Full Proposal Submission

Section 1: General Project Information

Project Title: Open science as a collective tool of empowerment and cognitive justice in Haiti and French-speaking Africa : building the roadmap / La science ouverte comme outil collectif de développement du pouvoir d'agir et de la justice cognitive en Haïti et en Afrique francophone : vers une feuille de route

Duration of Project: 2 years
Countries included in this project (12): Haiti, Senegal, Mali, Burkina Faso, Niger, Chad, Benin, RDC, Cameroon, Gabon, Ivory Coast, Madagascar.
Regions included in this project: Africa, America
Research Themes: Theme 1 and Theme 3
Justification of Research Themes: The project will analyse the obstacles to the adoption of open science (especially open access, institutional repositories and programmes aiming to bring closer science and society) by graduate students from Haiti and Francophone Africa (Theme 1). In so doing, it will build a vast, open and sustainable network of Haitian and African leaders in open science (Theme 3).
Total Budget Cost (CAD): 80,176.00 CAD$

Section 3: Proposed Study Information

Research Project Abstract

WORD LIMIT: 250.

Open and collaborative science (open access to scientific publications, open access journals, open archives, data and bibliographies sharing, public engagement with civil society, scientific democracy) can become a major tool of empowerment for developing countries. It facilitates access to science by researchers and among civil society. Moreover it supports local knowledge and science produced in the Global South, thus contributing to more cognitive justice.

Our research-action project aims at surveying 18 universities in French-speaking Africa and Haiti (FSAH) in order to understand the barriers to the adoption of open and collaborative science by graduate students. It will generate a realistic, collaboratively-written roadmap towards more open science within doctoral training. Its working language will be French.

First, we will interview at least 15 graduate students per university about their perception of open science. We will then build and test multimedia training tools aimed at improving their open science literacy. We will also test the relevance and acceptability of two well-known tools of open science: institutional repositories (local digital archives) and science shops (programs at the interface between a university and civil society).

The final objective of the project is the creation of a vast open and sustainable network of

leaders in open science in these countries, able to generate new open science projects when our research is completed: the [Réseau interdisciplinaire d'information et d'échanges sur la science ouverte en Haïti et en Afrique francophone (RISOHA)](). This network will contribute to the roadmap to be adopted collectively at the end of our project.

Research Problem, Significant and Justification

WORD LIMIT: 1,000. Please provide a brief overview of relevant literature and highlight the knowledge gaps that this project will address. Indicate the size and scope of the problem, as well as how the problem relates to the purpose and goals of OCSDNet; broader national development priorities, and the research and capacity needs of the countries involved.

While many international reports consider higher education and scientific research as development tools (Shankar, 2014; Watson, 2003), sub-Saharan Africa appears to lag behind the rest of the world, only producing in 2012 0.72% of the items listed in Scopus (Friesenhahn, 2014; Kaly, 2012; Kemeny, 2014; Nwagwu, 2013; Piotrowski, 2014; World Bank, 2014; Willmers, 2012; Wilson-Strydom & Fongwa, 2014). In Haiti, reports on the state of scientific research after the 2010 earthquake (Machlis, Colon, & McKendry, 2011) indicate the same situation and call for strengthening its capacity for scientific production.

Our approach to development emphasizes local empowerment and gives priority to values and issues identified by local people. From that perspective, the problem is not the volume of scientific production in French-speaking Africa and Haiti (FSAH). It is rather the inability of the local public science to respond to the questions, problems and aspirations of the communities living in these countries, what Mvé-Ondo (2005) calls the "science gap" (see also Mohameddbhai, 2014). This inability comes from several factors , including a positivist dominant conception of science and some serious difficulties in Higher Education (Akam, 2002; Kigotho, 2014; World Bank, 2014), for example a sometimes very conservative and hierarchical way of teaching scientific research in graduate schools (Hanlin, 2014 The Haiti initiative at UMass Boston, nd; Makri, 2014). In addition, the desire to belong to world science (Web of Science | Thomson Reuters, nd) could lead FSAH top researchers to ignore and undervalue local knowledge, including local scientific knowledge, and to give up on the local dissemination of the science they produce, and even to emigrate (Kigotho, 2013; Martin, 2014). This gap between science and society in FSAH, denoted by all reports consulted, call for a different conception of science as a tool for development in these countries (Waruru, 2014). Open and collaborative science (OCS) seems to offer such an alternative option (A. Diouf, 2012; Guédon, 2008; Smart, 2004).

We define OCS as a set of values, tools and practices of scientific research which differs from conventional science in three main ways:
- Accessibility of scientific publications for researchers (writing and reading) and for people not affiliated with a university (reading) is given priority through the practice of open access (Smith & Reilly, 2014). From that perspective, one open science tool is very efficient:

institutional repositories created by universities (Chan, 2004; D. Diouf, 2009; Haddow, 2008; Harnad, 2003, 2006; Lynch, 2003; Mohamed, 2006; Vrana, 2010; Oppenheim & Zuccala 2008). They can enhance the global visibility of local scientific production, but also make it more locally accessible, including to non-academics, free of charge. However, the existence of this open science tool does not guarantee its use: many repositories remain little used (Arndt, 2012; Harnad, 2014).

- Non-academics are welcome into the heart of the research process thanks to infrastructures enabling civil society organizations to assert their own research priorities (Bonney et al, 2009; Clarke, 2013; Leach, Scoones & Wynne, 2005). Science shops are one of these infrastructures. They mobilize students and professors in projects stemming from civil society priorities. Interestingly, they are more and more supported by socially responsible universities (Anonymous, nd; DeBok & Steinhaus, 2008; Hawkins, Mulder, & Steinhause, 2013; Hellemans, 2001; Leydesdorff, 2005; Piron, 2009).

- For thinkers like Santos (2014), conventional world science fails "to recognize the different ways of knowing by which people across the globe live their lives and provide meaning to their existence, including the local contributions to science that are invisible". This situation of "cognitive injustice" can be counterbalanced in opening science to a wider range of knowledges (Guédon, 2008), whether practical, traditional, theoretical, empirical or methodological ones and to a wider range of languages, apart from English. Open science thus has the potential to generate more "cognitive justice".

Even if open science is not limited to digital technology, particularly in its "bridging science and society" component, it relies heavily on it. In spite of the digital divide between the Global North and the Global South, many people among FSAH researchers, librarians and academic authorities are convinced that digital resources are becoming essential for innovative science and knowledge sharing (Anonymous, 2014A, A. Diouf, 2010; D. Diouf, 2008; Hamlet, 2011; Nwagwu, 2013, 2013; Riley, 2014; Willmers, 2012). New policies in higher education (Cheikh Anta Diop University, 2010) and many conferences plead for a better use of digital resources and tools in universities. The creation of institutional repositories at UCAD (Dakar), of Africampus and of "digital campuses" in Haiti is one of the first achievements of these policy concerns. However, the creation of open archives, digital libraries, online journals and institutional repositories in universities in Francophone Africa has not followed the pace of English-speaking universities (Dulle & Minishi-Majanja, 2009; Wanjiku Ndungu, 2013). Aside from the UCT Knowledge Co-op in South Africa, we did not find any science shop in Africa or Haiti. In addition, the training in scientific digital literacy offered in FSAH does not necessarily emphasize the relationship between science and society that is part of open science.

In September 2011, Haiti's first digital library was created through a partnership between Libraries Without Borders and the State University of Haiti. Suffering from a serious lack of resources (Anonymous, 2014b), it gives students access to multiple databases three times a month for 45 minutes. A few very dynamic digital projects are underway in Haiti (Bruny, 2013; FOKAL, 2013; Joachim, 2014; Theralus, 2014), but are situated rather outside academia (Interuniversity institute for research and Development, 2010; Machlis and al., 2011), whereas young researchers would benefit greatly from the use of open science.

Since we believe that the values, practices and tools of open science may contribute to the kind of development that we support for FSAH, our project aims to better understand the obstacles to its sustainable adoption in graduate schools and research centers in these countries. This is also one of the main goals of OCSDNet. We are particularly interested in institutional repositories and science shops, two tools aimed at the sustainable development of local scientific production and stronger interactions between universities and civil society.

Research Questions and Objectives

WORD LIMIT: 500. Outline your project's central research question(s), sub-questions, and objectives. There must be congruency between the questions, objectives, research design and methods. You should highlight how the study's questions and objectives will contribute to the research themes of the OCSDNet.

Our research action question is: Considering open science (its values, practices and tools) as a collective tool for empowerment and cognitive justice in FSAH, what roadmap could overcome obstacles to its sustainable adoption in FSAH universities, particularly in graduate schools? The answer to this question requires answering four sub-questions:
1. In addition to the difficulties of access to the Internet or electricity, what are the main obstacles to the adoption of open science values by graduate students from FSAH, whether registered in their country or abroad? This question corresponds to Theme 1 of OCSDNet.

2. What are the open science training strategies and tools that are most likely to generate the adoption of open science by FSAH graduate students and make some of them local leaders in open science? (Theme 1)

3. Among the practices and tools of open science, how likely is it that institutional repositories and science shops could become permanently implanted in FSAH universities? Under what conditions and with what support? (Theme 1)

4. What type of network could support local leaders in open science in making these practices permanently established in FSAH universities? (Theme 3)

Objective 1 (answer to question 1). Document the main obstacles to the sustainable adoption of open science by FSAH graduate students, including 1) a low degree of scientific digital literacy (the ability to use, in an optimal way and without any fear or mistrust, all the possibilities of the scientific Internet, including open access journals, institutional repositories, scientific networks, social media, collaborative documents, blogs or free databases) 2) social representations of the Web, science and research careers that do not

include open science, 3) exclusion and invisibility of open science in scientific research training in FSAH graduate schools, 4) predominance of the English language in open science's existing tools and practices. This objective corresponds to one of Theme 1 of OCSDNet.

Objective 2 (Answer to question 2): Based on the results of objective 1, through a review of actual training strategies in FSAH graduate schools and of scholarship about digital scientific literacy, build and test different tools and strategies of training in open science, in French or local languages. For instance, we intend to set up a collaborative web documentary about open science composed of short videos shot by graduate students about their relationship with science and open science.

Objective 3 (answer to question 3): Document, with a selection of participants (men and women) from the first phase of the project, the potential reception in FSAH universities of two open science tools that are particularly effective against cognitive injustice or for bridging science and society: institutional repositories and science shops.

Objective 4 (answer to question 4): With all the co-researchers and participants, build a French-speaking international, interdisciplinary, sustainable, open and democratic network advocating open science in FSAH: the RISOHA network. The first members will be the co-researchers of the project. We'll gradually invite other researchers, students or administrators who wish to include open science in their work, hoping that some of them will become leaders of open science in their environment. This network will be a place of exchange, solidarity, but also of cross-training of values, tools and practices of open science, through mentoring.

Stakeholders

WORD LIMIT: 250. Identify and briefly describe your project's stakeholders. How will your project respond to their needs and interests?

The main stakeholders of this project are the graduate students from FSAH, whether they are enrolled in a FSAH university or in a Quebec or French university. We include master degree students who intend to do a thesis, hoping that an early introduction to open science will promote its adoption during their thesis. In the case of students enrolled in a Quebec or French university, we will work exclusively with those who intend to return to their country where they will be able to disseminate their knowledge.

Becoming knowledgeable in open science will help them advance their research work. Indeed, it will give them the means to get better access to existing open scientific resources (DOAJ, IRs, etc.). They will also learn how to make their work more visible, thus fighting against cognitive injustice. Eventually, they will become ever more sensitive to the research

priorities of their country's population and produce more socially relevant science, in French or in local languages.

Through the project, within our team or during fieldwork and conferences, we may reach FSAH professors, senior researchers and university or research administrators and make them more aware of the potential of open and collaborative science for development. Some of them may want to participate in the RISOHA network and in its activities. University administrators are crucial stakeholders for the creation of institutional repositories and science shops.

We can consider as secondary stakeholders civil society organizations and international researchers working on Africa because they would be the main users of science shops and institutional repositories.

Research Design & Methods

WORD LIMIT: 1,000. In this section, applicants should clearly indicate and justify the proposed study design. You should discuss how you intend to collect the data that you will need to achieve the study's objectives and answer the project's research questions. You should clearly outline how each data collection activity will contribute to the study objectives.

The design of the project is decentralized, open and participatory to show open science in action. The two principal investigators will coordinate the entire process. The co-researchers will be "pillars" based in their university. They will have some latitude to adapt the objectives and research tools to their context, provided they adopt the values, tools and practices of open science included in the research design (open fieldwork notebook, shared database, shared Zotero library, etc.). However, the content of the information to be obtained will be the same for all contexts, enabling analysis and comparison between universities, between countries, between disciplines, etc. The steering committee of the project will consist of the two principal investigators, co-investigators and their main research assistants.

Open science breaks the boundaries between research and dissemination. The steering committee will organize at least three similar symposia that will be both sources of data on barriers to adoption of open science and training in open science: "Open science and open access: discussions and proposals for action". They will take place in March 2015 in Port au Prince (Haiti), in September 2015 in Québec (Canada) and in December 2015 in Ouagadougou (Burkina Faso). These seminars will offer papers in the morning and discussions in the afternoon. The lectures will be filmed and put online. The participants will be invited to join the RISOHA network.

Activity 0. Train all team members in open science values, practices and tools, including how to use of a shared Zotero library and wikiwriting.

Objective 1 (answer to question 1, research). Document the main obstacles to sustainable adoption of open science by FSAH graduate students.

Activity 1.1 Systematic review of open science surveys in other parts of the world, especially in English-speaking Africa, for comparison and inspiration.

Activity 1.2 Collective elaboration of the interview guidelines /questionnaire on the following topics: social representations of the Web, of science, of science and its relationship to society and of technology, learning experience in scientific research, publication practices and wishes, sensitivity to local scientific knowledge and perception of open science (free access and free software, sharing data and open licensing, content-mining and citizen science, etc.). As a starting point, we'll use surveys already used by the 2 principal researchers in former research projects.

Activity 1.3 Administer the interview guidelines and questionnaire under various forms in each country; publicize worldwide the online survey. We are targeting at least 15 interviews and 20 questionnaires per university, plus hundreds of responses to the online questionnaire. The graduate students will be locally selected by the co-researchers through ads and announcements in seminars. We'll monitor the process to ensure an equal representation of men and women, social sciences, natural sciences, biomedical sciences and technology.

Activity 1.4 Identify graduate students who are prepared to adopt open science and mobilize them for Objectives 2, 3 and 4.

Activity 1.5 Enter all results in one electronic form (google form).

Activity 1.6 Build an open and reusable database (Google sheet).

Activity 1.7 Each person involved in the project participates in one online open collective fieldwork notebook on a wiki.

Objective 2 (Answer to question 2, action): Build and test different training strategies and tools in open science.

Activity 2.1 Document the range of research training strategies that students experienced and identify how to integrate an introduction to open science.

Activity 2.2 On the website of RISOHA, create a collaborative web documentary about open science.

Activity 2.3 Add videos related to the MOOC "Digital Tools and health research" (project partner) and to the symposia.

Activity 2.4 Elaborate collaboratively short interactive e-books on open science, institutional repositories and science shops.

Activity 2.5 Use an online questionnaire at the end of the project to evaluate the impact of these new training tools on graduate students' representations and practices of science.

Objective 3 (answer to question 3, research): Document the reception and the potential use of two tools of open science: institutional repositories and science shops.

Activity 3.1 Finalize the literature review on institutional repositories and science shops in view of activity 2.4.

Activity 3.2 Each co-researcher to present the two tools at conferences and record initial reactions in the open fieldwork notebook. Opendepot.org or HAL-AUF websites will be used as examples of institutional repositories.

Activity 3.3 Collectively develop a group discussion guide aimed at evaluating these tools' potential.

Activity 3.4 Conduct at least one discussion group per university using the discussion guide;

get participants (identified at 1.4) to reflect on how to implement these tools in their universities.

Activity 3.5 Add data from these discussions to the project database (activity 1.6).

Activity 3.6 Analyze the results so as to generate local roadmaps for the implementation of these tools in each university.

Activity 3.7 Incorporate elements of these roadmaps into the global roadmap before final validation (activity 4.5).

Objective 4 (answer to question 4, Action): Build a French-speaking international, interdisciplinary, sustainable, open and democratic network advocating open science in FSAH: RISOHA.

Activity 4.1 Collaboratively create the RISOHA website, inviting each member to build their personal page as part of their training in open science.

Activity 4.2 Organize virtual steering committee meetings by Skype every month .

Activity 4.3 Publish a regular newsletter for members of RISOHA with information on open science and on the progress of the project.

Activity 4.4 Organize virtual meetings between local open science leaders and learners of open science when asked, including mentoring.

Activity 4.5 Continuously invite FSAH graduate students and professors to participate in RISOHA and its activities; partner with other networks such as Right to Research Coalition, Association Internationale des sociologues de langue française, WACREN, UbuntuNet, Africampus, ACFAS, etc.

Activity 4.6 Each co-researched to prepare, present into their community and get feedback on a draft roadmap to promote the adoption of open science, including priority actions.

Activity 4.7 Elaboration by the steering committee of a comprehensive roadmap for the adoption of open science in FSAH universities.

Activity 4.8 Discuss and publicly validate that roadmap at a conference in December 2016 in Dakar.

Activity 4.9 Evaluate the support offered by the RISOHA network to its members and how to ensure its sustainibility in the longer term.

Analysis & Synthesis

WORD LIMIT: 1,000. Describe how you intend to organize, examine and model data to arrive at conclusions and insights.

According to a method already tested by Florence Piron, the research process will separate the process of data collection, which may vary depending on the context (activity 1.3) and the Web entry of all the quantitative and qualitative data in an electronic form (activity 1.4) so as to build an open and reusable online database (activity 1.5). We will use the open software Keshif to visualize the quantitative items of the database. It will also allow to filter them in an extremely simple way in order to generate thematic or cross-analysis. For the analysis of qualitative data (open comments and open notebooks), we may use a wiki platform that

allows the user to associate keywords (tags) to text snippets and then group them according to categories of analysis chosen for thematic corpus. If possible, this analysis will be done by all members of the steering committee.

The categories of analysis are of two kinds:
- Socio-demographics and personal information enabling us to analyse participants' responses: gender, age, country, native language, academic background, main scientific discipline, financial resources, Internet access, computer access, travel and training outside the country, training in social studies or science ethics, number and type of publications, aspirations for the future, social status, family responsibilities, use of social networks, the presence of a laboratory or a research team, the quality of the relationship with the faculty. This list will be approved by the project's steering committee. However, we will give special importance to gender to ensure that women are not less likely to express themselves on open science or to benefit from training and networking.

- Specific categories. The categories below are anticipated, but others may appear throughout the analysis, according to the principles of grounded theory.

Objective 1: the degree of scientific digital literacy (low, high), social representations of the Web, science, technology, open science and research careers, the degree of knowledge and practice (low, high) of open science.

Objective 2: Description of training strategies in open science in graduate schools (non-availability, etc.) and impact assessment of these strategies and those produced by the project.

Objective 3: Level (low-high), understanding and appreciation of institutional repositories and science shops and feasibility assessment (low-high) and conditions (resources, allies) concerning these tools in different contexts.

Objective 4: The data collected will relate to the ongoing evaluation of project and of the support given by or expected from the RISOHA network.

Data visualization through Keshif will show for instance whether the scientific discipline, the use of social networks or the quality of the relationship with faculty influence knowledge of open science by students from different countries and ages. It will confirm or not the link between a representation of science close to the values of world science and a reduced interest in open science. We could also produce analyses allowing for comparison, for example with the situation of Tanzania (Dulle & Minishi-Majanja, 2009).

These analyses will first be outlined in the Zim platform and then transferred to other media (LibreOffice, Word) if team members feel they can use them in a publication or presentation. They will anyway be related to the comprehensive roadmap to be adopted at the end of the project. The seminar in December 2016 will be an opportunity to make a collective synthesis of the project around the roadmap.

Outcomes & Outputs

WORD LIMIT: 700. Describe the major project outputs and intended outcomes. Your project outputs should creatively reflect the principles of open and collaborative science.

All the **project outputs** will be available under CC-BY license. They will be authored by the persons who really participated in their production. They could be re-used in different publication venues.

Objective 1

• Paper or Web page presenting a systematic review of surveys about publication practices, perceptions of open access and open science practices in other parts of the world, especially in English-speaking Africa, for comparison.

• Interview guidelines and questionnaire intended for data collection.

• Open and reusable database about publication practices and perceptions of science by the participants.

• A series of online fieldwork open notebooks (on a wiki) which could help researchers and participants prepare publications (for instance in the journal *Science ouverte*) or public presentations and interventions.

Objective 2

• Paper or Webpage describing the research training strategies that graduate students have undertaken.

•Collaborative Web documentary about open science composed of short videos shot on mobile phones by participants. These training tools could be of use to all FSAH researchers (as well as other French speaking researchers or people interested in open science) thanks to their dissemination through social networks.

• Videos and ppt presentations related to "Digital and health research" MOOC and symposia.

• Three short interactive e-books on open science, institutional repositories and science shops.

Objective 3

• Literature review on institutional repositories and science shops.

• Group interview guidelines on institutional repositories and science shops.

• Analysis of the reception and the feasibility of these tools in different universities involved in the project.

• Several local roadmaps for open science.

Objective 4

• The Website of the RISOHA network

• Newsletter for members of the RISOHA network

• A global roadmap for the adoption of open science in FSAH universities.

• A shared Zotero library.

Intended outcomes:

As shown by Santos and others, cognitive injustice is a strong obstacle to development since it collectively disempowers citizens by making them undervalue their own knowledges

and capacities. The <u>first long term outcome</u> we wish to achieve through our project is a reversal of this situation in FSAH: citizens would adequately value their own knowledges.

The <u>second long term outcome</u> concerns the visibility of FSAH science. Our project will prevent FSAH universities from remaining excluded from the international movement of open science because of their lack of resources and weak Web infrastructure. On the contrary, it will generate a realistic roadmap towards an empowering open science in FSAH, making local knowledges and capacities more visible and better disseminated in society through either an institutional repository or a science shop, or through other open science by-products. We assume that local innovation, adapted to local challenges and contributing to sustainable development, will be generated as a result of the renewed trust in FSAH researchers' own capacity to produce knowledge.

Our <u>first intermediate outcome</u> will be to generate in several FSAH universities renewed trust among graduate students in their ability to become agents of change on their own terms, within their own culture and using their local science and knowledges.

The <u>second intermediate outcome</u> will be the opening of universities and graduate schools to new ways of teaching/learning science that will include open science.

<u>In the short term</u>, our project will first improve the digital scientific literacy of numerous students from FSAH so that they can more easily use open scientific resources and tools in their work. For instance, they will know how to deposit papers in an open repository. We will also make them more aware of universities' social responsibility towards their region.

<u>Secondly</u>, the RISOHA network will strengthen the ability and desire of FSAH graduate students to undertake teamwork and to engage with society and fellow citizens. Their thinking about science will become more complex.

According to our Theory of Change, these short-term outcomes will enable FSAH university authorities and international networks to make better informed decisions about their support to the open science movement, including OCSDNet.

Knowledge Translation & Dissemination

WORD LIMIT: 700. Describe how you will disseminate your outputs. To ensure that the results of your study are applied to address development challenges, explain how you intend to package, disseminate and promote the application of your findings amongst relevant stakeholder groups.

Our main tool for dissemination will be the RISOHA network Website, as explained above. All project outputs (videos, texts and ppt), including our collaborative Zotero library, will remain available there as long as they are relevant and valid. RISOHA members, old and new, will be invited to continue developing their page on this site. Our books will be available there in open access or in a epub format.

A free newsletter on open science in FSAH will be launched, fed by notes and papers from the network thus created. It will be sent to various graduate schools of FSAH.

We will also present our findings at various French-speaking conferences that have an audience of African and Haitian researchers: The WACREN (West and Central Africa research and Education Network) 2015 conference (Abuja, Nigeria - abstract sent), the Social Responsibility, Culture and Common Good Conference (Quebec, April 2015), The Ouagadougou conference on Higher Education (June 2015), the World Social Science Forum (Durban, September 2015), the annual conference of the Association Science et Bien Commun (Montreal, May 2016). We will also submit an abstract to the next conferences of the Society for the Social Studies of Science.

The journal *Science ouverte,* published by Association Science et Bien Commun, will be a privileged place of publication for the project researchers. However, all members of the RISOHA network will be encouraged to publish in journals of their choice, provided they submit a copy of their article in an institutional repository.

The symposium that will conclude our project will take place in Dakar in December 2016. It will be the occasion to launch the project outputs (books, databases, journals and articles, website) and especially the roadmap that will synthesize our results. This roadmap will be published in a downloadable brochure and distributed by email to key African universities. Since the project will be finished by that time, we won't be able to do the follow-up and consult widely about the roadmap and even try to get commitments to its implementing. However, it could be the starting point of a second research project.

Network Connections & Interactions

WORD LIMIT: 500. Illustrate how you will contribute to the overall OCSDNet framework and themes. Draw on other initiatives and approaches discussed at the OCSDNet workshop, if applicable.

In order to "develop strategies to overcome some of the challenges to the uptake of Open Science" (Theme 1), our project will first explore the obstacles to the adoption of open science values, tools and practices in 17 different universities from FSAH: University Cheikh Anta Diop (Senegal), Gaston Berger University (Senegal), Polytechnic of Thies (Senegal), Abdou Moumouni University of Niamey (Niger), University of Ouagadougou (Burkina Faso), Polytechnic University of Bobo-Dioulasso (Burkina Faso), University of Bamako (Mali), Catholic University of Central Africa (Cameroon), Felix Houphouet-Boigny University of Cocody in Abidjan (Ivory Coast), University of Antananarivo (Madagascar), University of Abomey Calavi (Benin), University of N'Djamena (Chad), State University of Haiti, INUFOCAD (Haiti), École nationale supérieure de Libreville (Gabon), University of Kinshasa (RDC), University of Lomé (Togo). In Quebec, we will work with Laval University's graduate students

from Haiti and French-speaking Africa.

The project can also count on the support of complementary projects led by different members of the project: LASDEL (Laboratoire d'Etudes et de Recherche sur les Dynamiques Sociales et le Développement Local, Niger), the MOOC "Digital tools and Health Research: new practices and issues", the Science Shop Accès Savoirs (Université Laval), the LabCMO (UQAM and Université Laval), Association Science et Bien Commun, Association of Francophone Universities, the journal *Science ouverte*, the Interdisciplinary Research Center on Africa and the Middle East (Université Laval), University of Cape Town Knowledge Co-op, Laboratoire de recherche-action sur les communs (Université Laval), the University of Bordeaux-Montaigne (France), and some leaders in open science, including Dominique Babini (CLACSO, Argentina).

The analysis of our data will help us identify the training tools or strategies in these contexts able to change graduate students' attitudes towards open science. Therefore, our data will allow us to better understand "the contexts and conditions under which Open Science approaches are likely to be adopted by researchers [from Haiti and Francophone Africa] and how a pro-open environment might be created at the social, cultural and policy framework levels" (Theme 1) in those countries where the open science movement is still very limited.

As we will quickly meet many graduate students interested in open science, whether registered in a Canadian, French, Haitian or African university, we will be able to start our networking activities while getting data. In other words, we won't wait for the end of the research component of our project before starting the action component. From that point of view, our project "will intersect heavily with research theme three, investigating Open Science communities". Indeed, our project is focused on one very important group of stakeholders: the future generations of francophone African and Haitian researchers. In understanding their perception of open science, their culture, their values, their vision of science and their academic experience, we will be able to design efficient training tools able to "generate" local leaders of open science. With the support of the training tools and of the RISOHA network, we anticipate that these leaders "may influence the uptake and trajectory of OCSD approaches" in their university, especially the creation of an institutional repository or a science shop.

We intend to follow closely all OCSDnet projects, but especially the ones that focus on the status of open science among researchers. For instance, we could use Maurice and Dorine's project about the practices of Kenyan researchers working in collaborative situations, Arul's project on Indian scientists' practices in knowledge sharing and Pablo's project of open networks to further our comparisons between countries. However, we are aware that the frequency of open science practices in FSAH might be much lower than in Kenya, India or Argentina. Therefore, these projects will mainly help us design better and more informed training tools in open science.

Co-leader Florence Piron will also follow with a great interest all the OCSDnet citizen science projects in which the idea of cognitive justice found a fertile ground.

Bibliography (APA style)

Akam, N. (2002). *Quelle université pour l'Afrique ?*. Bordeaux: Maison des sciences de l'homme d'Aquitaine. Consulté à l'adresse http://livre.fnac.com/a1384593/Noble-Akam-Quelle-universite-pour-l-Afrique

Anonyme. (2014a). The African Copyright & Access to Knowledge (ACA2K) Project. Consulté 28 octobre 2014, à l'adresse http://www.aca2k.org/

Anonyme. (2014b, octobre 31). Réouverture de la bibliothèque numérique de l'UEH. Consulté 12 novembre 2014, à l'adresse http://www.lettre.ueh.edu.ht/index.php/78-point/98-reouverture-bnueh

Anonyme. (s. d.). Science Shops. Consulté 11 novembre 2014, à l'adresse http://www.livingknowledge.org/livingknowledge/science-shops

Arndt, T. S. (2012). Doctoral Students in New Zealand Have Low Awareness of Institutional Repository Existence, but Positive Attitudes Toward Open Access Publication of Their Work. *Evidence Based Library and Information Practice*, *7*(4), 119-121.

Bonney, R., Cooper, C. B., Dickinson, J., Kelling, S., Phillips, T., Rosenberg, K. V., & Shirk, J. (2009). Citizen Science: A Developing Tool for Expanding Science Knowledge and Scientific Literacy. *BioScience*, *59*(11), 977-984. doi:10.1525/bio.2009.59.11.9

Bruny, M. (2013, juillet 2). Pédagogie par projet en Haïti - Les nouvelles technologies pour l'enseignement des mathématiques. Consulté 11 novembre 2014, à l'adresse http://revue.sesamath.net/spip.php?article545

Chan, L. (2004). Supporting and Enhancing Scholarship in the Digital Age: The Role of Open Access Institutional Repository. *Canadian Journal of Communication*, *29*(3). Consulté à l'adresse http://www.cjc-online.ca/index.php/journal/article/view/1455 Clarke, C. (2013). *Be the Change: Saving the World with Citizen Science* (sans éditeur.).

DeBok, C., & Steinhaus, N. (2008). Breaking Out of the Local: International dimensions of science shops | DeBok | Gateways: International Journal of Community Research and Engagement. *International Journal of Community Research and Engagement*, *1*. doi:http://dx.doi.org/10.5130/ijcre.v1i0.888

Diouf, A. (2010, juin 8). N° 51 - Quelques bibliothèques numériques sénégalaises. Consulté à l'adresse http://antoninbenoitdiouf.com/2010/06/08/n%c2%b0-51-

quelques-bibliotheques-numeriques-senegalaises/

Diouf, A. (2012). *Open Access & Pays en développement*. Technologies. Consulté à l'adresse http://fr.slideshare.net/tonyben/open-access-pays-en-dveloppement?qid=f7901305-3976-491e-8bf0-1ff3cef82a78&v=qf1&b=&from_search=3

Diouf, D. (2008). *Les Revues sénégalaises en ligne : quelques expériences concrètes*. Dakar. Consulté à l'adresse www.codesria.org/IMG/pdf/21_Dieyi_Diouf-2.pdf

Diouf, D. (2009). *Quelle méthodologie pour l'archivage et la diffusion électronique de la documentation scientifique et technique dans le contexte d'une université africaine ? Le cas de l'université Cheikh Anta Diop de Dakar (UCAD)*. Université de Technologie de Troyes.

Dulle, F. W., & Minishi-Majanja, M. K. (2009). Researchers' perspectives on open access scholarly communication in Tanzanian public universities. *SA Journal of Information Management*, *11*(4). doi:10.4102/sajim.v11i4.413

FOKAL (Fondation connaissance et liberté). (2013, novembre 20). Ayiti Kale Je était au GIJC 2013 à Rio. Consulté 11 novembre 2014, à l'adresse http://fokal.org/fr/index.php?option=com_content&view=article&id=996%3Aayiti-kale-je-etait-au-gijc-2013-a-rio&Itemid=54

Friesenhahn, I. (2014, juin 25). Making higher education work for Africa: Facts and figures - SciDev.Net. Consulté 11 novembre 2014, à l'adresse http://www.scidev.net/global/education/feature/higher-education-africa-facts-figures.html

Guédon, J.-C. (2008). Open Access and the divide between « mainstream » and « peripheral » science. In M. das G. Targino & S. M. S. P. Ferreira (Éd.), *Como gerir e qualificar revistas científicas (forthcoming in 2007, in Portuguese)*. Consulté à l'adresse http://eprints.rclis.org/10778/

Haddow, G. (2008). Self-archiving to Institutional Repositories Is Improved by Assisted and Mandated Deposit; Disciplinary Culture is not a Factor. *Evidence Based Library and Information Practice*, *3*(2), 52-57.

Hameau, T. (2011, mai 6). Archive institutionnelle pour l'Afrique - Libre accès à l'information scientifique et technique. Consulté à l'adresse http://openaccess.inist.fr/?Archive-institutionnelle-pour-l

Hanlin, R. (2014, novembre 6). All African students should get innovation training. Consulté à l'adresse http://www.scidev.net/index.cfm?originalUrl=global/innovation/opinion/african-students-innovation-training.html

Harnad, S. (2003, octobre 1). Open Access to Peer-Reviewed Research through Author/Institution Self-Archiving: Maximizing Research Impact by Maximizing Online Access [Text.Serial.Journal]. Consulté 12 novembre 2014, à l'adresse http://www.webcitation.org/mainframe.php

Harnad, S. (2006). Publish or Perish - Self-Archive to Flourish: The Green Route to Open Access. *ERCIM News*. Consulté à l'adresse http://www.ercim.eu/publication/Ercim_News/enw64/harnad.html

Harnad, S. (2014, avril 28). The only way to make inflated journal subscriptions unsustainable: Mandate Green Open Access. Consulté à l'adresse http://blogs.lse.ac.uk/impactofsocialsciences/2014/04/28/inflated-subscriptions-unsustainable-harnad/

Hawkins, L., Mulder, H., & Steinhause, N. (2013). Building a Science or Research shop: Refining or Expanding Your Model. Présenté à CU Expo 2013, Corner Brook, NL, Canada. Consulté à l'adresse http://research.library.mun.ca/1806/

Hellemans, A. (2001). Science shops provide non-profit alternative. *Nature*, *412*(4-5). doi:10.1038/35108157

ilissAfrica.de. (2014, septembre 30). ilissAfrica - Libre Accès pour chercheurs africains [Text]. Consulté 11 novembre 2014, à l'adresse http://www.ilissafrica.de/fr/howto/OpenAccessGuide.html

Interuniversity institute for research and Development. (2010). *The Challenge for Haitian Higher Education: A Post-earthquake Rapid Assessment of Higher Education in the Port-au-Prince Metropolitan Area*. Port au Prince.

Joachim, D. (2014, avril 14). Vingt ans à vulgariser l'internet en Haïti. *Le Nouvelliste*. Consulté à l'adresse http://lenouvelliste.com/lenouvelliste/article/129809/Vingt-ans-a-vulgariser-linternet-en-Haiti.html

Kaly, E. (2012, janvier 17). Publication des résultats de la recherche : La part de l'AFRIQUE reste très faible. *Le Soleil - Sénégal*. Consulté à l'adresse http://www.lesoleil.sn/index.php?option=com_content&view=article&id=11026:publication-des-resultats-de-la-recherche-la-part-de-lafrique-reste-tres-faible-&catid=78:a-

la-une&Itemid=255

Kemeny, R. (2014, aout). 'Highly influential' scientists still rare in the developing world. Consulté à l'adresse http://www.scidev.net/index.cfm?originalUrl=global/publishing/news/highly-influential-scientists-still-rare-in-the-developing-world.html

Kigotho, W. (2013, octobre 11). Migration and brain drain from Africa acute – Report. *University Wordl News*, (291). Consulté à l'adresse http://www.universityworldnews.com/article.php?story=20131011121316706

Kigotho, W. (2014, novembre 14). Dilapidated universities must be fixed, say officials. *University World News*, *343*. Consulté à l'adresse http://www.universityworldnews.com/article.php?story=20141113165240708

Leach, M., Scoones, I., & Wynne, B. (2005). *Science and citizens: globalization and the challenge of engagement*. Zed Books.

Leydesdorff, L. (2005). Science shops: a kaleidoscope of science-society collaborations in Europe. *Public Understanding of Science*, *14*(4), 353-372. doi:10.1177/0963662505056612

Lynch, C. A. (2003). Institutional Repositories: Essential Infrastructure For Scholarship In The Digital Age. *Portal: Libraries and the Academy*, *3*(2), 327-336. doi:10.1353/pla.2003.0039

Machlis, G., Colon, J., & McKendry, J. (2011). *Science for Haiti: A Report on Advancing Haitian Science and Science Education Capacity*. AAAS. Consulté à l'adresse http://www.aaas.org/sites/default/files/migrate/uploads/haiti_report_2011.pdf

Makri, A. (2014, juin 26). Calls for change in Africa's higher education. Consulté 11 novembre 2014, à l'adresse http://www.scidev.net/index.cfm?originalUrl=global/education/editorials/change-africa-higher-education.html

Martin, É. (2014, octobre 21). IRIS – Blogue – L'internationalisation de l'éducation, ou l'envers d'un buzzword à la mode. Consulté à l'adresse http://iris-recherche.qc.ca/blogue/linternationalisation-de-leducation-ou-lenvers-dun-buzzword-a-la-mode#more-4860

Mohameddbhai, G. (2014, juin 25). Focus on research for development, not

academic rankings. Consulté à l'adresse
http://www.scidev.net/index.cfm?originalUrl=global/education/opinion/research-development-academic-rankings.html

Mohamed, R. A. (2006). *The role of governments in planning and developing digital libraries in developing countries* (Working paper). Consulté à l'adresse
http://repository.uneca.org/handle/10855/15377

Mvé-Ondo, B. (2005). *Afrique : la fracture scientifique / Africa: the Scientific Divide* (Futuribles.). Consulté à l'adresse
https://www.futuribles.com/en/base/bibliographie/notice/afrique-la-fracture-scientifique-africa-the-scient/

Nwagwu, W. E. (2013). Open Access Initiatives in Africa — Structure, Incentives and Disincentives. *The Journal of Academic Librarianship*, *39*(1), 3-10.
doi:10.1016/j.acalib.2012.11.024

Piotrowski, J. (2014, juillet 3). Top development journals dominated by Northern scholars - SciDev.Net. Consulté à l'adresse
http://www.scidev.net/global/publishing/news/development-journals-northern-scholars.html

Piron, F. (2009). Les boutiques de sciences. In *Aux sciences, citoyens! Expériences et méthodes de consultation sur les enjeux scientifiques de notre temps*. Montréal: Presses de l'Université de Montréal et Institut du Nouveau Monde.

Riley, J. (2014, août 15). Africa makes inroads on open development data. Consulté 11 novembre 2014, à l'adresse
http://www.scidev.net/index.cfm?originalUrl=global/data/news/africa-makes-inroads-on-open-development-data.html

Santos, B. de S. (2014). *Epistemologies of the South: Justice Against Epistemicide*. Paradigm Publishers.

Shankar, V. (2014, septembre 8). Africa's Education Imperative. Consulté à l'adresse
http://www.project-syndicate.org/commentary/viswanathan-shankar-describes-how-to-provide-africans-with-the-education--skills--and-job-opportunities-they-need

Smart, P. (2004). International Network for the Availability of Scientific Publications: Facilitating Scientific Publishing in Developing Countries. *PLoS Biology*, *2*(11).
doi:10.1371/journal.pbio.0020326

Smith, M. L., & Reilly, K. M. A. (2014). *Open Development: Networked Innovations in International Development*. MIT Press.

The Haiti initiative at UMass Boston. (2013). Addressing Problems in Higher Education in Haiti - University of Massachusetts Boston. Consulté 11 novembre 2014, à l'adresse http://www.umb.edu/trotter/research/haiti/higher_education_consortium/addressing_problems

Theralus. (2014, juin 4). Evolution des technologies de l'information en Haïti (1995-2010) : Entre l'indécision politique et le flou juridique. *Le Nouvelliste*. Haïti. Consulté à l'adresse http://lenouvelliste.com/lenouvelliste/article/131943/Evolution-des-technologies-de-linformation-en-Haiti-1995-2010-Entre-lindecision-politique-et-le-flou-juridique.html

The World Bank. (2014). *A decade of development in sub-Saharan African science, technology, engineering and mathematics research* (No. 91016) (p. 1-74). The World Bank. Consulté à l'adresse http://documents.worldbank.org/curated/en/2014/09/20240847/decade-development-sub-saharan-african-science-technology-engineering-mathematics-research

Université Cheikh Anta Diop. (2010). *Plan stratégique 2011-2016*. Dakar. Consulté à l'adresse http://www.ucad.sn/docs/ucad_plan_strategique_2011_2016.pdf

Vrana, R. (2010). Digital Repositories and Possibilities of Their Integration into Higher Education. *International Journal of Emerging Technologies in Learning (iJET)*, *5*(SI2), pp. 32-37.

Wanjiku Ndungu, M. (2013). *Jomo Kenyatta University of Agriculture and Technology Open Access Institutional Repository*. Nairobi: JKUAT.

Waruru, M. (2014, juin 26). Building a brighter future for African researchers - SciDev.Net. Consulté à l'adresse http://www.scidev.net/global/education/feature/building-a-brighter-future-for-african-researchers.html

Watson, R. T. *Crawford. (2003). *Strategic approaches to science and technology in development* (No. WPS3026) (p. 1-68). The World Bank. Consulté à l'adresse http://documents.banquemondiale.org/curated/fr/2003/04/2329621/strategic-approaches-science-technology-development

Web of Science | Thomson Reuters. (s. d.). Consulté 20 juin 2013, à l'adresse
http://thomsonreuters.com/web-of-science/

Willmers, M. (2012, octobre 24). Exploring 'Impact': New approaches for alternative
scholarly metrics in Africa. Consulté à l'adresse
http://www.scaprogramme.org.za/2012/10/exploring-impact-new-approaches-for-
alternative-scholarly-metrics-in-africa/

Wilson-Strydom, M., & Fongwa, S. N. (2014). *Profil de l'enseignement supérieur en
Afrique australe.Tome I: perspective régionale*. Institut de la Francophonie pour la
Gouvernance universitaire.

Zuccala, A., & Oppenheim, C. (2008). Managing and evaluating digital repositories.
Information Research, *13*(1). Consulté à l'adresse http://www.informationr.net/ir/13-
1/paper333.html