

IX OASIS

Name of research network: Open Architecture, Standards & Information Systems (OASIS)
Project numbers: 102411 (HIV/AIDS Database), 104352 (OMRS Implementers Meeting), 101974 (PDA Project), 104508 (OASIS)
Sources of information:
102411: Interim Technical Report, Reporting Period: 1 July 2006 – 31 December 2007 (submitted 7 December 2007); "Physicians with ICTs!" by Heloise Emdon, http://mayafrica.wordpress.com/; Development of an Integrated Database and Data Collation System for Monitoring and Evaluating the Public Sector Antiretroviral Treatment (ART) in the Free State of Province, South Africa; Effectiveness of HAART on mortality and TB incidence in the South African public-sector programme; Free State Bioinformatics Project Outputs (2); Viva ART : The story of community struggles and public health delivery of antiretroviral therapy in the Free State Province of South Africa - August 2005 (postscript).
101974: Final Technical Report (Reporting Period: 1 March 2006 – 28 February 2008, submitted 2 February 2009)
104352: 2007-04-22 Implementers Group Meeting; Open MRS Implementation: Background and Rationale; OSHCA 2007 8-11 May, 2007 Published:6 May, 2007 Kuala Lumpur, Malaysia
104508: "MINUTES FOR MEETING 02/16/09"; Supplementary Funding Proposal, Developing Open Architecture, Standards and Information Systems (OASIS) for Healthcare in Africa; FW: Letter to Dr Makubalo; Fwd: IT at Lacor; Important Feb 16-17 meeting update/Agenda and Background Docs; Letter of Invitation-Prof Mbewu Nov 07; Meeting at Silvermist at 4pm; OASIS-OMRS Structure; Re: Important Feb 16-17 meeting update/Agenda and Background Docs; Re: Rough notes on MVP data meeting Mond 16 Feb; RE: Some musings; RE: Thanks for your time today…; Research Methodology Workshop; RHEIN Workshop proposal draft; Support Letter; Interim Technical Report Developing Open Architecture, Standards and Information Systems (OASIS) for Healthcare in Africa, IDRC Grant Number 104508-001, Reporting Period: 1 October 2007 – 30 September 2008, Report Date: 7 September 2009; 1. CJ Seebregts, BW Mamlin, PG Biondich,

HSF Fraser, BA Wolfe, DJazayeri, C Allen, J Miranda, A Kanter, N Lesh, E Baker, C Fourie, Y Singh, C Yiannoutsos, C Bailey & OpenMRS Implementers Group. The OpenMRS Implementers Network. Int. J. Med. Inform. (2009), doi:10.1016/j.ijmedinf.2008.09.005
Reviewers: Jennifer Vincent and Ricardo Wilson-Grau
Respondents: Chris Seebregts, Heloise Emdon, **Chaitali Sinha**

54. In 2007, individuals from 13 institutions and organizations formed what would later be named the OpenROSA consortium in order to collaborate on the development of architecture and JavaROSA software for mobile data collection.[27]

Description: In 2006, the IDRC funded a project led by Dr Chris Seebregts and Dr Neal Lesh to develop a community and pilot application for mobile health data collection. In 2007, under the leadership of this project, individuals from 13 institutions and organizations formed what would later be named the OpenROSA consortium in order to collaborate on the development of architecture and JavaROSA software for mobile data collection.

The project team [project 101974] successfully initiated an open source software development group, designed an open architecture for a standards-based application and managed the implementation of the first version of the application. The group comprises individuals from the following organizations, very few of which were collaborating prior to the formation of the consortium:

- Cell-Life
- Centre for International Health (EpiHandy)
- South African Medical Research Council
- Dimagi
- DataDyne/EpiSurveyor
- UC Berkeley
- University of Washington
- Faculty of Computing and ICT, Makerere University
- D-tree
- Massachusetts Institute of Technology
- Interactive Research and Development, Pakistan
- OpenMRS
- AED Satellife

The most significant behaviour change has been that the collaborators have modified their own development efforts in order to work on a collaborative application. In some cases, collaborators have even abandoned or seriously modified their own applications. The original project lead has withdrawn from active involvement in the network as it is now a self-standing, functional entity.

Significance: Mobile phones are a potentially highly useful platform for health data collection, particularly from mobile communities. However, while there is a plethora of devices, there is a shortage of appropriate software and use cases, limiting the application of this technology. The design and development of JavaROSA has presented one possible way forward based on open source software and standards. Many different groups are working on similar projects in isolation, leading to duplication of effort, lack of interoperability, and missed opportunities for experience sharing and collaboration.

We have found most of these groups extremely receptive to collaboration and the emergence of a community around mobile data collection and decision support. It is generally thought that application developers are more prone to compete and attach importance to their own software. However, this project demonstrated that in many cases, developers are receptive to approaches to collaborate and comfortable within communities, particularly where there is a solid design. In this case, we used a

[27] This represented a modification of development efforts on the part of the collaborators.

standards-based design with accessible, open technologies which we believe contributed to the outcome.

The OpenROSA community, whose members communicate regularly in person and via email, has emerged as the community of choice where other more mature communities already existed. That is, the technology (JavaROSA code base) is being used increasingly by various mobile health developers, and the OpenROSA community is gaining credibility and membership as time goes on. It is also worth noting that some of the organizations which formed the network had been working on their own open source projects with many years of development time and a substantial installed user base.

Contribution of the research network: The OpenROSA community developed out of the OpenMRS community. Several key members of the project team met at the First OpenMRS Implementers Meeting in South Africa in 2006 and the OpenROSA community development has piggybacked off of the growth and development of the OpenMRS Implementers Meetings. It is likely that OpenMRS played a key networking and facilitation role in the early days of OpenROSA community development.

Classification:

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

55. An ongoing relationship has formed between Google and OpenMRS since the former selected the latter for the annual Google Summer of Code 2007 program.

Description: Google selected OpenMRS for its Google Summer of Code (GSoC) 2007 program,[28] a global program that offers student developers stipends to write code for various open source software projects. OpenMRS is a worldwide network of individuals and organizations focused on creating medical record systems and a corresponding implementation network to allow system development self reliance within resource constrained environments. The GSoC program provides the funding from Google while the network provides the students and mentors. Google also supports the network by funding mentoring summits and other get-togethers.

Since 2007, Google has been working with OpenMRS as one of its selected organizations to work with (they just announced the 2009 round of projects). The world of FOSS development and implementation is influenced a great deal by associations and the credibility and legitimacy these associations afford. As such, OpenMRS's ongoing link with Google Summer of Code not only deepens and broadens a supply-driven (and demand-supported) module development program, but also strengthens the longer-term sustainability and buy-in from the broader community for OpenMRS.

Significance: Google's selection of OpenMRS was atypical insofar as the network's focus on developing country coders is quite different. It has increased the profile of OpenMRS and the number of developers, extending the core and related applications. The program has widened the OpenMRS network of developers because it provided the ability to meet face-to-face and also to construct a shared purpose and goals, which have guided the network and helped it get traction with organizations like Google's summer of code.

[28] http://code.google.com/soc/2007/

This program has also added to the network's prestige through association with a flagship Google program. Google is held in high esteem by many developers. The program also provides recognition to mentors and interns through a selection process. One of the OpenMRS developers, Daniel Futerman, applied for a project as an intern but was instead selected as a mentor, contributing to the recognition of this group.

Contribution of the research network: The work of the OASIS network has always involved mobilizing the 'wisdom of crowds' of local developers and experts The traction gained by knowledge sharing and aggregating information and knowledge contributed to OASIS's reputation as a network with keen researchers and coders. The cohesion and innovative approach demonstrated by OpenMRS have attracted and sustained the interest of Google.

The network has also started a similar program called the OpenMRS Internship Program (OIP) that is modelled on GSoC. In essence, OIP is identical to GSoC except that it focuses on developers working in developing countries. Through the OIP, the network is trying to improve the development of local capacity on developing countries.

Classification:

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices

Stimulating social and technical innovation in ICTs, including:

- Mobile telephony
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

56. In 2007 the Free State was prompted, through the linkage of patient data with the death register, to explore alternative delivery strategies to improve access to HIV treatment, such as nurse-initiated antiretroviral therapy.

Description: The Free State signed an agreement with the South African Department of Home Affairs to obtain information from the South African Death Register, Electronic TB Register and National Health Laboratory Service on an ongoing basis. The linkage of patient data with the death register highlighted unacceptably high death rates among patients enrolled on the program but awaiting initiation of treatment, and prompted the Free State to explore alternative delivery strategies to improve access, notably through nurse-initiated ART in the STRETCH (Streamlining Tasks and Roles to Expand Treatment and Care for HIV) program.

Significance: The agreement between the Free State and the South African Department of Home Affairs paves the way for other provinces and researchers in South Africa. Furthermore, the usefulness of the OASIS-developed clinical data warehouse for monitoring and evaluation and research purposes was significantly enhanced by linking data from the South African Death Register, Electronic TB Register and National Health Laboratory Service. This was the first time a national death register was used to evaluate survival in a sub-Saharan African cohort. This linkage proved important in that as much as 80 percent of deaths were determined through linkage alone.

Contribution of the research network: The network provided the design and technical expertise for this outcome and also worked with a researcher from the Free State who completed a PhD using this material.

Classification:

Fostering on-going, robust policy dialogue among:

- Other key policy-related bodies.

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

57. In 2008 Mozambique OASIS (MOASIS) and FOSS Implementation Labs (FOSSIL) developers in Mozambique became FOSS health informatics service providers to the Centers for Disease Control and Prevention and, in 2009, to Vanderbilt University and the Ministry of Health of Mozambique.

Description: The programmers at the FOSSIL lab in Maputo, Mozambique (Universidade Eduardo Mondlane) who were trained in FOSS development since the fall of 2007 are now able to generate revenue by providing services to develop health informatics applications for other organizations such as the CDC in Atlanta. In addition, they are playing a pivotal role in health informatics development and implementation nationally.

Significance: This outcome is significant because it represents a strong business model, and it is representative of deep capacity building that is translating into resource mobilization and sustainability strategies in the near future.

Contribution of the research network: The FOSSIL node in Mozambique benefited from lessons learned from previous ehealth work supported by Acacia in Uganda (UHIN) and South Africa (102411). It was the networking of information and lessons that allowed for a revised structure of data storage and relationships in Mozambique. The network at the broader OASIS level, and more particularly within Mozambique, allowed for tight collaboration, efficient capacity building and sharing, and fruitful engagement with regards to demonstrating capacity to work for other organizations on ehealth initiatives. The node has also benefitted from the previous work done by the Health Information Systems Programme (HISP) and the OpenMRS Implementers network.

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion
- Are a vehicle for parallel funding activities

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

58. Between 2005 and 2007, the Free State province in South Africa adopted the data warehouse technology developed by OASIS.

Description: Policy-makers in the Free State (notably at the Department of Health) have changed their position on promoting how health data is stored and shared. Based on the demonstrated value of accurate and effective data collection, analysis, reporting and monitoring vis-à-vis HIV/AIDS, policy makers have supported the adoption of the data warehouse (DW), which occurred between 2005 and 2007. For the past year, the DW has been the primary application for data integration in the Free State and the Free State Department of Health's data management group has improved its strategy for information management and reporting.

Based on the rollout and monitoring of ARV treatment in the Free State, both of which started in 2004, the decision to adopt the DW indicates a relatively quick policy change. The success of this technology is evidenced by the fact that the data warehouse technology has been adopted by the Free State as a core technology for information integration and reporting. Skills obtained through interaction with this project have been applied and extended by the FS-DOH to other areas of health information and the original HIV/ART DW incorporated into the main DW as a so-called data mart.

The most significant impact has taken place within the FS-DOH [Free State Department of Health] data management group where the benefits of the data warehouse approach have impacted on the group's strategy for information management and reporting. ...

In general, the research work has had a positive impact on the development of information systems in the Free State health system and has raised awareness of the importance of data quality.

Significance: This outcome is monumental in the realm of public health management in the Free State Data has been proven to be a very commanding tool to control and wield power. Therefore, the use of research evidence to influence the adoption of the DW by the DOH is a very significant step in terms of health systems evaluations. The project demonstrated the importance of a data warehousing approach to strategic information systems. Many groups aim to use the same database for transactions and analysis when, in fact, it is much better to separate these functions. In addition, a DW is an optimal structure for integrating data from other systems to provide a single, unified view of the data. This project demonstrated that, despite the fact that the data was collected in a single disease silo (HIV/AIDS), much value could be obtained by copying data into a DW, integrating with other disease, clinical and administrative data and drawing a single, unified view.Combined with the fact that much of the data has been collected since the initial rollout of ARV treatment, the fact that the application has been adopted by the DOH and continues to provide high quality data is solid evidence of success.

Contribution of the research network: The contribution of the network stems from the ability to produce high quality research evidence and publications that were captured and communicated by the different people within the research network. It was the combination of proven outcomes and linkages with influential people at the policy maker level that contributed to this outcome.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

59. The OpenMRS consortium has included the OASIS project leader, Chris Seebregts, as among the four leaders of the group.

Description: The OpenMRS Implementers Meeting project (104352) demonstrated the importance of the community towards open source software development and, as a direct result of this project, the project leader, Chris Seebregts, is now one of the four leaders of the OpenMRS consortium, responsible for community development. This work will likely grow into the 'We-Can' concept involving collaborative action networks.

Significance: The outcome is important because Chris is the only developing country-based leader. The others are based in the United States. The optics of this shift is very significant because it means a Southern voice will be able to provide input and influence the direction of the fast-growing OpenMRS group. At the software programmer level, the recognition of Chris's work and his inclusion in the core group has translated into stronger and more sustainable links with software developers working on the different OpenMRS programs (GSoC, OIP and others) that are based in developing countries. This shift to an increasingly southern-owned and southern-driven OpenMRS consortium is a critical part of the group's vision.

Contribution of the research network: The research network's distributed approach in different African countries demonstrated the reach and effectiveness of Chris's work on OpenMRS in Africa. The OASIS nodes (which house the FOSS Implementation Labs) incubate bright and committed African computer programmers that are directly linked to the OpenMRS Consortium.

Classification:

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

60. In 2008 the World Health Organization's Health Metrics Network (HMN) adopted the position that the open architecture work done through OASIS would directly contribute toward the updated version of HMN

Description: Representatives from HMN, including the Executive Secretary of the HMN, Dr. Sally Stansfield, and Chris Bailey (WHO) have endorsed OASIS work in open health enterprise architecture through participation and input into OASIS II planning meetings.

Significance: This is an important outcome as it underscores the importance of the open architecture component of the network and the fact that the group has matured to the point where it is able to adopt a leadership position globally which is a solid achievement for developing country researchers. This is illustrated by the fact that in recent planning meetings in Geneva (June, 2009), the WHO hosted OASIS researchers to jointly decide on reference implementation sites for the open architecture project. This has led to a meeting to be held in Kigali (Oct. 19-23) that will take further steps to strengthen the collaboration and linkages between OASIS research and the upcoming version of the HMN framework.

Contribution of the research network: This outcome was a direct result of the network as it is the early work done on standards and interoperability that resulted in the emphasis on architecture. The OASIS research network communicated the need to address open health architectures in developing

countries (including at the Bellagio conference on eHealth in July-August, 2008), which translated into keen interest from WHO staff such as Chris Bailey and Sally Stansfield.

Classification:
Fostering on-going, robust policy dialogue among:

- ICT4D researchers
- Policy-makers

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

X PALM

Name of research network: Publishing and Alternative Licensing Model of Africa (PALM Africa)
Project numbers: 104502
Sources of information:
Attached are all Technical Reports submitted by PALM Africa, PALM South Africa and PALM Uganda.
Respondents: Steve Kromberg, Khaled Fourati
Reviewers: Jennifer Vincent, Ricardo Wilson-Grau

61. In 2009, African and international publishers made books available online using alternative licensing models and decide to explore new models of publishing.

Description: The Uganda Women Writers Association (FEMRITE) have so far uploaded two books, "Farming Ashes" and "Invisible Weevil" on their web site under a creative commons license. Fountain Publishers, also of Uganda, have published a book "Genocide by Denial" under a creative commons license which has received wide coverage locally and internationally. Fountain Publishers have indicated that they will be uploading two additional titles on their web site under creative commons licenses.

In South Africa a number of publishers have either already published books using flexible business models or are planning to do so. In an interesting variation of flexible publishing, Jacana Publishers and the Institute for Poverty, Land and Agrarian Studies (PLAAS) have cooperated to publish two books.

One of the major educational presses in South Africa, Juta, have now decided to make available one of their books online free of charge. It is clear that a number of influences were at play. According to personal email from Associate Professor Jeremy de Beer, from the Faculty of Law at the University of Ottawa: "We are still finessing the final details of the publication contract, but in principle we've agreed Juta will use Attribution Non-Commercial ShareAlike 2.5 South Africa."

The former PALM African Project Lead, Frances Pinter, resigned from the project to set up Bloomsbury Academic Publishing. She describes their use of flexible licensing:

> *Our use of our* Creative Commons *licences for research-based publications protects copyright while offering free and easy access online for non-commercial use. By this means our authors can expect to have their works reach the audiences they were intended for, and not only those who can afford the print copy.*

The book published using flexible licensing by Bloomsbury Academic is: "Remix: Making art and commerce thrive in the hybrid economy" by Lawrence Lessig.

Significance: The Publishing using Alternative Licensing Models (PALM) Project uses research and action to change the mindsets of publishers in Africa. PALM encourages publishers to explore the use of alternative licensing (such as open access or Creative Commons copyright) in an effort to increase the access to and distribution of knowledge resources on the continent. In essence, PALM seeks to demonstrate to publishers that they can employ new business models involving flexible licensing that can be profitable, innovative and of lasting benefit to the community.

Books publishing using flexible licensing are usually available as free downloads on the Internet, making them accessible to anyone with Internet access, even where the books are not physically available. Practically speaking, for example, a reader in South Africa can download the Fountain Publishers book on HIV/Aids, whereas the print copy is not, and may never be available locally.

The publications described above serve to test the hypothesis that flexible licensing will increase participation in and access to, global knowledge production by African researchers and consumers. Should the experiments prove successful, other publishers may follow the lead.

Contribution of the research network: Frances Pinter was influential in flexible licensing models prior to the inception of the PALM project, so the specific role of PALM on this specific outcome is impossible to quantify. Nonetheless, all of the above publishers, except for Jacana, attended either a PALM Publishing Workshop in Uganda or on South Africa, where they were introduced to the concept of flexible licensing. At the end of the workshops, they committed to experimenting with flexible licensing, which they had not done before. In South Africa, 1-day, in-house workshops also took place separately with PLAAS, Juta and Nasou publishers. The workshops covered similar ground to the larger public workshops but engaged with the specific issues raised by the publishers and allowed the publishers to discuss their particular ideas.

All of the publications mentioned above demonstrably had their origin in the PALM workshops, although many other process and actions were required to bring these demonstration projects to fruition.

Classification:

Stimulating social and technical innovation in ICTs, including:

- Alternative intellectual property regimes

62. In 2008, two university departments, one in South Africa and another in Uganda, have incorporated flexible licensing models into their curricula.

Description: The East African School of Library and Information Science has drawn inspiration from the PALM project to integrate alternative licensing models of publishing to its bachelor's degree curriculum. Earlier the school was concentrating on IPR, Copyright, and other traditional aspects of publishing leaving out the important area of how licensing works out especially in the digital environment. - KAMPALA PALM AFRICA PROJECT REPORT (April - September 2008).

The Department of Film and Media Studies redesigned their Honours module on Media and Markets and the course description, available on the Vula website. They describe it:

> *'This year's version of Media, Markets & Media Strategies explores debates about media, publishing, the terrain of intellectual property and alternative licensing. The course poses the question whether transnational corporations have appropriated notions such as 'creativity',*

'culture' and 'expression' for its own enrichment – much to the detriment of civil society and the principles of competition in the 'market place' of ideas. Media, Markets & Strategies will appeal to students with an interest in publishing, digital media and arguments about alternative licensing and business models. The course explores a cross-section of areas: publishing, technology, copyright legislation, multilateral trade agreements and the operation of global capitalism.'

The course included lectures, given by PALM researchers. The course is being repeated in 2009.

Significance: Many university courses in Africa take conventional licensing and publishing business models as a given. This is understandable as the concept of flexible licensing is relatively new. PALM's intervention is a small but significant contribution to broadening their focus.

The most direct beneficiaries are the students taking these who will now have a broader understanding of intellectual property law and the debates around copyright. They will be equipped to explore the use of flexible models in their careers. Less directly, the publishers who employ these students might be more inclined to use alternative models. Finally and least directly, this outcome might assist in the broader aim of using flexible licensing in publishing to increase participation in and access to, global knowledge production by African researchers and consumers.

Contribution of the research network: In Uganda, Professor Ikoja is the PALM lead academic. Through his involvement in PALM Uganda, he has been exposed to the concepts behind, and practical cases of the use of flexible licensing. He introduced the curriculum changes.

In South Africa, Dr. Adam Haupt is part of the PALM team, as an academic advisor. He introduced the changes to the curriculum, in consultation with PALM Lead Academic Eve Gray and PALM Project Lead Steve Kromberg. Dr Haupt's choice of lecturers and topics was influenced by his involvement in PALM. More specifically, both Professor Ikoja and Dr Haupt have attended PALM planning and project meetings and attended the Publishing Workshops.

Classification:

Stimulating social and technical innovation in ICTs, including:

- Alternative intellectual property regimes

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:

- Incorporated into university curricula.

XI AVOIR

Name of research network: African Virtual Open Initiative and Resources (AVOIR)
Project number: 102509
Sources of information: Internal Evaluation, Phillip Schmidt, 7 October 2007; AVOIR Technical Report 2007; presentation by D. Keats at UN Workshop for African Parliamentary Information Systems in Cape Town, June 27-30, 2006 (available online); "News" items on AVOIR website during IDRC project period; "AVOIR 2005 Supl motivation"; Connectivity Africa External Review Report May 12th 2007 by Simon Batchelor (pp. 23); Project Completion Report (rPCR), Stage 3 (interview of Heloise Emdon, former Program Officer, 27 April 2009).
Reviewers: Jennifer Vincent and Ricardo Wilson-Grau
Respondents: **Enver Ravat**, Professor **Derek Keats**, Heloise Emdon (former Program Officer).

63. Between 2005 and 2009, the UWC node of AVOIR attracted a number of clients for development and support contracts.

Description: The UWC node of AVOIR has been successful at attracting a number of clients for development and support contracts, which entails the development of web applications for the client and support provided on applications development, especially trouble shooting, fixing bugs in the program, and addressing inquiries related to the program. Project Manager Abdul Fakier estimates the total budget for these contracts as US$390,000. Clients include the provincial government of the Western Cape, South Africa; UNESCO Odimics and Greenstone; UNESCO Ocean Teacher; USAID (Afghanistan); Consol Glass; Labour Research Service (LRS); Southern African Nordic Centre (SANORD); UNESCO; USAID; San Jose State University (SJSU); Community Radio Siberia and Sierra Leone; and the Shuttleworth Foundation. These organisations have paid AVOIR for systems development, support, etc. The work completed for USAID was the work done on the Avian flu project in Africa.

Significance: Work on innovative tools and techniques through free software will always require research funding in order to remain at the cutting edge and generate and explore new ideas. Hence, sustainability includes continued support through research funding channels. However, the percentage of costs that are met from this source must decrease over time.

Contribution of the research network: UWC has been able to develop a FOSS business model based on services and support contracts. Some projects that have resulted from this are Avian Influenza Mapping (USAID), web portal development for South African Nordic Centre (SANORD), HP/Chameleon, E-learning at Washington State University.

The Chameleon project allows presentations to be uploaded in PowerPoint or OpenOffice format and made available online as well as embedded in websites and blogs. The Realtime Tools allow the presentation to be picked up and given live on the site, in a real-time virtual classroom setting. These tools form part of Chisimba but can also be used as a stand-alone product. According to AVOIR Prof. Derek Keats, this is the first free software-based application of its kind[29].

Currently clients within the AVOIR network in this period were sourced through the following methods:

1. Referrals
2. Funding proposals
3. Support of existing systems for e.g. e-learning

The current system is now changing to be more business-orientated with the appointment of a CEO and a business development management to actively acquire business contracts.

Classification:

Catalyzing thriving regional research networks that:

- Are a vehicle for parallel funding activities

64. Between 2005 and 2007, private sector and university employers employed more than half of the interns and software developers trained at the University of the Western Cape.

Outcome: Between 2005 and 2007, at least 20 interns were trained at UWC. At least 11 of these went on to jobs after their internships with companies and universities such as Knowledge Tree SA,

[29] As noted by Professor Keats, "...there is no other FOSS presentation sharing application, and there isn't any other fully functional realtime virtual classroom. The two together is an awesome combination that is unique in the world. We are using it at Wits, for example, to run lectures from the main campus to our rural campus near Kruger park. The equivalent commercial software costs hundreds of thousands."

University of Maryland, Vodacom, UNESCO, Forschini Fashion group, and Telkom (SA Telecommunications parastatal). A number of developers have been headhunted on the basis of their FOSS skills, either by other universities or the private sector, such as Makarere University and the University of Ghana.

Significance: In addition, in many countries it is difficult for software developers to find work as soon as they leave university. AVOIR provides a great way to build relevant technical skills and real-life expertise to transition into employment. As a result of this strong, multi-faceted focus on capacity building, there is overwhelming agreement among developers that important skills are developed and that these increase their chances to find a job.

Contribution of the research network: The intern training initiative that was first introduced (and became very successful) at UWC is now being rolled out into other nodes. Each intern developer is linked with a senior mentor who can provide guidance, and support.

Both technical skills (software development, database administration) as well as soft skills (project management, collaboration) are relevant. With regards to technical skills the relevance for employment depends on the country though, since in some countries FOSS skills seem highly sought (Kenya, Uganda, Nigeria), whereas in others the situation is more difficult (Mozambique). Another positive benefit is the reputation that comes from participating in an international project of the scope of AVOIR.

Classification:

Increasing research capacity in ICT4D through:

- Increased numbers of ICT4D researchers

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

65. In 2008, Professor Maria Beebe at Kabul University began using the Chisimba to support/teach her face to face course.

Description: Professor Beebe at Kabul University is using the e-learning platform which runs on the Chisimba framework, an AVOIR product, to support/teach her current face to face course (the e-learning application can be used to support or supplement traditional teaching or it can be used as the primary vehicle for teaching, for example, in distance education.)

The system allows an instructor to create on-line courses and apply plug-in into the course to enhance delivery. The plug-in provides functionality varying from managing course content, managing course members and accessibility, course assessment, ability to dynamically embed external content using filters and ability to run live virtual classrooms. (The system is installed and running at http://angel.uwc.ac.za).

Chisimba e-learning platform is the first open source solution to be deployed in Afghanistan at a university level. These are big issues in Afghanistan, so much so that the media got involved. Local TV stations came out and interviewed the professor.

Significance: The system allows the lecturer to reuse content and it supports podcasts, use of online assignments, online worksheets, and calendar management. This generally allows for easy access of content without necessarily physically attending a class, regardless of the geographical location.

Contribution of the research network: This would not have been possible without the years of tireless efforts by the AVOIR team to make this functional and stable. Professor Maria Beebe had

worked with Professor Derek Keats (former leader of the Acacia-funded AVOIR project) for a long time prior to the team's work at Kabul University. Their involvement dated back to the NetTel@Africa project, a network for capacity building in ICT policy, regulation and applications. NetTel@Africa also involved the establishment of a collaborative Interdisciplinary Telecommunications Policy and Regulation Post-Graduate Diploma and Masters Program at several African institutions. The learning platform/ e-learning system that was employed there was KEWL (now called "ANGel," or Afghans' Next Generation: eLearning, an e-learning system). As a result of Professor Beebe's involvement with Kabul University as well as the alliance this University has formed with the University of the Western Cape, it was decided to employ the KEWL platform, now Angel, at Kabul University.

The installation of servers from which to run Chisimba/Angel was conducted by the Free Software and Innovation Unit (FSIU) at UWC, as were numerous workshops on ANGel. Moreover, a graphics development workshop was also held by the graphic design specialist working at FSIU at the time.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships

66. In 2007, six AVOIR universities decided to develop a masters program in free and open source software (FOSS), allowing more members of society to benefit from formal training in FOSS and become members of the AVOIR network.

Description: The AVOIR Masters Program will begin in 2010 and will be focussed on free and open source software (FOSS) development. The first year of the program will be hosted by six AVOIR universities - these being the University of Nairobi, the University of Dare Es Salaam, the National University of Rwanda (NUR), the University of the Western Cape (UWC), Makarere University and Uganda Martyrs University. The masters program was decided upon by Professor Keats and so the idea originated from UWC before the other Universities became involved. Nonetheless, although the idea was not a collective one the six universities decided to develop the idea into a masters programme.

The courses will be taught across the network and the masters student will be able to combine courses from different institutions that constitute the necessary credits for the degree. The core courses offered are the following: "Introduction to FOSS concepts/issues", "Software Engineering for FOSS", "Data Management Principles and Technology", "Introduction to FOSS programming technology", "Research Methods in Computing" and a practicum in both the first and second year.

The program has a strong focus on the business and entrepreneurship aspects of FOSS. The AVOIR Masters graduate student will have a strong understanding of the history and philosophies of FOSS, be proficient in different development methodologies, perform various activities /tasks associated with the software development environment, e.g. Modelling (UML) Designing, Implementing, Testing, etc, be able to collaborate in a network of software developers, evaluate software, work on mobile applications and many more underlined by a strong business and entrepreneurship focus. The scheduled commencement date for the masters course is the beginning of the second quarter of 2009. The course will run over two years.

Significance: It will be one of the few FOSS degree programs in the world. One of the attractive features of the program is that it is a distributed and collaborative effort.

Contribution of the research network: Professor Keats, who led the AVOIR network, conceived of the program, and an IDRC funded project laid the groundwork for the AVOIR Masters Program's development through the convening of two AVOIR Masters workshops in Nairobi and Cape Town.

Professor Keats has moved on to the University of the Witwatersrand where has accepted the position of deputy Vice Chancellor for ICS- he however is establishing WITS as a leading AVOIR node. Prof Elihaj Omewnga has subsequently been installed as chairman of the AVOIR Board.

Professor Keats organized a meeting in Nairobi around 2007 to lay the ground work for the establishment of such a program. Key stakeholders were present at this meeting. These stakeholders included Board members of the AVOIR network, key personnel from funding organizations- USAID, key personnel from IT companies Sun Microsystems and key personnel from the education sector- from Computer science departments in the US as well as from members of the NetTel project. A masters structure was agreed upon here.

It was decided that one way to further institutionalize FOSS – and, more specifically, AVOIR - in Africa is through a collaborative and distributive masters program. In order to move to establish such a masters program, it was decided that a workshop would be hosted in Nairobi, Kenya in 2006 with ICT and education experts from around the world. At this conference, the groundwork was laid for the development of the program and an outline was sketched. This was then followed up in May, 2008 with a second workshop in which this structure was elaborated and agreed upon. The individual courses were elaborated upon and a more clearer structure was determined which included the credit bearing modules involved in such a course, the admission requirements, how the course would fit together as well as developing the curriculum for such a course.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:

- Incorporated into university curricula.

67. As of 2009, developers from Jomo Kenyatta University of Agriculture and Technology (JKUAT) and the University of Nairobi (U of N) are setting up the infrastructure to transform the University of the Witwatersrand (WITS) into an AVOIR node.

Description: The most important change here is that developers from two universities in Kenya, the JKUAT and the U of N, are making significant changes to the University of the Witwatersrand (WITS) in South Africa.

The infrastructure involves the following:

1. KIM (Knowledge Information Management) Portal development: http://kim.wits.ac.za
2. E-learning setup: http://kim.wits.ac.za/elearndemo
3. Presentations: http://presentations.wits.ac.za
4. Institute of Human Evolution Portal: http://kim.wits.ac.za
5. Academic Development System: http://kim.wits.ac.za/wip/ad
6. Improved CMS development
7. Realtime System at http://kim.wits.ac.za?module=realtime
8. Library repository at http://presentations.wits.ac.za

The University of Witwatersrand is contributing to development and deploying various AVOIR products. Contribution to development mainly constitutes making bug fixes as well as development of

the next version of the Content Management System to power the University's main portal. The portal for the Knowledge and Information Management portfolio (http://kim.wits.ac.za), the organ charged with management of Information Technology at the University, is running on Chisimba.

Other portals running on Chisimba at the University are the Institute of Human Evolution (http://kim.wits.ac.za/ihe). The University has also implemented and deployed a presentation-sharing solution running on Chisimba for the library. This allows users to share presentations in different formats with other internet users. The solution can be accessed at http://presentations.wits.ac.za. Two enterprise applications have also been developed: the Academic Development System (http://kim.wits.ac.za/ads) to be used by the academic development unit for curriculum management and the Chisimba Realtime Tools application, running at http://presentations.wits.ac.za, that allows hosting of online virtual classrooms as well as virtual meetings.

Significance: The outcome is important because the network is showing signs of maturity based on the fact that developers from other regions (that is, countries beyond South Africa) are taking the lead in AVOIR activities in other countries.
Another important aspect of all of these changes is that WITS will become an example to the world of a university that has successfully implemented an open source model at the core of its IT operations.

Contribution of the research network: The developers from JKUAT and U of N who are involved in setting up the infrastructure at WITS University were once AVOIR interns. A few developers were singled out by AVOIR because of their talent and exemplary work ethic in terms of contributing to mailing list traffic and Chisimba modules. These interns were given greater opportunities to further develop their skills by attending conferences and developer workshops, and some were given the opportunity to go to UWC and work with senior developers while completing their masters degrees in computer science. As a result of this "investment", they are now in a position to develop the infrastructure at WITS.

Professor Keats was offered the position of deputy vice chancellor in IT at WITS, and he noticed an opportunity to introduce open source software using AVOIR/Chisimba as a base and requested help from AVOIR. To that end, a senior developer from the University of Nairobi was employed to drive the changes related to AVOIR, and also to bring in JKUAT developers who can collaborate on the project from Kenya.

Classification:

Fostering on-going, robust policy dialogue among:

- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships

Stimulating social and technical innovation in ICTs, including:

- Wireless broadband

68. As of 2006, when the KEWL framework was migrated to a new, Web 2.0-enabled platform called Chisimba, the ways of teaching and learning have changed significantly at two South African universities: the University of the Western Cape and the University of the Witwatersrand.

Description: The decision to migrate KEWL to Chisimba was taken by Paul Scott, the chief software engineering architect of KEWL and Chisimba in conjunction with Professor Keats. The decision was

prompted by the then-recent emergence of Web 2.0[30] technology which was supported by Chisimba but not KEWL.

As a result of AVOIR's development of Chisimba, an open platform, a significant number of Web 2.0-enabled products have been built. Notable among them are the following: an e-learning system powering the e-teaching department at the University of the Western Cape (UWC) (eteaching.uwc.ac.za); the main portal of UWC (www.uwc.ac.za); the open presentation system that allows sharing of presentations deployed at UWC (chameleon.uwc.ac.za) and at University of Witwatersrand (presentations.wits.ac.za); the Realtime Virtual Classroom; the WITS Knowledge Information Management site (kim.wits.ac.za); and the upcoming e-learning site at WITS (kim.wits.ac.za/elearndemo).

Significance: The importance of the decision to move KEWL to Chisimba is that Chisimba is written in PHP 5 and allows for the integration of Web 2.0 features making it the most advanced learning management system in the world. This is important because the changes within the Chisimba system have contributed to the evolution of how learning and pedagogy takes place at higher education institutions. It allows students to expand the ways in which they learn, how they learn, and where they learn, and it has expanded the methods of interaction.

Contribution of the research network: The AVOIR network saw an advantage in having a system that included Web 2.0 features which would place it at the forefront of knowledge management systems in the world. AVOIR supported and became an advocate for this vision. UWC was already using KEWL so convincing the appropriate people at this university to adopt its successor was not such a difficult exercise. Indeed, given that most of the university already uses Web 2.0 applications such as Facebook, Twitter, and other social networking sites, using Chisimba would be a natural progression. Furthermore, UWC has a very strong e-learning component which entails actively training and supporting students and lecturers in using the system.

Professor Keats was appointed as deputy vice-chancellor of IT at WITS University, which has a formidable IT budget. As he did as director of ICS at UWC, Professor Keats is changing perceptions at WITS regarding open source software and one way is to implement Chisimba at one of Africa's largest tertiary institutions.

Classification:

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.[31]

69. In 2008, USAID commissioned AVOIR nodes at four African universities to develop an animal health surveillance system.

Outcome: The University of the Western Cape (UWC) in South Africa, Makarere University in Uganda, the National University of Rwanda, and the University of Ghana Lagon were approached by the United States Agency for International Development (USAID) to develop an animal health surveillance system for East and West Africa. These universities contracted with the AVOIR network to develop an animal health surveillance system for the detection of avian flu and other contagious

[30] According to Wikipedia (http://en.wikipedia.org/wiki/Web_2.0), "Web 2.0" refers to the second generation of web development and web design that facilitates information sharing, interoperability, user-centred design and collaboration on the web. The advent of Web 2.0 led to the development and evolution of web-based communities, hosted services, and web applications. Examples include social-networking sites, video-sharing sites, wikis, blogs, mashups and folksonomies.

[31] OECD LEED Forum on Social Innovations, 2009 (http://www.oecd.org/document/53/0,3343,en_2649_34459_39263221_1_1_1_1,00.html)

animal-to-human diseases. This was initiated toward the end of 2008 and most of the work has now been completed.

Significance: The Animal Health Information System (AHIS) project is an effort to apply information technology to assist in delivering veterinary services in Ghana, Uganda, and Rwanda by improving the collection, storage, analysis, and dissemination of animal disease data. The overarching objective of the project is to deploy a comprehensive system for surveillance of animal health in Africa.

Engaging the AVOIR network to support this effort offers benefits on two levels: it provides a business opportunity for AVOIR to collaborate and operate as a network, and it provides the AHIS project and veterinary services with in-country technical expertise for the deployed system. The outcome is also important because AVOIR contributed to a significant development project that could have a significant impact on animal surveillance in Africa. In addition, the project represented an important source of revenue for AVOIR.

The systems that existed prior to the development of the new, open source system by AVOIR developers were proprietary and their functionality was inferior.

Contribution of the research network: USAID had previously funded the position of AVOIR co-ordinator and had also funded two AVOIR workshops. USAID, together with AVOIR, recognised the need to develop AVOIR's business capacity so that AVOIR could become self-sustainable. This initiative was a response to an opportunity arose to develop the animal health and surveillance system within regions that fell under AVOIR.

AVOIR contributed directly to the AHIS project in that the four universities involved are members of the AVOIR network. Individual universities also communicated progress to USAID and were remunerated according to their contributions to the system, which included localizing the system for African and regional needs.

The four universities in question are part of the AVOIR network so influencing them to do the job was not difficult as it would ultimately benefit these AVOIR nodes. Furthermore, these nodes reside in regions where animal surveillance is required, so not only would the nodes be benefiting from a business opportunity, but they would also be contributing to a reduction of a serious health problem within their region. USAID was keen to develop the system in AVOIR-specific regions so the proximity of AVOIR nodes made it attractive for AVOIR to run the project.

Classification:
Catalyzing thriving regional research networks that:
- Strengthen weak institutions through mentoring relationships
- Serve as fora for knowledge diffusion

Stimulating social and technical innovation in ICTs, including:
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

XII GRACE

Name of research network: Gender Research in Africa and Arab Countries into ICTs for Empowerment (GRACE).
Project numbers: 102508 (GRACE Phase I - April 1, 2005 to February 29, 2008), 105007 (GRACE Phase II)
Sources of information:
102508*: "Technical report" by Chat Garcia Ramilo (1 April 2006-30 June 2006); "Technical report" by Chat Garcia Ramilo (1 October 2005-30 March 2006); 7th Technical Progress Report (July-November 2007); 6th technical progress report (March – June 2007); 4th Technical Progress Report (July-November 2006, hard copy); Final Technical Report (April 1, 2005-February 28, 2008); Project Completion Report (Stage 2 and Stage 3, interview with Heloise Emdon).
105007: Project Completion Report (Stage 1, interview with Ramata Thioune); 2nd Technical Progress Report (October 2008-February 2009); GRACE Contribution to Acacia's Outcome Evaluation of its Research Networks, October 1, 2009, GRACE researchers' reflections on their GRACE experience (www.GRACE-Network.net), Researcher's workshop evaluations.
Respondents: Ineke Buskens, Anne Webb, GRACE researchers, Ramata Thioune, Heloise Emdon
Reviewers: Jennifer Vincent, Ricardo Wilson-Grau

70. Between 2007 and 2009, GRACE leaders and researchers were invited to contribute their expertise and experience as acquired in and through GRACE in various fora and towards various purposes.

Description: The promotion of GRACE's research by its members has contributed to a change in the ICT4D research discourse. Testimonies to this change include the numerous invitations to the GRACE project leader and researchers to participate in national and international ICT4D fora where researchers, policy makers and international donors have been present (more details available on http://www.grace-network.net/news.php):

Conferences

- September 2009, Rokhsana Mohammed Ismail presented the work of GRACE MENA (Middle East North Africa) at the first Arab Women in Science and Technology Conference in Dubai;
- July 2009, Salome Omamo was selected to present on her team's GRACE research at the Sixth International Critical Management Conference held at the University of Warwick, UK;
- April 2009, Ineke Buskens invited to speak at the International Conference on Information and Communication Technologies and Development, Doha;
- December 2008, Ineke Buskens invited as key note speaker at the 6th concentration meeting of the EuroAfrica-ICT Project, Brussels;
- October 2008, Kiss Abraham was invited to present at the first national Communications Authority of Zambia ICT research symposium;
- September 2008, Leila Hassanin and Ineke Buskens invited to present, and panellists Susan Bakesha, Gertrudes Macueve and Ibou Sane present their research at the International Federation for Information Processing (IFIP) Technical Committee 9 workshop and the Eighth International Conference on Human Choice and Computers in Pretoria;
- December 2007, Gisele Yitamben , Kazanka Comfort and Ineke Buskens presented at the GK3 Conference in Kuala Lumpur, Malaysia;
- May 2007, Leila Hassanin was a speaker at Rooms of their Own: Women in the Knowledge Economy and Society conference organized by the Royal Society of Canada.

Forums

- September 2009, Ineke Buskens was invited to participate in the Harvard Forum II: ICTs, Human Development, Growth and Poverty Reduction, at Harvard University;
- September 2009, Ineke Buskens invited to participate in IKM/Bridging the Digital Divide Forum at the Judge Institute at Cambridge University.

Seminar

- October 2008, Ineke Buskens requested to give a seminar on the lessons learnt from GRACE at the International Institute for Geo-information Science and Earth Observation (ITC) in Enschede, the Netherlands.

Invitations to assist others with gender analysis

- Ineke was invited to design and facilitate a gender awareness workshop for Acacia staff and partners in Johannesburg, October 2008 (http://www.idrc.ca/fr/ev-130708-201-1-DO_TOPIC.html). As a consequence of this workshop, she and the co-facilitator she had chosen were asked to write a gender awareness background paper to be used by Acacia staff and partners;
- Salome Omamo was invited in January 2009 to contribute to the African Copyright & Access to Knowledge (ACA2K) project as a gender consultant. Ineke had been approached by ACA2K, on the recommendation of IDRC program officers, to suggest somebody from GRACE to help them with gender integration. Salome, as the closest GRACE researcher to an ACA2K partner in Nairobi, was recommended and took part in their January workshop. Salome was contracted for 16 months by ACA2K to provide advice on and to evaluate the project's integration of gender sensitivity. She was also asked to provide input on the writing of a report on ACA2K's gender approach and findings, and the strengths and weaknesses of the project's efforts in this area;
- Ineke has been invited to provide training in feminist methodologies to IDRC's Gender, Equity and Health Project in March 2010. This invitation arose following discussions held with Ineke in May 2009 during the launch of the GRACE book in Ottawa.

Request to review papers

- The GRACE coordination team has been asked to act as reviewers for papers for the International Federation for Information Processing (IFIP) workshop 'Research voices from Africa' regarding ICT and society/development in Africa to be held at Makerere University in March 2010, to discuss alternative epistemologies and perspectives on ICT and society. (http://docs.google.com/View?id=ajfr5cm33w54_496grn847cp).

Significance: There is a scarcity of knowledge on the ways that the use of ICTs is contributing or could contribute to women's empowerment in Africa, and a dearth of information on what women are experiencing and wanting to experience as ICTs enter their homes, workplaces and schools. The link between women's empowerment and general development has been emphasised repeatedly. It is important to galvanise the empowering potential of ICTs for women's empowerment and for development in general and to prevent the undesirable disempowerment that would be a result of women's exclusion from the information society and women lagging behind in ICT use.

GRACE researchers have contributed to the formal body of ICT4D knowledge, changing how researchers (and potentially others) understand what needs to be taken into account regarding the impact and potential of ICT use to contribute to development and women's empowerment in Africa. These contributions, and the recognition by forum and project organizers of the importance of bringing such perspectives into the public sphere and into their work, speak to an appreciation of the significance of the gender analysis being brought into the ICT4D discourse by GRACE.

The coordination team sees the request to act as reviewers for an international conference as another indication of the recognition by the IFIP of the significance of GRACE's contribution to information and knowledge concerning ICT4D. In the role of reviewers, they will be in a position to encourage the inclusion of papers that integrate gender analysis and contribute to the growing body of knowledge

and expertise that promotes understanding of the lived realities of African women in relation to ICTs and potential uses of ICTs for empowerment.

What is perhaps distinct about the perspective on women's empowerment within GRACE is the acknowledgement of the crucial importance of women's agency. And qualitative research, especially qualitative research that allows for participatory and transformational techniques, is eminently suitable to study women as active agents of social transformation.

With GRACE members being invited to share their expertise, the approach to women's empowerment which sees women as active agents of change is also shared with groups and projects seeking to contribute to sustainable, empowering development.

Contribution of the research network: Without the GRACE Network there would not have been the research findings and interpretations to share, nor the growing body of expertise within the Network that is now able to reach out to others. Network coordinators and members have been sharing information with each other about requests for papers and contributions relevant to the GRACE research. Researchers have expressed their interest through submitting proposals (such as in the case of Salome, Kiss and Leila), and their submissions have been selected by conference organizers). GRACE researchers and coordinators have subsequently been invited to participate as speakers, reviewers, advisors, facilitators and committee members at national and international fora for the explicit purpose of bringing their gender viewpoints across and influencing the national and international ICT4D discourses.

Classification:
Fostering on-going, robust policy dialogue among:
- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:
- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:
- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Applying meaningful gender analysis:
- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa
- Reduction in the magnitude and evolution of the observed gender gap

71. Since the inception of the GRACE project in 2004, GRACE Africa researchers, many of whom had never authored published texts, demonstrated substantial behaviour change which culminated in their contribution of chapters to the book African Women & ICTs (May 2009).

Description: The GRACE Africa researchers worked with and refined their own knowledge creation processes to the point where they prepared solidly and coherently researched, clearly and logically written chapters that contribute to a formal body of ICT4D knowledge. (see http://www.idrc.ca/en/ev-135944-201-1-DO_TOPIC.html)The quality and validity of the research and writing fills what was a gap in available knowledge from the perspective of women ICT users with material that is researched and written from an indigenous perspective. These perspectives were recognized by both the editors/project coordination team, and by the publisher as crucial for influencing sustainable, empowering change. For most of the researchers, this was their first peer-reviewed, formally published book contribution.

The research and writing published in May 2009 by these researchers has generated interest amongst academic publications as evidenced by the following published and forthcoming reviews:

- A review of African Women and ICT, edited by Ineke Buskens and Anne Webb, written by Dorothy K Gordon, International Journal of Gender, Science and Technology, Vol 1, No. 1 (2009) http://genderandset.open.ac.uk/index.php/genderandset/article/viewFile/45/38

- Book review by Natalia Molebatsi in University of South Africa (UNISA) publication Focus, http://www.unisa.ac.za/happening/docs/Focus_Oct09.pdf (p. 19).

- Book review proposed by co-editor of the journal Gender, Technology and Development, forthcoming.

Significance: There is a scarcity of knowledge on the ways that the use of ICTs is or could contribute to women's empowerment in Africa. And as no research quest can go beyond the minds that conceptualise it, the minds that can phrase the questions that will yield insight into the potential of women's empowerment through ICT participation have to be the minds that are intimately familiar with and affected by the status quo. Hence the crucial importance of investing in those minds willing to take on such a journey and to take care that they are confident and equipped enough to pursue the questioning process with rigor and dedication. Local researchers, who are qualified, confident and motivated to reveal and analyse the complex social, cultural, political and economic roles and relations these new technologies enhance, exacerbate and can potentially contribute to changing, in their own communities, regions and countries, are providing much needed insights and information.

As their book chapters were in their final stages of development, GRACE researchers took part in the International Federation for Information Processing (IFIP) Technical Committee 9 workshop and the Eighth International Conference on Human Choice and Computers in September, 2008 (Pretoria). Having a significant presence at these events, and having GRACE researchers' voices heard where there was a very evident need for grounded, quality contributions by African researchers also impacted the GRACE researchers. After the events, Network members commented on how this first group presence at an international conference highlighted the significance of and need for their work, and strengthened their sense of knowing and doing something that will contribute to change.

Contribution of the research network: The commitment to research capacity-building is built into the way GRACE was developed and is still managed. Researcher evaluation reports that reveal the researchers' perceptions confirm that GRACE has provided an important space and venue for their growth as researchers. The researchers made the following comments:

The methodologies studied changed my way of approaching questions, even the questions related to life because thanks to the free attitude interview, I realized that today while speaking with somebody, I could, indeed, have a person speak about what he thought and not make him say what I wished him to say. So, today this leads to my spirit's opening up and enables me to have a deeper conversation. Therefore, these methodologies did not remain mere methodologies of research but these mythologies became manners of being even for myself....I acquired a rather profound way to look at life. There are things which are nearly mundane. We did exercises which seemed mundane but which brought so much to me. When we finished for example writing, we had some activities. We had to walk a little bit to free our spirits, we realized that we did not see well. We live without seeing, we walk. We live with people without listening to them. I must say that I acquired a profound knowledge of myself. I've learnt a lot in this respect

The particularly significant moments in the [Research Design and Methodology] workshop were while we just made our mind reach deep thinking while silent and related to our research journey and dreams starting from our own thought passing by our own identity, affecting the surrounding environment. This gives the opportunity to give importance to all elements.

Learning the Quality and Impact Framework Model was particularly significant for me as I felt it forced me to channel my ideas coherently and enabled me to figure out the holes in my thinking. I now see the ways in which the model can be used and I think it will be an excellent research tool for me.

Classification:
Catalyzing thriving regional research networks that:
- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:
- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:
- Cited and/or published in peer-reviewed, third-party publications (i.e., not by IDRC or the research networks).

Applying meaningful gender analysis:
- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa

Changing gender relations in:
- Access and patterns of use
- ICT literacy
- Education and skills
- ICT employment.

72. From 2005 onward, GRACE researchers have developed nurturing and synergistic relationships with like-minded researchers within the GRACE Network.

Description: While the Network exists in the form of a group of researchers and the coordination team who have worked together and been in regular communication for more than four years, an aspect that was not foreseen is how the Network has become a supportive environment emotionally as well as intellectually. The emergence of this aspect of the Network is very logical: those who want to transform their world are actually critiquing their environment and this can be a very lonely, alienating project. Those who want to do research for change and are prepared to change themselves need an environment that will grow with them and which becomes a point of reference for them. As one researcher described this environment: "I now have a meaningful blog, a window to the world with limitless ability to broadcast my feelings – the GRACE E-mail network—and an intellectual pool at my convenience which is a source of strength and support."

According to another GRACE researcher:

Since the first meetings, I realized that I was discovering a beautiful family, marked by the opening to each other, friendliness complicity, respect, I realized that GRACE is a space of discussion, exchange of information, sharing of knowledge, know-how, soft skills."

One researcher was able to change how she connects with those she respects and initially felt hesitant around:
Having to share and exchange ideas with academically accomplished people ... was at first intimidating. However, as time went on and as I came to know them better through interaction, I felt comfortable since in GRACE we would communicate with each other using our first names. I was often challenged by their humility!

Another researcher commented:
GRACE is also a vision of the world, a process of transformation or change, and for that, it has a mission. GRACE means for me the search for coherence, efficiency, better intelligibility of the social

in order to be more conscious of gender. With GRACE I am undergoing a process of deep change. I changed, and I am using this know-how in my classes, and in my personal research.
This researcher continued to speak about the experience of research capacity development during a later workshop:
I've learnt so many things. It helps me in my courses. When I speak to my colleagues about methodology I realize that they need this [training]. I feel it is a victory. It is a delicate process.

Further changes relating to the Network experience and how another researcher grew into approaching her work differently were described as follows: "The greatest most important lesson I had in the GRACE family was the SHARING." This sharing brought up interlinked lessons as demonstrated in the following statement:
I have learned to share the knowledge, experiences with other Graciousness peers. By sharing I learned that I was not the only one facing challenges through out the research journey .... The sharing process also taught me careful listening. By careful listening I mean ... listening and understanding what the other peer researchers mean. For this to happen I have to pay attention when others speak. Once I have got the other's peer message I can easily ask questions to be clarified, can give comments as well as give some input or suggestions to improve the research. By hearing to these comments, suggestions and clarifying some questions from the peer, I can think further and find my way out if I were lost or if I had my ideas dispersed. By having my work commented, receiving input and suggestions, I have learned to appreciate criticism.... By giving further thoughts to my work I have learned that I can surprisingly find myself on the right track, and that it's me and only me who can make it happen.

Significance: Given that a long-term goal of the GRACE project is the formation of a research network that can do ongoing gender and ICT research in Africa and MENA countries, and generate knowledge that will influence policy at the local, national and regional/global levels, the development of nurturing and synergistic relationships among members, that are not dependent upon a formal project structure being in place, is essential to the sustainability of the GRACE purpose. The networks, as supportive environments for growth and change, become more than a collection of colleagues held together by a project structure; they become a network of supportive bonds and relationships that exist in their own right.

Contribution of the research network: A key element in the formation of the GRACE Network has been the annual face-to-face workshops. These are intensive events at which all those who can attend are deeply engaged in their thinking processes, and in engaging each other's thinking processes. Furthermore, these intense periods of working together build rapport, trust and connection between each other and this forms the platform from which communication continues on-line until the next opportunity to meet.

Classification:
Catalyzing thriving regional research networks that:
- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:
- Improved research methodologies and practices
- Increased numbers of ICT4D researchers
- More research institutions with a specific ICT4D focus

Applying meaningful gender analysis:
- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa

73. Starting in 2006, African policy makers in countries such as Nigeria, Uganda, Kenya, Cameroon and South Africa have accepted the research, or the expertise derived from GRACE experience by researchers and research participants, as

contributions to policy dialogues within their organizations, communities, regions and countries.

Description: According to the Nigerian research team, they have become involved in the Broadband for Nigeria (BBRNG) group that is designing a framework for Nigeria broadband due to their work with un-served and under-served communities, and note that "it is our [GRACE] work in these areas that has made us an advocate for rural communities." The researchers explained:

The Partnership for Higher Education in Africa (PHEA) has provided modest funding to the Association for Progressive Communications (APC) in an effort to support campaigns promoting open, affordable broadband access in Nigeria, Ghana, and South Africa. The Nigerian ICT Forum was requested by APC to organize the Nigerian campaign, and in 2009 John Dada of the GRACE team was identified by the ICT Forum as the appropriate leader of the initiative. John's work in GRACE has enhanced the profile of rural connectivity issues in Nigeria , and he draws on this in his contribution to the Broadband for Nigeria (BB4NG) group. The BB4NG is drawing up a campaign strategy which includes organizing a forum for all the stakeholders so that eventually a policy draft can be recommended to the Nigerian Government.

In Uganda, a GRACE researcher spoke of her contribution to policy formation in this way:

During the GRACE project, in 2006, Women of Uganda Network (WOUGNET), with whom I was carrying out a GRACE research project, was requested to contribute to the development of the Uganda Information and Communication Technology (ICT) Policy by identifying gender issues in the draft policy and proposing strategies to ensure that gender and women's issues are catered for. As a member of WOUGNET, I was requested to analyze the draft policy and write a brief paper highlighting the said issues. Using my training and knowledge acquired from the different GRACE activities including the research, I was able to do this. The issues raised by my gender analysis of the Uganda ICT Policy were used by WOUGNET to lobby policy makers and government and some of the issues were taken on board and reflected in the national policy. ... GRACE also taught me to become more confident about what I do. Through GRACE I have improved my knowledge and skills in feminist theory and gender analysis and pass this on through different assignments like policy analysis and training.

In Kenya, one research team reported this particular influence of her research:

Most of the women interviewed had cited that the use of mobile phones in Kenya to conduct business in terms of correspondence/communication using, for example SMS was not recognized legally. We shared our GRACE report with the Ministry for Information and Communication, and while we can not attribute the inclusion of the clause acknowledging SMS/email communication to the GRACE research only, the results contributed to enhancing advocacy work to speed up the Communication Act process. For those who are aware of this 2009 amendment to the Act, it will contribute to reducing overhead costs for conducting business: there is no longer a need to have physical offices/landlines to be considered legal. There is now legal recognition of e-commerce. People do not have to own physical spaces to conduct business as they can conduct business online, via SMS, and so forth.

According to the Cameroon GRACE team, their research played a significant role in enabling collaboration where it was previously absent. The research involved women in the textile sector who were using the internet, but not the resource centre that had been set up by the Chamber of Commerce to provide women entrepreneurs internet access. The study found that the resource centre had not been set up in consultation with the potential users and consequently did not correspond with their needs. In response to the GRACE research, the Chamber of Commerce changed how they arranged access to the facility by consulting with the potential users to make arrangements suitable to all parties.

Some GRACE researchers have also learned that research participants have used the knowledge and expertise gained from participating in a GRACE project to influence policy discussions within their communities. According to the South African researcher:

The research participants regularly shared their experiences of the GRACE project within their local community governance structures. People's understanding of the mini-grid (electrical) system improved as they realised potential opportunities that could be explored if the system functioned properly. So initially, when the project started people wanted the system to be removed, they now were of the opinion that it should be fixed and an ICT centre established for use by the community.

Significance: As illustrated in the quotes above, the researchers' increased expertise, the findings of their research, and those who have been directly involved in the research have contributed to social change in their communities and countries.

Contribution of the research network: During the first phase of the GRACE work, contributing to policy change was identified at the outset as a way to contribute to social change. Research quality and knowledge transferability have been, and continue to be, basic to the GRACE research approach. Because of the validity and groundedness of the research, the learnings have been applicable in policy dialogues and transferable to other situations and contexts.

Classification:
Fostering on-going, robust policy dialogue among:
- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Applying meaningful gender analysis:
- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa
- Reduction in the magnitude and evolution of the observed gender gap

Changing gender relations in:
- Access and patterns of use

74. From 2005 to present, GRACE researchers have expressed that they have undergone fundamental and powerful personal change and development.

Description: The following quotes from reflection pieces written by three GRACE researchers provide a sample of what has changed for them and when:

- So far the journey with GRACE has been a life changing one and has meant several things for me.... GRACE has provided me with a platform for self expression in which I have gained confidence to interact with people and share/express my opinions freely. I am no longer the shy girl who used to hold back. Interacting and sharing with different researchers in workshops and conferences has contributed to this. Reading and the self-care exercises/practices have also been of great help. I have been able to achieve some of my dreams and have developed new dreams.

- I learned to love myself without feeling guilty. I discovered that I needed to love and develop myself before I share these values with others. Ineke is well endowed with self development skills which she often shared and integrated these in the workshop programmes.

- The GRACE journey was intended to call forth the written and spoken voice of African researchers, to be claimed and reclaimed again and again as we slowly peeled away masks often imposed upon us by society but generally also by ourselves. Through the Transformational

Attitude Interview process (TAI) process I was inspired to the fullest expression of my heart through individual and collective acts. I was able to discover the profound possibilities in claiming my personal, individual and professional power.

- ...Through the TAI I'm in the process of repudiating patterns that I have created, or that have been imposed, that inhibit the full expression of my being as a person and as a researcher. Slowly, slowly I have been able to peel away the layers of who I am and who I am becoming. This journey has been painful. I have had to redefine many personal relationships. But it was necessary. How could I claim to be a facilitator for change when I was not willing to change myself? How could I assist with "empowerment" processes when I was in chains? In doing so I had to face my deepest fears and insecurities. And still am, and this is ok. I am becoming as much as I am.

Significance: Excellent research that can lead to change has to be truly grounded in one's own values, theory of how change happens, and vision for a better world, while one remains responsive and open to different perspectives. Getting in touch with and understanding these capabilities and aspects of oneself can be a journey in itself. It generally involves reaching a level of heightened self-awareness. Thus, while designing and conducting their research, the researchers have simultaneously travelled a path of deepening connectivity with their sense of purpose in this world. Self-awareness or reflexivity is very demanding and challenging, yet it is key to the qualitative research approach used.

Contribution of the research network: The researchers, in their reflections on the personal changes they have and continue to undergo, attribute this change process to their involvement in the GRACE project. They attribute the personal development they write about to the workshop processes and content, to the relationships they have developed with other GRACE researchers, to the mentoring provided by researchers and the coordination team, and to additional opportunities that have come to them through their links within GRACE, and through their increased development and recognition of their capacities

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers

Catalyzing thriving regional research networks that:

- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices
- Increased numbers of ICT4D researchers

Applying meaningful gender analysis:

- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa
- Reduction in the magnitude and evolution of the observed gender gap

75. In December 2008, the Zambia Council for Social Development elected GRACE researcher Kiss Abraham to serve as an advisor for the development of the CIVICUS (World Alliance for Citizen Participation) Civil Society Index.

Description: The Zambia Council for Social Development elected GRACE researcher Kiss Abraham as an advisor for the development of the CIVICUS Civil Society Index. Funded by several organizations, including the United Nations Development Program, the CIVICUS Civil Society Index (CSI) is a research project which is being carried out by on a global scale. The findings of this project are expected to clarify the state of 'civil society,' which includes networks like GRACE as well as civil society organizations (CSOs).

As stated on the CIVICUS website (http://www.civicus.org/csi):

The CSI is initiated and implemented by, and for, civil society organizations at the country level. It also actively involves and disseminates its findings to a broad range of stakeholders including government, donors, academics and the public at large.

With respect to the advisory committee to which Kiss Abraham was elected, the CIVICUS website states the following:

The National Implementation Team (NIT) carries out a preliminary stakeholder analysis and identifies the 12-20 individuals to form the in-country Advisory Committee (AC), which should represent diverse civil society and other stakeholder groups. The AC's primary role is to provide overall guidance and assistance to the NIT in implementing the project. AC members should act as 'ambassadors' for the CSI and are expected to raise awareness and build support for the CSI among their constituencies and the broader public.
Kiss participated in the validation of research findings by the CSI committee and ensured that gender was factored in, because this was an area that the research findings seemed to have overlooked, as well as the work of those valuable networks that were not part of established non-governmental organizations (NGOs). Ensuring the inclusion of marginalized groups counters the tendency to by default work within dominant gender-blind ways of knowing. Including gender analysis when considering the validity of research findings counters the tendency to contribute to and perpetuate unrecognized gender inequality. The government of Zambia has enacted a new law called the NGO Act which, according to some, limits many fundamental freedoms of CSOs. In the context of this debate, the CSI comes at an opportune time to highlight the value of the work of civil society organizations.

Significance: The CSI is being carried out globally and based on the findings, the state of civil society will be clearer in countries like Zambia where there is currently no base data of this nature. A mapping and analysis of Zambian social forces, levels of influence, and the national role of civil society is now underway thanks to the CSI process.

Contribution of the research network: The ZCSD has been one of the respondents in the GRACE-Zambia research project since the inception of the first GRACE project in Zambia and is very familiar with GRACE. Kiss's invitation to join the Advisory Committee of the CSI, a responsibility bestowed on CSI by CIVICUS, was based on the confidence the ZCSD has in Kiss's GRACE work and in the value of the GRACE process in the realm of research and development.

Classification:
Fostering on-going, robust policy dialogue among:
- Policy-makers
- Other key policy-related bodies.

Increasing research capacity in ICT4D through:
- Improved research methodologies and practices

Applying meaningful gender analysis:
- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa
- Reduction in the magnitude and evolution of the observed gender gap

76. In 2009 GRACE researcher Salome Awuor Omamo co-founded Big Sisters Network in Kenya, which provides a centre for mentorship and capacity building for teenage girls and a youth centre for ICT access and training.

Description: Kenyan GRACE researcher, Salome Omamo, contributed to the start of an organization called Big Sister's Network, a centre for mentorship and capacity building for teenage girls and a youth centre for ICT access and training.

According to the researcher:
It became apparent from the research findings that young women were still dealing with different challenges in their education and careers. It also emerged that the women who we interviewed received support from their families, and mentors had a major role to play in their education and careers. Apparently not many girls especially in rural Kenya are exposed to such mentorship and still have to deal with stereotypes and fear of science subjects. Most of them are not exposed to technology and don't even know what a computer is. In Nyanza, Kenya, there are other problems such as school drop outs due to teenage pregnancy leading to many single mothers who cannot proceed with their education. We want to assist young women especially in rural Kenya who are not exposed to different forms of mentorship/support and are left behind in regards to women's empowerment since they, their parents or teachers do not know how to help them. We have partnered with several girls schools in Nyanza Kenya to offer this mentorship and support. With the passion in our hearts as BIG sisters offering support to our younger ones, we hope that we will be able to impact this society through this dream.

Significance: The Big Sisters initiative recognizes the fact that Kenyan girls and women face a myriad of challenges and burdens that they have to carry. These affect their daily lives, education and future careers. This initiative therefore tries to help girls find solutions to or cope with these problems which include stereotypes and mindsets created by the cultural beliefs and societal practices and lack of awareness and guidance. Having grown up in the same society, the organizers recognize the need for mentorship, especially for young girls. Salome also notes that in the first phase of the GRACE research, she saw that support and guidance are key to changing mindsets and perceptions in order to find direction, self development and fulfilment in life right from the youngest ages.
Big Sisters provides, among other things, mentorship and support, including life skills, career guidance, and educational sponsorship. They are also conducting research on women's issues, and they state that their programs help support the girls who participate so that they can achieve their full potential in life just as they and the women in the GRACE study did with the support of family and other mentors. This, in combination with determination and hard work, will help the girls cope with the many challenges they face, change their attitudes, and work towards a brighter future.

Contribution of the research network: GRACE research capacity training has emphasized coherence in research design, meaning that all the research elements, rationales and steps fit logically together. It has also recognized complete alignment with purpose as crucial to excellence in research, and that researchers must follow their passion in their research focus. Research approaches that are transformative and induce change, particularly in the researchers themselves, are lodged in the perspective that the greatest agent for change, even policy change, is the researcher herself/himself. In all research, but especially in research for change, the researchers are the main research instruments and transformative agents. As such, management of the self and reflection on one's personal change process are methodological prerequisites.

Salome reflected on and investigated her own change process and followed her passion. She contributed two chapters to African Women and ICTs, one as part of a team and the other as the sole author. In her writing, she captured the significance of mentoring for herself and her respondents, and through this initiative, she has acted on her findings by offering mentoring and support through this newly-established organization. This represents a partial, unintentional result of the GRACE Network.

Classification:
Increasing research capacity in ICT4D through:
- More research institutions with a specific ICT4D focus

Stimulating social and technical innovation in ICTs, including:
- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

Applying meaningful gender analysis:

- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa
- Reduction in the magnitude and evolution of the observed gender gap

Changing gender relations in:

- Access and patterns of use
- ICT literacy
- Education and skills

77. The First National ICT Research Symposium in Lusaka invited Kiss Brian Abraham to present his GRACE work and research process, indicating an emerging interest in gender and ICT research in this key initiative to bring a broad spectrum of researchers together.

Description: The Communications Authority of Zambia (CAZ) is a government regulatory body for ICTs in Zambia. The culture of consultation is not deeply embedded in the Government of Zambia. Thus, this symposium was very significant because for the first time, this long-standing planning and regulatory institution was asking for advice from development workers and researchers across the nation. It also illustrates the value of the symposium in terms of the fact that this body has been operating without this level of consultation and sharing of ideas. To call for an ICT symposium symbolized a shift from the autonomy of non-consultative action to instigation of innovative ideas from the broad spectrum of informed actors in the field. The response to the CAZ invitation was overwhelming to CAZ; it surprised them that there where so many institutions and actors willing to participate in this first symposium, signifying a wealth of work that was fragmented in isolated pockets.

CAZ was a respondent in Kiss's GRACE research from its inception. Because of this CAZ has been aware of GRACE and the values of this network. They called for applications in the media and Kiss responded to the call with the intention of sharing the results of his GRACE research. At the time of the invitation, the book had been released and Kiss was eager to share the book. Kiss was asked to participate because of the value of the gender-aware approach to ICTs and development that he took in his research work. Indeed, his presentation was one of the few selected from the many applications for participation.

There was significant interest in Kiss's presentation at the symposium, particularly in the methodology used, including outcome mapping and appreciative inquiry and how these approaches can be engaged in transformative research. Other debates revolved around the GRACE Zambia research process in carrying out gender and ICT for empowerment-focused research, which was uncommon in the Zambian context. Kiss's GRACE presentation at the symposium was unique for its integration of gender analysis. His presentation was also unique insofar as it was on a completed project; in contrast, most of the applications for participation concerned proposals for ICT research work.

Significance: One of the several objectives of the symposium was "[to assist] the Authority to identify areas for potential research in the ICT sector aimed at accelerating development of telecommunications and ICTs in Zambia." CAZ's invitation of a GRACE researcher to present his work has three levels: It indicates an emerging interest in gender and ICT research by Zambian telecommunications; CAZ was introduced to a continental project that had undertaken research about Zambia on a subject that directly related to the work of CAZ; and the GRACE research process was introduced to the Zambian research fraternity.

This was the first time that the project was shared at the national level with an audience of media and peers. Methodologically, and in terms of research focus and results, the GRACE research was a valuable input into the deliberations on future research foci and choice of methodology. After the

symposium, it was clear that there was more work needed in the telecommunications field in the realm of gender as there were only two projects explicitly dealing with this aspect.

Contribution of the research network: Kiss was in a position to contribute to this national conference on ICT research, and contribute insightful perspectives on methodology and gender analysis due to his GRACE research project. He was able to speak to his own solidly researched findings, and to the methodology he had put into practice during the first phase of GRACE, and thereby contribute based on his own experience and knowledge to this nascent interest in gender and ICT research.

CAZ is mandated to carry out research for the purpose of improving on the delivery of communication services in Zambia. Its decision to host a symposium of researchers was unprecedented. They had intentions of funding research projects on various areas and the symposium was meant to be a space for learning about potential research projects, projects that are underway and projects that have been complicated. In his capacity as a gender researcher within the GRACE Network, Kiss was acquainted with CAZ through previous research-related meetings.

Classification:
Fostering on-going, robust policy dialogue among:
- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:
- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:
- Improved research methodologies and practices

Applying meaningful gender analysis:
- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa

78. In 2009 the International Federation for Information Processing (IFIP) Technical Committee 9 decided to hold a research workshop on 'Research voices from Africa' regarding ICT and society/development in Africa at Makerere University in Uganda in 2010.

Description: The GRACE Network has, through its contributions to the formal body of Africa-specific ICT4D knowledge, constructed by African researchers, contributed to the realisation that African research perspectives, Africa-sensitive research methodologies and Africa grounded research education are crucial to a grounded understanding of the impact and potential of ICT for development in Africa. A specific example is that, following GRACE formal presentations and contributions to discussion at the International Federation for Information Processing (IFIP) Technical Committee 9 workshop and the Eighth International Conference on Human Choice and Computers in September, 2008 (Pretoria), the IFIP committee has decided to hold a research workshop on 'Research Voices from Africa' regarding ICT and society/development in Africa at Makerere University in March 2010, to discuss alternative epistemologies and perspectives about ICT and society.

Significance: Hearing from African researchers whose work is grounded in and resonates with the contexts within which they live and work, is crucial for Africans and non-Africans alike to come to an understanding of what is possible and what is needed in the striving towards sustainable approaches to development. Much of the ICT4D research discourse is dominated by Northern perspectives. This maintains the existing power relationship where the North defines the research quests, the research methodologies and the research education efforts, and is therefore not sustainable in the long term and neither desirable in the short term. But even more importantly, this situation does not contribute to the construction of valid and effective knowledge that can assist Africa in its quest for development in and through the use of ICTs.

Contribution of the research network: The decision to hold this workshop cannot be attributed to GRACE influence alone. However, the GRACE contributions to discussions on the need for African research perspectives, Africa-sensitive research methodologies and Africa grounded research education were strongly supported by other participants and clearly heard by the organisers. Furthermore, having a significant presence at these events, and having GRACE researchers' voices heard where there was a very evident need for grounded, quality contributions by African researchers had great impact. The issues relating to the "Northern hegemony pertaining to Southern knowledge construction processes" brought up in the formal discussions were later taken up by the conference chairs with the GRACE leadership and GRACE researchers informally during both events. Following these events, the co-chair invited Ineke to present in Enschede (The Netherlands) later that year. This has been followed by the program co-chair contacting the GRACE coordination team to seek submissions from members of the GRACE Network for the upcoming workshop.

Whilst this outcome is not a part of GRACE's core business, it speaks directly to IDRC's operational philosophy and as such it is note worthy. It is an example of progress towards IDRC's mission "to promote research in developing countries, research by the people of those countries, for the purpose of applying knowledge (in the words of the IDRC Act) 'to the economic and social advancement of those regions.'"

Classification:
Fostering on-going, robust policy dialogue among:
- ICT4D researchers
- Policy-makers
- Other key policy-related bodies.

Catalyzing thriving regional research networks that:
- Serve as fora for knowledge diffusion

Increasing research capacity in ICT4D through:
- Improved research methodologies and practices

Applying meaningful gender analysis:
- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa

XIII PANAF OUTCOMES 2006-2009

Name of research network: PanAfrican Research Agenda on the Pedagogical Integration of ICTs (PanAf)
Project number(s): 103741, 103702
Sources of information:
103741: Project Completion Report (rPCR) Stages 1 & 2 (interview with Alioune Camara, Program Officer); Interview with Dr. Thierry Karsenti, Feb. 18, 2008; L'intégration des tic dans l'enseignement: Dialogue political entre acteurs de l'école, L'Indépendant, April 15, 2009; PanAf Technical Report July-September 2007; Rapport Technique janvier – avril 2008; Rapport Technique octobre – décembre 2007; Rapport de l'Atelier de formation sur l'intégration pédagogique des TIC; Report of the scientific writing workshop on the pedagogical integration of ICTs, 11-12 February 2008; Training Workshop for the Anglophone Countries of PanAf, 24-25 Sept. 2007; PanAf Phase 1 National Reports; PanAf Phase 2 Proposal; PowerPoint presentations delivered at eLearning Africa 2009 in Dakar, Senegal.
103702: Report on the Project Development Workshop September 11-13, Dakar.
Reviewers: John-Harmen Valk and Ricardo Wilson-Grau

Respondents: Prof. Thierry Karsenti, Prof. Djénéba Traoré, Dr. Moses Mbangwana, Mr. Toby Harper-Merrett, Mr. Alioune Camara

79. In 2008-2009, the University of Nairobi and UNESCO awarded academic and professional promotions to Kenyan and Congolese "ICTs in education" experts.

Description: The PanAf network has contributed to leadership development in its participating researchers. This is evidenced by the fact that from 2008 to 2009, the University of Nairobi (Kenya), and UNESCO (Republic of Congo) awarded academic and professional promotions to Kenyan and Congolese PanAf network experts.

Professor Samuel Mawete, a PanAf researcher in Brazzaville, was nominated *Coordonnateur de la Chaire UNESCO en sciences de l'éducation pour l'Afrique Centrale*, and Dr. Christopher Gakuu was promoted from lecturer to senior lecturer at the University of Nairobi in October, 2008 and Dr. Harriet Kidombo received the same promotion in April, 2009.

Significance: The professional advancement of African ICT4D experts, especially women, within their own and regional institutions increases the visibility and the viability of the issue in the relevant policy and investment contexts. These experts also serve as role models for students and peers.

Contribution of the research network: Speaking on behalf of Dr. Kidombo, Dr. Gakuu states that their PanAf publications and participation in the network's research activities contributed to their promotions. He notes that major requirements for these appointments include proof of four scientific publications since the last promotion, having supervised at least three masters students, participation in research activities (especially raising research grants), and attendance at relevant international conferences and workshops. He and Dr. Kidombo had produced two publications as part of their work with PanAf and had supervised three or more M.A. students, two of whom had used the PanAf project methodology for their research.

In summary, by providing opportunities to collect, access, analyse and disseminate new data, PanAf helped these researchers and others demonstrate the qualities required for such promotions. Due to their involvement in PanAf research fieldwork, analysis, and dissemination, participating researchers have had opportunities for recognition and promotion by the universities and institutions that employ them.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices

Stimulating social and technical innovation in ICTs, including:

- Fostering social innovation, broadly defined as dealing with improving the welfare of individuals and community through employment, consumption or participation, its expressed purpose being to provide solutions for individual and community problems.

80. In 2007 and 2008, the World Bank's infoDev and the UNESCO Institute for Statistics partnered with PanAf to share additional knowledge resources and research on ICTs in education.

Description: In 2007 and 2008, the World Bank's infoDev and the UNESCO Institute for Statistics (UIS) partnered with PanAf to share various additional knowledge resources and research with the project. Partnering with infoDev made available their 53 national "ICT in education" reports on the national data webpages of the PanAf Observatory. The initial manifestation of a partnership with UIS was an embedded link to UNESCO's national education statistics pages on the national data webpages of the PanAf Observatory.

Significance: By sharing their research results on www.observatoiretic.org, infoDev and the UNESCO Institute for Statistics provided researchers studying the pedagogical integration of ICTs in Africa an opportunity to access national- and international-scale quantitative data. This in turn improved the researchers' efficiency and quality of their analyses, especially transnational analyses.

Contribution of the research network: Representatives of PanAf met and negotiated with representatives of infoDev (August, 2008) and the UIS (January, 2009) to propose low cost and mutually beneficial partnerships. Formal memorandums of understanding were subsequently established.

Classification:
Fostering on-going, robust policy dialogue among:

- Other key policy-related bodies.

81. In the spring of 2009, the UNESCO Institute of Statistics (UIS) and a consortium of other international organisations invited a representative of the PanAf project to contribute to the development of an unprecedented set of global "ICT in education" indicators.

Description: In the spring of 2009, UNESCO UIS, with the agreement of the World Bank, , OECD, Inter-American Development Bank (IADB) and the Korean Education & Research Information Service (KERIS), invited a representative of the PanAf project to contribute to the development of an unprecedented set of global "ICT in education" indicators[32]. As UNESCO works to develop a set of harmonised international indicators of ICT in education to incorporate in their annual data collection, they sought the expertise developed through PanAf's experiences to contribute to the pilot and testing process. For its *Technical Paper No. 2, Guide to Measuring Information and Communication Technologies (ICT) in Education* (2009)[33], UIS drew on the expertise of PanAf members by inviting them to contribute to the review of the indicators and conceptual framework.

Significance: A global set of "ICT in education" indicators which are to be added to UNESCO's regular data collection will allow for much improved baselining and transnational comparison metrics for progress in ICT integration (e.g., Where are different countries in relation to each other? What are their individual and shared successes and challenges?). For example, researchers wanting to investigate Mozambique's integration of ICT in education compared to Malaysia's do not currently have access to a consistent set of global indicators, nor possibly national data. UNESCO incorporating "ICT in education" indicators in their annual survey should stimulate the necessary data collection.

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[32] The approximately 180 indicators developed by PanAf concern policies, access, teacher training, ICT use, learning, school administration and gender. An example of an indicator is "5.1.1 Stated impact (by educators) of ICT on lesson-planning". The indicators are divided between those at the national scale vs. the school scale; indicators asked of managers, educators or learners; indicators that are quantitative vs. qualitative; indicators that are actually responded to by participants on questionnaires and in interviews vs. those that are calculated automatically by the Observatory based on other data (a simple example, the learner :computer ratio in an institution is a result of the reported number of learners and the reported number of computers available to them, we don't ask anyone to report what the ratio is, but it does count as an indicator). A complete list of indicators is available at www.observatoiretic.org

[33] The report can be accessed online at *bit.ly/7aq3Qo*.

The UIS has never had an "ICT in education" indicator set before. An increase in the ICT4D focus of this organisation, as well as others in the consortium - as indicated by the fact that they sought the expertise of PanAf - is significant.

Contribution of the research network: During PanAf's first phase of work (PanAf 1), researchers initiated and developed a novel and notably comprehensive set of approximately 180 "ICT in education" indicators in categories ranging from access through use, to impact and sustainability. The fact that these indicators were effectively applied in the field by African PanAf 1 researchers became known to UNESCO, as well as to the World Bank OECD, IADB and KERIS, led to the invitation.

Classification:

Fostering on-going, robust policy dialogue among:

- Other key policy-related bodies.

Increasing research capacity in ICT4D through:

- More research institutions with a specific ICT4D focus

82. Since 2007, education researchers and practitioners around the world have accessed previously unavailable indicators of the pedagogical integration of ICTs in African schools.

Description: Since 2007, education researchers and practitioners around the world have accessed previously unavailable indicators of the pedagogical integration of ICTs in African schools. PanAf's approximately 180 customised indicators (both quantitative and qualitative) cover 12 categories, including infrastructure, access, use, impact, and sustainability of computers in schools. The PanAf Observatory[34] is an open knowledge-sharing resource for research on the pedagogical integration of ICT. The main project partners, who formulated the indicators and are collecting the data relating to them, are education faculties in eleven countries across North, West, Central, East and Southern Africa: Cameroon, Central African Republic, Congo, Kenya, Mali, Morocco, Mozambique, the Republic of South Africa, Senegal and Uganda. While these faculties are the primary users of the resulting data set (the PanAf project especially encourages transnational analysis among the participating countries), the open access style of the Observatory makes it available to ICT4D experts globally.

In 2008, the PanAf Observatory received nearly 100,000 page "hits" from over 100 countries around the world. We acknowledge that these hits are a weak proxy for the outcome of education researchers accessing and using the unprecedented data available on the Observatory. However, as the bulk of the data only became available on the site in 2008 it is too early even to show a trend in page "hits". It is worth noting, though, that anecdotal evidence (suggests that the work of the PanAf experts is respected as an exceptional resource. For example, researchers at several Swedish universities (Stockholm, Linkoping, KTH) have reported that they are accessing and using the available data. And of course education facilities across Africa who are partners also testify to the newly available data and its importance.

Significance: There has been, until now, no rigorous scientific evidence of what is being done with computers in African schools. This evidence base is important to informing policy, practice, and research capacity in Africa, attested to by the fact that the dataset has seen so much attention across the globe.

[34] The Observatory offers three search functions: Simple Search, which allows users to view indicators from institutions in a single country; Advanced Search, which allows for comparing indicators in different institutions and countries; and Summary Search, which allows users to browse a mapping of "ICT in education" summaries from the institutions and countries participating in the project.

Furthermore, as the PanAf indicators are the first international "ICT in education" data set that is gender-disaggregated at this scale (i.e., asking the same questions of both male and female educators and learners, for comparative purposes), this outcome represents a contribution, on the part of the project, to a more sophisticated understanding of access and use of computers in African schools.

Contribution of the research network: PanAf I built a dataset on the uses of ICTs in schools across Africa and shared these (currently) 20,000 data points, for 250,000 learners, 9,000 educators using an open online Observatory (www.observatoiretic.org).

Classification:

Fostering on-going, robust policy dialogue among:

- ICT4D researchers

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices

Applying meaningful gender analysis:

- Contribution to a more sophisticated understanding of women's access and usage of ICTs in Africa

83. From 2007-2009, 5-10 school principals and educators in Kenya, Uganda, Central African Republic, Senegal, and Mozambique demonstrated an understanding of the important difference between teaching computer skills and developing learning skills and accessing knowledge resources with the help of computers.

Description: From 2007-2009, 5-10 school principals and educators (and in some cases those responsible for the maintenance of computers) in Kenya, Uganda, Central African Republic, Senegal, and Mozambique demonstrated an understanding of the important difference between teaching computer skills, on the one hand, and learning, for example, languages, math, and other subjects, "through" computers. That is, these individuals began to understand that computers should not only be used in the schools to teach children technical skills, but should also (or even "exclusively") be used to deliver courses (e.g., by teaching children to find relevant content on the internet). While the actions of the individuals did not change immediately as a result of this new knowledge, they stated that they better understood the problem and would work to incorporate these ideas into institutional policies.

Significance: Given limited experimental evidence that the use of ICTs in education actually enhances learners' cognitive capacity, PanAf's research instead approaches ICTs in education as an opportunity to enhance otherwise limited learner resources, to improve the efficiency of keyboard time, and achieve more rapid devolution of ICT knowledge to the rest of the school's educators. It is a notable paradigm shift in an African school for a principal to express that the educator/institution is not the deliverer of all knowledge but rather the facilitator of learning, that the educator should not be the centre of attention in the classroom, but rather the learner.

Contribution of the research network: In visits to schools during fieldwork and site visits by PanAf researchers and project managers, discussion with school principals and educators resulted in the communication of a significant finding of PanAf's phase one work: African schools generally and unnecessarily tend to teach computer skills to young learners, missing the opportunities offered by using computers to help teach a variety of subjects.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships

84. From 2008-2009, Cameroonian "ICT in education" researchers applied innovative new skills to produce academic writing beyond the expectations of the project.

Description: From 2008-2009, 2-4 Cameroonian "ICT in education" researchers applied innovative new skills, including using open data, working collaboratively online, and analysing qualitative results, to produce scientific writing beyond the basic expectations of the project (writing for which they were not remunerated as project participants). This included junior female researchers submitting their work to 2-4 international conferences and having it accepted. (In contrast, many PanAf researchers participated in the phase one scientific writing workshop, yet very few subsequently produced work based on the Observatory data.)

Significance: There is a lack of academic publication by Africans in Africa in general, less so in Francophone countries, and even less so by women. Production of new written work is significant and an example of great leadership in the domain of ICT4D, while also potentially contributing directly to policy and practice. This initiative supports the drive to develop a culture of scientific writing and publication across the African academic community by sharing best practices (for example, the inclusion of graduate students in fieldwork) with other African partner institutions, and actively training participant researchers in writing for submission to peer reviewed international journals. An illustrative example is the ongoing development of a manuscript by Nkehsera Claire Ndangle (Educational Research Network for West and Central Africa, Cameroon) on access to, and application of, new technologies in selected Cameroonian secondary schools. This is based entirely on PanAf Observatory data, and was first presented at the eLearning-Africa 2009 conference.

Contribution of the research network: The Cameroonian PanAf research team applied the new skills learned and practiced in the phase one writing workshop, and used Observatory data to write their book *Integration des TIC dans le processus Enseignement-Apprentissage au Cameroun.* Furthermore, Cameroonian researchers Ndangle and Tchamabe independently wrote, submitted and had papers accepted at the Interactive Computer Aided Blended Learning[35] conference in Brazil and EUTIC09 in Bordeaux.

Classification:

Catalyzing thriving regional research networks that:

- Strengthen weak institutions through mentoring relationships

Increasing research capacity in ICT4D through:

- Improved research methodologies and practices

Contributing to a formal body of knowledge in ICT4D as evidenced by research findings being:

- Cited and/or published[36] in peer-reviewed, third-party publications (i.e., not by IDRC or the research networks).

Applying meaningful gender analysis:

Changing gender relations in:

[35] http://www.icbl-conference.org/

[36] It was decided in November 2009 that this objective would be broadened to include publications by Acacia-funded researchers and not just citations of their work by third parties. The Acacia team feels that, since successfully publishing in a peer-reviewed publication is an onerous and formidable feat for any scholar (especially ones based in Africa), Acacia's research partners cannot be expected to achieve this result solely from Acacia's financial support of a project. The team is of the opinion that review and acceptance by peers in the field is a substantial change and one that falls outside the immediate influence of the funding it provides to research networks.

- ICT employment.

85. In May, 2009, His Excellency Professor Ambroise Zawa, Ministre de l'Enseignement Supérieur, de l'Alphabétisation et de la Recherche Scientifique, of the Central African Republic (CAR), expressed that research results regarding computer use in schools were of high quality and important to the development of a policy on the ICT integration in CAR's education system.

Description: Pr. Ambroise Zawa, Ministre de l'Enseignement Supérieur, de l'Alphabétisation et de la Recherche Scientifique, of the Central African Republic (CAR), expressed that research results regarding computer use in schools were of high quality and important to the development of a policy on the ICT integration in CAR's education system. This means he endorses the integration of computers as a means of learning as opposed to a subject to be taught, and recognizes the importance of computer integration in teacher-training curriculum and the priority of ICTs for education among his other policy decision responsibilities.

Significance: The engagement of political actors in a central African context in the domain of ICT4D, especially in education, which is fundamental to efficient socio-economic development, is a validation of the issue among decision-making peers, and will potentially link research directly to a nascent policy initiative. In light of Minister Zawa's new knowledge (which he attributes to the PanAf project), the potential impact of an "ICT in education" discussion finding its way to the table at a meeting of decision-makers in CAR is that the educational technologies might be framed as a cost-saving "first step" mechanism for CAR's under-resourced system to achieve quality educational outcomes, rather than their traditional framing as simply an expensive, luxurious, afterthought.

Contribution of the research network: A policy dialogue workshop and person to person discussions with Minister Zawa by PanAf managers and the CAR national research team led to the minister's recognition of the importance of ICT in education policy.

Classification:
Fostering on-going, robust policy dialogue among:

- Other key policy-related bodies.