# openAIR
## AFRICAN INNOVATION RESEARCH

scaling
innovation
inclusively

2019
Annual
Report

Open AIR is a network comprising African and Canadian researchers who are interested in open innovation, collaborative initiatives, scaling, inclusion, and policy impact.

Our purpose is to develop better understanding of African contexts, better policies, and better practice.

The question that we are currently working on is:

**How can open and collaborative innovation help scale the impacts of next-generation technologies to promote gender equality, youth employment, and other aspects of inclusion.**

We are conducting case studies to help answer this question through the lenses of High Tech Hubs, Informal Innovation, Indigenous Entrepreneurs, Innovation Metrics, and Laws & Policies. Analysis of the results of these studies will be used to produce reports, research publications, improved theoretical models, and policy briefs & guidelines.

Concurrently we are representing Africa as consultants in our various areas of expertise and have representation at WIPO, the AU, relevant government bodies, and others, as well as in academic circles.

We also have a proactive online presence, with our website (including open access downloadable information), and lively social media.

And we offer Fellowships for university students at all levels, to participate in our work, and to travel for the purpose of conducting research in other environments.

# How to use this report

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**6**

How open and collaborative innovation can help scale the impacts of next-generation technologies to promote gender equality, youth employment, and other aspects of inclusion

## Main Focus

Gender quality and empowerment of women and girls

Economic integration, international law, and trade policy

Artificial intelligence

**14**

## Research into practice

- Active engagement
- Publications and presentations
- Amplifying messages
- Empowering the next generation

**23**

## Hubs

**42**

# Overview

*This year the Open AIR network moved into a new phase of research.*

Following an internal self-evaluation and an independent external evaluation at the midway point of our formal institutions' partnership, our core funders affirmed their commitments and/or reinvested in our research network. We refocused our research questions based on the results of our initial activities. And we rescoped emerging priorities for our next three years of work.

We continue to conduct research in themes shaped around three future scenarios for knowledge and innovation on the African continent: high tech hubs, informal innovation, and Indigenous entrepreneurship. **Underpinning and cutting across these three themes are two additional clusters of research: innovation metrics, and laws and policies**. Prior to our midterm review, we generally combined research on measurement of innovation and the policy frameworks based on those indicators. Moving forward, more clearly differentiating innovation metrics from the laws and policies they produce (or follow) will help to sharpen our methods and improve our outcomes.

Several new issues have clearly emerged as priorities for the African continent. While **Open AIR has always been interested in inclusive innovation, our ongoing activities are increasingly focused on specific aspects of inclusion**. Over the next few years, we will increasingly emphasize Sustainable Development Goal No. 5: Achieve gender equality and empower women and girls. Africa's youth, and especially their prospects for employment through innovation in knowledge-based businesses, is another area of more specific focus for our network. We will ramp up our work on economic integration on the African continent, emphasizing connections between international trade and local innovation.

Meanwhile, Open AIR continues to make impacts putting research into practice. **We remain heavily engaged with national and international policymakers in the fields of innovation and intellectual property**. And we **are deepening our connections with grassroots communities of innovators around Africa**. The effectiveness of our knowledge mobilization strategies is evident in our growing social media influence, increasing number of research publications, and enhanced reputation for policy expertise. Our mobility program enabling dozens of new and emerging researchers to move from hub to hub, gaining experience and exchanging knowledge in the process, is now well-established. Via our individual researchers and institutional hubs, we are recognizing Africa's role in the global knowledge economy.

> We refined our research questions with rescoped emerging priorities

## SUSTAINABLE DEVELOPMENT GOALS

**5 GENDER EQUALITY**

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**Prof. Caroline Ncube addressing the WIPO International Conference on IP and Development in Geneva, Switzerland.**

# 1. About Open AIR

*Open AIR is a unique collaborative network of researchers spread across 22 African countries, Canada, and elsewhere in the world, answering two overarching questions.*

How can **open collaborative innovation** help **knowledge-based businesses scale up** and seize the new opportunities of a **global knowledge economy**?

Which **knowledge governance policies** will best ensure that the **social and economic benefits** of innovation are **shared inclusively**?

opportunities, while sharing the benefits of innovation inclusively throughout society. Open AIR's African-centered research calls attention to the importance and sensitivity of context in the making of IP and knowledge governance policy for sustainable development. Through improved IP policies and practices, this research will lead to more innovation that benefits more people in both developing and developed countries.

In parallel, Open AIR is bringing insights and perspectives to the rest of the world, learning from what is happening and what works in Africa. To learn from Africa, Open AIR is building partnerships with leading experts, institutions and funding organizations from Canada. To prepare for plausible futures in which knowledge-based innovation becomes more prominent in Africa, Open AIR is connecting new and emerging researchers in African countries with their counterparts in places such as Canada. Through mutually beneficial research partnerships, Open AIR is recognizing Africa's role in the global knowledge economy.

Open AIR's primary goal is to uncover new insights about the balance between control over and access to knowledge. We aim to solve a problem at the heart of intellectual property (IP) and innovation policy: **how to reconcile tensions between appropriation and access, excluding and sharing, and competing and collaborating**. Our research is showing how knowledge-based businesses can capitalise on open collaborative innovation strategies.

Open AIR aims to understand how knowledge-based businesses can scale up to take advantage of global

> Open AIR is bringing insights and perspectives to the rest of the world, learning from what is happening and what works in Africa

# The Research Problem

*The Open AIR network's research during the past decade shows that innovation is happening in Africa in ways that were previously overlooked.*

Our research also shows that the role of intellectual property is more nuanced than often portrayed. It can sometimes facilitate or frustrate innovation, or even both. Recently, we have focused on the scalability of open and collaborative business models.

Our research has also created a unique interdisciplinary community of established and emerging African researchers. Our joint activities improved research quality and capacity, adding credible, independent, and distinctly African voices to global policy debates. **We are leveraging our social capital to influence policies and practices, and to position African leaders centrally in global networks.**

We are leveraging our social capital to influence policies and practices, and to position African leaders centrally in global networks

Based on many African nations' recent records of strong economic growth and shifting demographic trends, businesses on the continent are emerging as important players in the global knowledge economy. Yet, if Africa's tremendous potential for global economic and trade opportunities is to be realised, many issues must be overcome. One of these issues – the focus of Open AIR's current research – is learning how to **scale up knowledge-based businesses without jeopardising sustainability or sacrificing core values**. Our hypothesis has been that business models grounded in networked, open, and collaborative innovation can help make that happen.

Parallel to empirical research in African countries, we have been conducting comparable research in the global North. Cross-regional comparative research has revealed commonalities and contrasts that can be used to improve governance of the global knowledge economy for the benefit of people living in developed and developing countries alike.
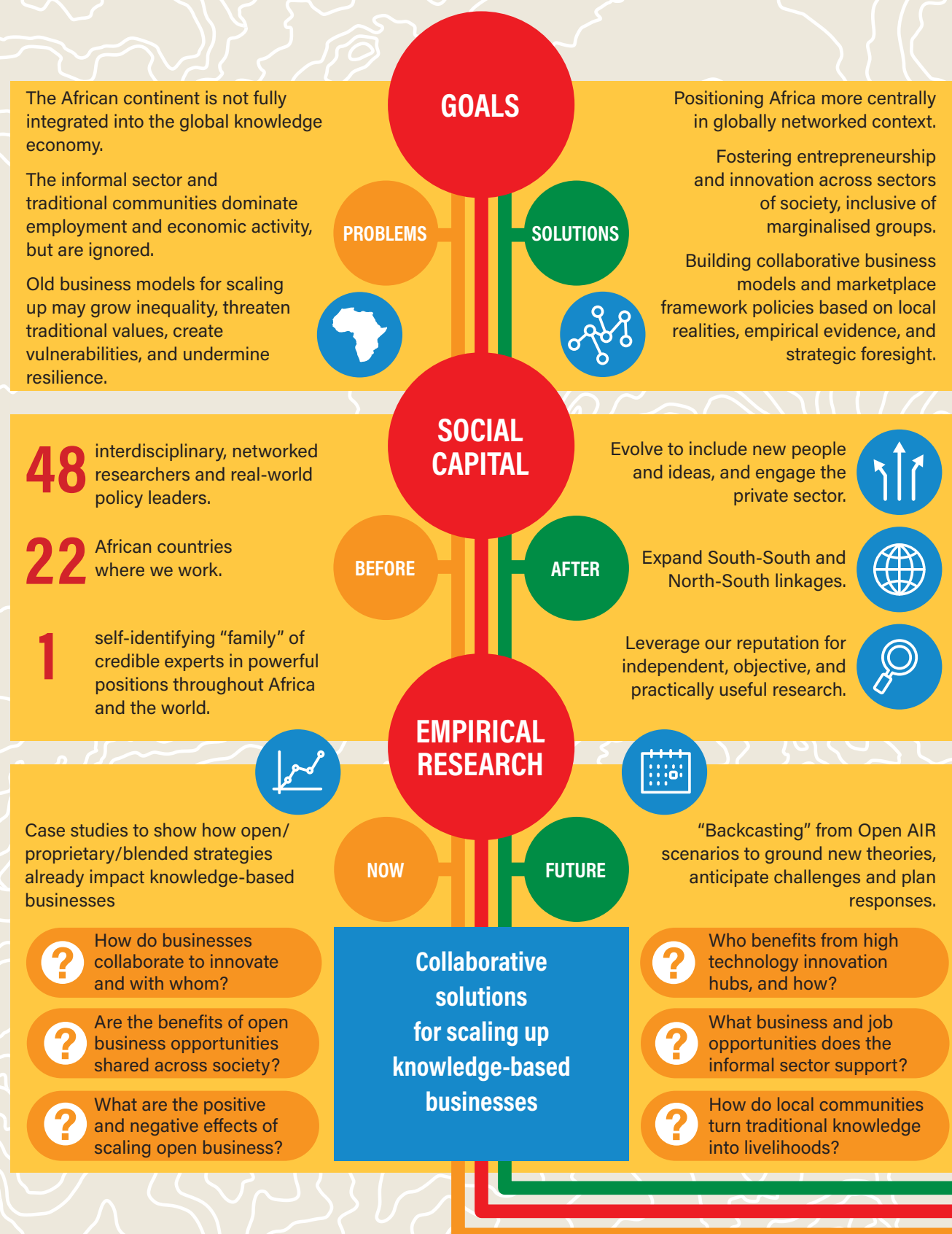
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Open AIR researcher, Seble Baraki, trying her hand at 'making' at the Maker Spaces Workshop in Pretoria, South Africa.

Open AIR Network operates in
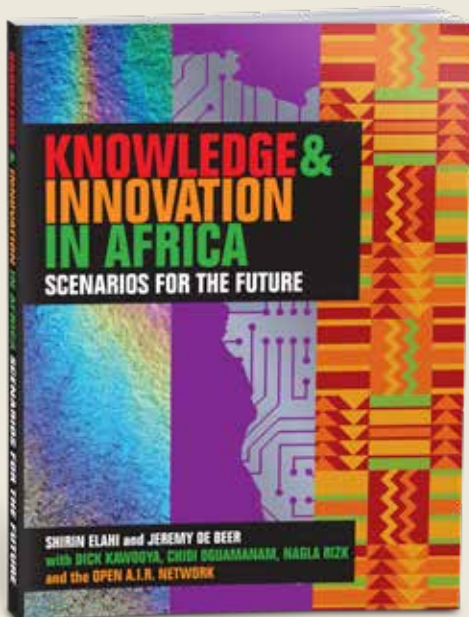
# 22
African countries and Canada

# Theory of Change

## GOALS

### PROBLEMS

The African continent is not fully integrated into the global knowledge economy.

The informal sector and traditional communities dominate employment and economic activity, but are ignored.

Old business models for scaling up may grow inequality, threaten traditional values, create vulnerabilities, and undermine resilience.

### SOLUTIONS

Positioning Africa more centrally in globally networked context.

Fostering entrepreneurship and innovation across sectors of society, inclusive of marginalised groups.

Building collaborative business models and marketplace framework policies based on local realities, empirical evidence, and strategic foresight.

## SOCIAL CAPITAL

### BEFORE

**48** interdisciplinary, networked researchers and real-world policy leaders.

**22** African countries where we work.

**1** self-identifying "family" of credible experts in powerful positions throughout Africa and the world.

### AFTER

Evolve to include new people and ideas, and engage the private sector.

Expand South-South and North-South linkages.

Leverage our reputation for independent, objective, and practically useful research.

## EMPIRICAL RESEARCH

### NOW

Case studies to show how open/proprietary/blended strategies already impact knowledge-based businesses

How do businesses collaborate to innovate and with whom?

Are the benefits of open business opportunities shared across society?

What are the positive and negative effects of scaling open business?

### FUTURE

"Backcasting" from Open AIR scenarios to ground new theories, anticipate challenges and plan responses.

Who benefits from high technology innovation hubs, and how?

What business and job opportunities does the informal sector support?

How do local communities turn traditional knowledge into livelihoods?

**Collaborative solutions for scaling up knowledge-based businesses**

**"Collaborative innovation"**
A grounded theory about the collaborative dynamics of openness across firm boundaries, consumer creativity, crowdsourcing, and peer production.

**"Knowledge governance"**
The formal or informal legal, economic, social, cultural, political, and technological structures that determine who can appropriate or access knowledge, and how.

## RESEARCH INTO THE REAL WORLD

**Influential, open access articles, books and briefs**

**Dialogue with decision makers and power brokers**

### VIRTUAL ENGAGEMENT AND OUTREACH EVENTS

SOCIAL MEDIA

WEBSITE VISITORS

YOUTUBE VIEWS

## DEVELOP-MENT OUTCOMES

**THEORY**

**PRACTICE**

**POLICY**

**Better ideas**

Clearer understanding of what "open" business is.

More consistent, meaningful use of key terms.

Working models of how openness or appropriation both helps and hinders business.

**Better lives**

More opportunities for entrepreneurial innovators.

More stable employment prospects by scaling enterprises of various sizes.

More just distribution of economic and social benefits of innovation.

**Better tools**

Model policy frameworks for local and national governments.

Best practices, licences, and guidelines for real-world businesses.

Positive proposals for new international agreements, policies, and metrics.

# Research Clusters

*Open AIR's landmark foresight study,* Knowledge and Innovation in Africa: Scenarios for the Future, *identified plausible scenarios for the future of knowledge and innovation.*



This showed three areas that are local priorities, especially for marginalised communities, and formed the basis of where our research should lead and where there are gaps in understanding. **The research we have been conducting now aims to dig more deeply into particular dimensions of these scenarios, specifically regarding the ways that scalable open and collaborative innovation can help scale business models and the impact of next-generation technologies to promote inclusion**.

Open AIR has five thematic research clusters, based on our previous research on knowledge and innovation in Africa: **High Technology Hubs; Informal Innovation; Indigenous Entrepreneurship; Innovation Metrics, and Laws and Policies**.

## High Technology Hubs

Open AIR's past work developed a strong appreciation of the prevalence and importance of high tech hubs throughout the African continent. IP policies, which underpin developed countries' laws, function on the assumption that formal protections are the best way to encourage innovation. A rapid proliferation of IP rights, however, can result in thickets of vague and overlapping claims, which we see in places like the United States, causing serious questions regarding current IP laws and policies.

Across Africa there is an explosion of high tech innovation which is occurring in what is essentially an IP vacuum. In recent years, incubators, accelerators, makerspaces, and other tech hubs have proliferated throughout Africa, in university, private venture, and government initiative settings. To ease the paradox between the openness that facilitates new ideas and the collaborations that characterise these tech hubs, with the pressure for proprietary protection of new ideas and knowledge, Open AIR has been analysing the extent to which formal IP rights are important to the success or failure of Africa's burgeoning tech initiatives at and around high technology hubs.

## Innovation Metrics

## Laws and Policies

## Informal Innovation

Most businesses in Africa are informal, so we need to understand creative processes in the informal sector.

Africa's myriad informal micro-enterprises offer diverse and vibrant settings for analysing innovation. These enterprises face severe scarcity, which drives them to improvise solutions to everyday challenges with innovations that better address local needs. Our research delves into informal and formal sector interaction, and explores how IP rights might allow for better policy frameworks to encourage interactions and facilitate growth.

A good example of such interactions between informal and formal innovation is happening in makerspaces, where communities are focused on problem-solving, sharing knowledge, and facilitating access to technologies through the democratisation of manufacturing tools. The maker movement espouses the do-it-yourself ethos and other values of Africa's informal sector innovators; both operating at a small scale but with great up-scaling potential.

## Indigenous Entrepreneurs

Traditional knowledge held by local communities inspires innovation for many entrepreneurs and businesses in the informal economy, health care sector, fashion industry, agriculture, and more. Further, such knowledge is a basis for niche businesses and economic opportunities. These innovations increasingly take into account modern technologies. Information and communication technologies are especially crucial to scale up indigenous and local entrepreneurial activities and empower communities.

The relationship between traditional knowledge, IP, and innovation has been a focal point for Open AIR. The network is showing how knowledge is used in the economic interests of indigenous communities, and how such knowledge has been deployed outside these communities in connection with establishing entrepreneurial businesses. This research is also providing further examples of how Canadians – both Indigenous and non-Indigenous – can benefit with lessons from, and not just for, African indigenous communities.

The theme of innovation metrics is a cross-cutting, overarching theme to develop a sharper lens capturing innovation in Africa. This theme incorporates the analysis and integration of research results overall. Specifically, our objectives are:
- better **science and innovation policies**,
- better **development planning**,
- better and more accurate **positioning of Africa on the global innovation map**.

Open AIR has shown that developing countries rank poorly in measures of innovation not because they are not innovative, but because the proxies being measured do not reflect the realities of innovation in developing country contexts. Therefore, we are devising a new grounded theory and associated measures of innovation on the African continent. We are identifying measurement tools that build upon Open AIR's new grounded theories about knowledge and innovation, which will be useful for anyone conducting research on innovation in Africa or even globally. This work provides a concrete framework that can be used in specific situational analyses of on-the-ground practices of African innovators.

The Laws and Policies theme focuses its research agenda on:
- regulatory developments across the continent within the context of the **African Continental Free Trade Area (AfCFTA)**, and
- exploring African innovation through the lens of **gender equality and the empowerment of women and girls**.

These two aspects have been an undercurrent in our past research and this theme surfaces them through a series of studies.
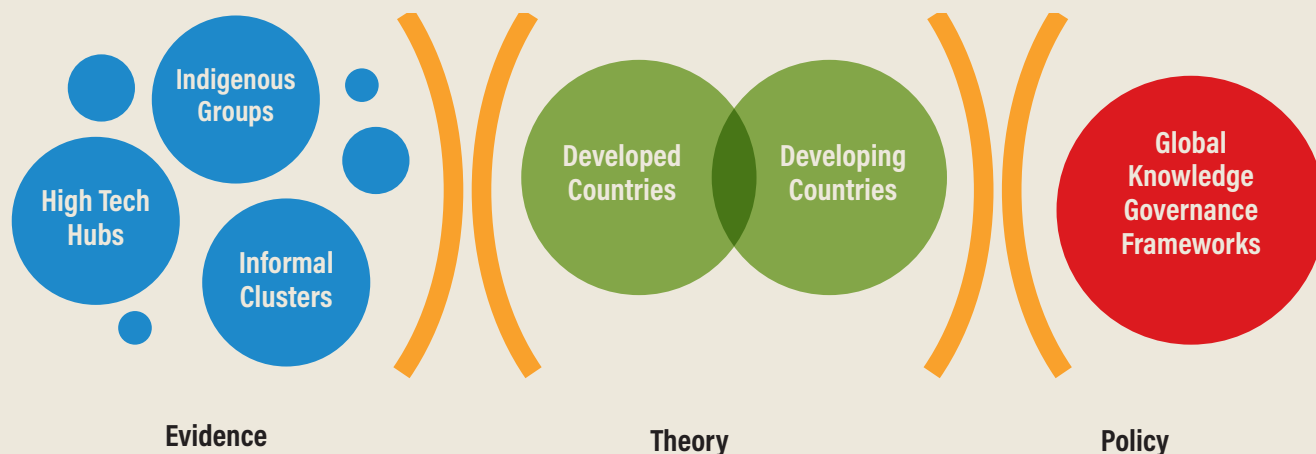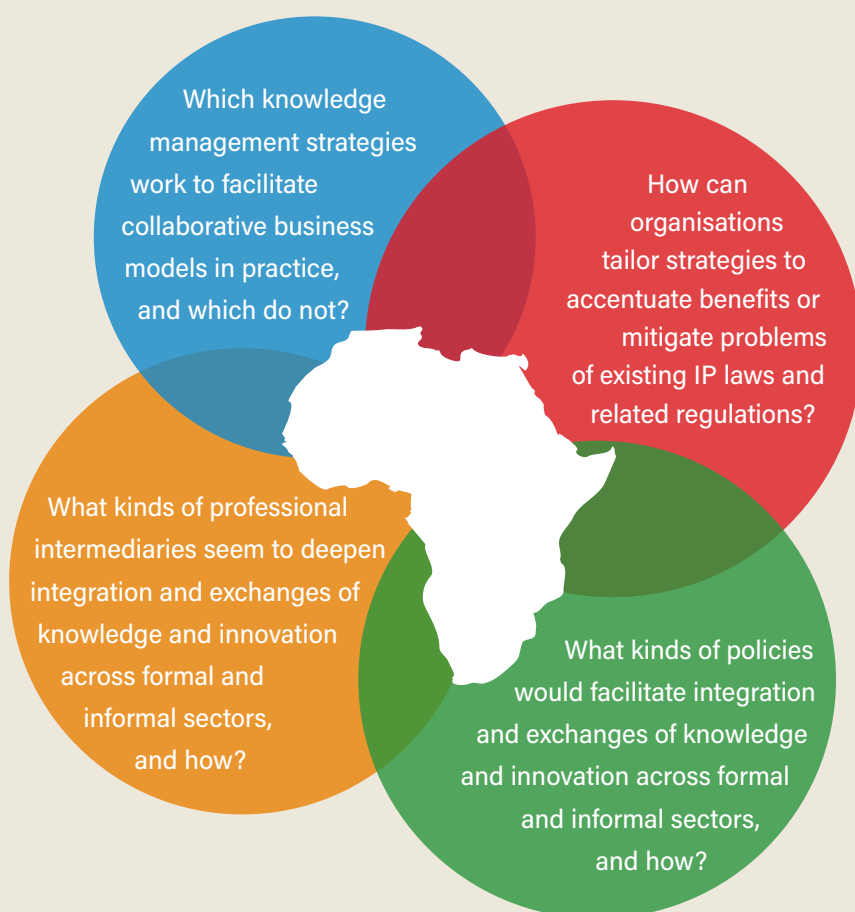
The work plan on economic integration encompasses proactive engagement with key players in Africa and globally. This is imperative because the operationalisation of AfCFTA will require regulatory reforms in AU member states, individually and collectively. Specifically, our research is considering the implications of the AfCFTA for global and regional IP organisations (WIPO, ARIPO and OAPI).

Our work on innovation and gender equality considers how gendered policy perspectives may enhance the participation of female innovators in their efforts to appropriate value from their innovations. Open AIR is, in this way, helping to realise Sustainable Development Goal No. 5: Achieve gender equality and empower women and girls.

# Questions and Methods

Across these clusters we are investigating several sub-questions. Open AIR's response to the problems and questions described above is to **seek solutions based on robust, empirical, grounded research**. In pursuit of ensuring that our research has an impact, the methods are split into three phases (1) empirical evidence, (2) grounded theory building, and (3) designing and promoting coherent regional and global knowledge governance frameworks, exerting policy and practical influence through scenario-driven strategies, and feedback to our case study subjects.

Which knowledge management strategies work to facilitate collaborative business models in practice, and which do not?

How can organisations tailor strategies to accentuate benefits or mitigate problems of existing IP laws and related regulations?

What kinds of professional intermediaries seem to deepen integration and exchanges of knowledge and innovation across formal and informal sectors, and how?

What kinds of policies would facilitate integration and exchanges of knowledge and innovation across formal and informal sectors, and how?

Indigenous Groups

High Tech Hubs

Informal Clusters

Developed Countries

Developing Countries

Global Knowledge Governance Frameworks

**Evidence**

**Theory**

**Policy**

## Interconnected, Empirical Studies

The leaders of each of our themes are building on earlier thematic findings around open and collaborative innovation to develop insights about scaling for inclusion. Respected researchers in the various study areas are being carefully selected to bring the best information and data to answer our questions.

## Grounded Theory-Building

Grounded theory building allows us to gather real-world empirical evidence for solidifying a theoretical framework. That means we are developing new conceptual models based on our network's on-the-ground research observations, not entrenching assumptions based on old theories.

## Policy Design and Testing

New empirical evidence and theoretical frameworks inform recommendations to policy-makers and influential stakeholders. We promote policy changes to facilitate improved marketplace frameworks and new practical tools for businesses to successfully scale up innovations Empirical and theoretical methods are combined with "action research", ensuring Open AIR's research beneficiaries are directly involved our partnership.

A team from Open AIR visiting makerspaces in Accra, Ghana.
▼

# 2. Refocusing our Research

*Following our midterm review, Open AIR has refocused its research to remain on the cutting edge of emerging problems. We have refined our research agenda to shed new light on a core research questions:*

**How can open collaborative innovation help scale the impacts of next-generation technologies to promote gender equality, youth employment, and other aspects of inclusion?**

In order to promote scalable African innovation that is inclusive, policymakers and practitioners need new research on the intersections amongst innovation and two specific subtopics (a) gender equality and empowerment of women and girls, and (b) African economic integration and international law and trade policy. These are not the only issues to solve, obviously, but both topics have emerged in response to real-time priorities of African policymakers, and indeed many stakeholders across the global innovation system.

## Gender Equality and Empowerment of Women and Girls

Our emerging emphasis on gender is, most fundamentally, a matter of women's rights as human rights. We know that women are as innovative as men but must overcome systemic barriers to the protection and adoption of women-led innovation. Our research investigates whether and, if so, how innovation frameworks not only ignore the disproportionate effects that laws, policies, and practices have on women, but also project male-dominated perspectives on ownership and

compensation. Innovation policies are, unfortunately, even less likely to consider the perspectives of intersectional marginalized groups, such as poor, racialized women in developing countries. For example, we are exploring the relevance and practical uptake of various aspects of ICTs as tools to advance the participation of women in economic development, wealth creation and ultimately poverty alleviation.

## Economic Integration, International Law, and Trade Policy

The African Continental Free Trade Area, AfCFTA, is a potential game-changer for intra-African trade, economic integration, law, and IP policy. While free trade in goods is the immediate priority, the aim is eventually for significant labour mobility and even a common currency. Research to solve problems associated with economic integration and trade policy are intended to be responsive to these real-time policy impact opportunities on the continent. To assist trade policymakers in the development of a framework, we are exploring IP issues, perspectives, and priorities. Further research will show how process and substance issues are both important to create fair and balanced IP systems on the continent that stimulate innovation, growth, and competition.

# Artificial Intelligence

Monumental advances in technology are impacting human lives, including in Africa. Fourth industrial revolution (4IR) technologies, data, and artificial intelligence (AI) feature prominently in initiatives conducted at Open AIR hubs across Africa and in Canada. An array of activities, including research, teaching and outreach related to 4IR and AI are taking place at our different hubs. Each of these activities tie directly or indirectly, to Open AIR's goal of creating explorative knowledge of the developmental implications of AI, specifically in Africa. Through thematic research on high technology hubs, informal innovation, and indigenous entrepreneurship in Africa, Open AIR is taking steps toward advancing an emerging research agenda on AI for development. With this research, we are tackling questions related to AI and gender equality, AI's future impacts on youth employment, and the inclusion of marginalized communities in African AI policies.



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**Prof. Nagla Rizk addressing a Women as Engines of Economic Growth conference in Cairo, Egypt.**

**Madina Sako from Burkina Faso. An active woman member in the Ouagalab, Burkina Faso. This picture was taken during "la semaine du numérique et de l'innovation du Burkina Faso".**
▼

# AInnovation
## Inclusivity
## Integration
## Intelligence

## A Spotlight on Artificial Intelligence

### North Africa

Our Northern African hub, the Access to Knowledge for Development Center (A2K4D) at the American University in Cairo, is conducting research on open data, AI and development in the Global South. A2K4D's 4IR and AI activities to date include giving presentations, participating in workshops, writing blog posts, and producing publications.

For example, in May 2018, A2K4D's Founding Director, Open AIR Co-Principal Investigator (PI), and Open AIR's metrics Theme Leader, Nagla Rizk participated in the AI for Good Summit in Geneva. Her presentation, entitled "Implementation of AI to advance the SDGs: Data for Good", was on a panel that was among a series of simultaneous sessions on "Implementations of AI to Advance the SDGs". Bringing the Egyptian perspective to global discussions, Rizk drew on A2K4D's interdisciplinary research to explore how AI can offer solutions to global development challenges. Rizk's argument focused on the question of

**Conducting research on open data, AI and development in the Global South**

how AI could be a force for good for the entire globe and not just monopolized in the hands of the global north or a powerful few. She gave examples from A2K4D's and partners' work on open data as well as cited empirical research conducted at A2K4D on devising alternate measures of knowledge and innovation in Africa.

In October 2018, at A2K4D's Eighth Annual Workshop, Open AIR Senior Researcher, Nagham ElHoussamy, moderated a session entitled "Ethics, Inclusion, and the Governance of Artificial Intelligence". This panel was part of the activities of the Inclusive Internet Governance Initiative (IIG), which is a joint initiative between A2K4D and Internet Masr, a local NGO. The main

The Open AIR panel during the A2K4D AI conference at the American University in Cairo, Egypt.

Open AIR Co-Principal Investigator, and Open AIR's metrics Theme Leader, Prof. Nagla Rizk and senior Researcher, Nadine Weheba, who with Nagham ElHoussamy, is currently conducting research exploring law and policy governance structures of AI in Egypt.

Open AIR members in Egypt during the "AI for Good" conference.

aim of this project is to conduct a series of activities and discussions to highlight the importance of internet governance for Egypt. The project focuses on identifying priorities of internet governance and establishing a platform for interested members of civil society, the private sector and academia. With these activities, the project hopes to take the first steps towards an internet governance forum for Egypt.

Within A2K4D's Internet Governance activities, over the past year they held a public forum with AI stakeholders in Egypt. The keynote speaker, and a participant on the panel, was the Egyptian Communications and Information Technology Minister's Advisor for Artificial Intelligence. A2K4D also conducted a review of AI strategies in eight countries, to determine which would be the most aligned with Egypt's needs. This research is currently in the analysis phase and we look forward to publishing our results. In addition, in early 2019, Rizk submitted a chapter entitled *Artificial Intelligence and Inequality in the Middle East: The Political Economy of Inclusion* for the Oxford Handbook of Ethics of AI. This handbook will be published in late 2019, with Rizk's chapter looking at the various challenges, opportunities, and tensions facing the equitable development of AI in the MENA region in the aftermath

**How can AI be a force for good for the entire globe?**

of the Arab uprising of 2011. Based on the research for this chapter, Rizk was invited to speak at the workshop "Translating Research on AI's Impacts into Human Rights Advocacy" in May 2019 at the Berkman Klein Center for Internet & Society at Harvard University. Additionally, Rizk discussed the chapter's findings at a talk entitled, "Artificial Intelligence and Inequality in the Middle East: The Political Economy of Inclusion", hosted by the University of Toronto's Center for Ethics.

Further, as a means of integrating timely topics into her teaching, in Spring 2019, Rizk has introduced a new graduate course to AUC's Economics Department entitled, "New Technologies, Networked Economies and Inclusive Development". AI and data are some

of the main themes of this course and many of the course's readings revolve around these subjects.

A2K4D's forthcoming research plans delve further into the topics of 4IR and AI. In collaboration with partners at the Leverhulme Centre for the Future of Intelligence (CFI) at the University of Cambridge, UK, A2K4D will jointly host a Global Artificial Intelligence Narratives (GAIN) Workshop for the Middle East and North African region in October 2019. The joint workshop will be the fifth in the GAIN series, where workshops are hosted in different regions in an ambitious effort to examine how AI is perceived in different regions and cultures around the world. In addition, ElHoussamy and Senior Researcher, Nadine Weheba, are currently conducting research exploring law and policy governance structures of AI in Egypt.

## Eastern Africa

AI activities at the Centre for Intellectual Property and Information Technology Law (CIPIT), at Strathmore University, encompass primarily events and network building. Under the direction of Open AIR's high tech hubs theme leader and Founding Director of CIPIT, Isaac Rutenberg, CIPIT has also been leading the way on research relating to AI.

Strathmore University hosted the Artificial Intelligence for Development (AI4D) conference from 3–5 April 2019, which was organized by the International Development Research Centre (IDRC), the Swedish International Development Cooperation Agency, Knowledge 4 All Foundation, and the UNESCO Chair in Artificial Intelligence. The workshop, entitled "Toward a Network of Excellence in Artificial Intelligence for Development (AI4D) in sub-Saharan Africa", aimed to identify a research and capacity building roadmap, including devising strategies and possible partnerships as this network is established.

Rutenberg and CIPIT also participated in the AI for Good Conference in April 2019, which was hosted at Strathmore University in partnership with Access Partnership and Microsoft. During the event, Rutenberg stressed the commitment of Strathmore University to champion AI technologies in Kenya.

Just one month later, Rutenberg then participated in the "#AI4D Network Knowledge Webinar: Introducing the 2019 Government AI Readiness Index". During his talk, Rutenberg stressed that the index engages in a "self-selecting exercise", since it does not account for African countries who seldom publish or update their progress on the Internet. Kenya, for example, was ranked highest in the Index, quite close to Tunisia, but their official websites do not discuss progress in the field. Online data is therefore unreliable for researchers to follow, especially when it comes to Sub-Saharan African countries.

Rutenberg highlighted how AI is like any other innovation space, so driving factors or forces of AI will include large companies; that is, AI research comes from major telecoms and international businesses such as IBM and Microsoft. In addition, Rutenberg also brought up an important concept that he called "second-mover advantage". This is similar to leap-frogging in that the Global South is presented with the opportunity to learn from the Global North's mistakes. An example

> AI has the potential for wide reaching positive impacts from manufacturing to government services

of this is the recent San Francisco ban on the use of facial recognition technology for surveillance purposes by police and government agencies.

As for the threat of AI and job losses in Africa, Rutenberg proposed that the Western-centric notion may have minimal effects in Africa. For example, the cost of implementing AI drivers in Sub-Saharan Africa, would be higher than that of simply hiring human drivers, due to normalized low wages in the region. Further, Rutenberg discussed the question of AI and possibilities of exacerbated inequalities. He stated that the determining factor when it comes to this question is data availability, referring to data poverty in Africa. Rutenberg pointed out that "[AI is] useless if you don't have large data sets".

On the research side, CIPIT Senior Research Fellow, Arthur Gwagwa, is undertaking new research on AI in Africa. Gwagwa is currently conducting research on the law and policy governance structures of AI in South Africa, Kenya, Nigeria, Rwanda, and Senegal. Recently, Gwagwa discussed "AI and Privacy: Challenges and Ways Forward in the Global South" at RightsCon in Tunis in June 2019. Across CIPIT, research

on AI will continue, particularly focusing on the ways in which the technology is adopted (or not adopted) by various sectors in Kenya and the region.

From manufacturing to government services, AI is touted as having the potential for wide reaching positive impacts. Whether such impacts will be realised is dependent upon many variables, and the AI4D Network will seek to contribute to our understanding of those variables in the coming months.



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**Open AIR's high tech hubs theme leader and Founding Director of CIPIT, Isaac Rutenberg, CIPIT has also been leading the way on research relating to AI.**

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**CIPIT Senior Research Fellow, Arthur Gwagwa, is conducting research on the law and policy governance structures of AI in South Africa, Kenya, Nigeria, Rwanda, and Senegal.**

## Southern Africa

Open AIR has two co-hubs in Southern Africa: the Intellectual Property Unit (IP) at the University of Cape Town (UCT), and the University of Johannesburg (UJ). At the UCT IP Unit, 4IR activities fall under several tracks: a series of briefs, teaching, coordinating with the law faculty's newly established Law Tech Lab . Meanwhile, the UJ hub hosts a South African National Research Foundation, Department of Science and Technology, and Newton Fund Trilateral Research Chair in Transformative Innovation, the 4th Industrial Revolution, and Sustainable Development.

The IP Unit is publishing a series of briefs on the intersection of IP and compelling 4IR technologies such as AI and blockchain, with an emphasis on the African context. The first brief in this series will be available soon on the IP Unit's website, ip-unit.org. The objective is to highlight key issues on the topic and include suggested readings for those looking to explore further. The team at UCT, under the guidance of Founding Director and Open AIR Co-Principal Investigator, Tobias Schonwetter, is also aiming to produce a series of blog posts and other publications based on

**A new Cyberlaw LLB course was piloted in 2019 at UCT, integrating core elements of AI discussions**

this brief, hoping to garner further interest in the topic.

Issues of gender in AI are also under investigation at the IP Unit, to be used for a second brief. This brief will involve the team conducting scoping research on the topic, while adopting a gendered perspective to knowledge governance and its relationship to data.

On the teaching front, a new Cyberlaw LLB course was piloted in 2019 at UCT, integrating core elements of AI discussions. The course is jointly taught by Schonwetter, Bram Van Wiele, and Douglas Gichuki. It tackles topics such as consumer and data protection, cybercrime, AI consequential decision making, and ethics.

AI and machine learning are also the central focus of the UCT law faculty's Law Tech Lab. Founded by both the IP Unit and the Democratic Governance and Rights Unit, the lab aims to engage students and tackle legal issues pertaining to 4IR and digitization, as it unfolds in the contexts of Africa. Multifaceted inclusion, including affordability and access to justice in light of the 4IR, are key themes.

Open AIR partners at UJ are also active on several different fronts in the area of AI and 4IR. UJ is

The UCT Law Faculty hosted the 2019 Kate O'Regan Intervarsity Moot Competition. The case concerned questions around IP & Artificial Intelligence.

Justice Kate O'Regan (centre) presented the award to the winners with Prof. Danwood Chirwa, (Dean of Law 3rd left), Prof. Caroline Ncube (2nd left), and Constitutional Court Judge, Albe Sachs (right) were in attendance. ▼

one of the founding partners of 4IRSA, a collaboration bringing together stakeholders from across academia, industry, civil society, and government in conversations and initiatives pertaining to AI and its impact on society. 4IRSA's latest activities include the 'Digital Economy Summit 2019', which took place in July 2019 and featured speeches from prominent speakers, including South Africa's President Cyril Ramaphosa, garnering significant media attention. Open AIR's informal sector innovation theme leader, Erika Kraemer-Mbula, has been part of the Summit's operations committee over the past year. The Summit particularly focused on inequality, in light of ongoing digital transformations.

Fieldwork is also underway at UJ, where partners are gathering empirical data on the different modalities and uses of 4IR technologies in manufacturing processes and the implications this has on skills development in South Africa. Through firm level case studies, their research examines the incidence and use of technologies and skills as well as the challenges and opportunities faced. Accordingly, recommendations for education and the skills training necessary to prepare South Africa for the impact of the fourth industrial revolution will be put forward.

▲
**Open AIR's informal innovation theme leader, Erika Kraemer-Mbula, has been part of the 'Digital Economy Summit 2019' operations committee. The Summit particularly focused on inequality, in light of ongoing digital transformations**



Open AIR
@Afrinnovation                    Follow

Our NERG @akkilathiru from our Ottawa hub is spending the month working and learning from our partners at the IP Unit in Cape Town. Open AIR's opportunity for students to learn from international scholars is an important facet of our work.

3:09 AM - 7 May 2019

## Canada

In Canada, Open AIR's hub is located within the Centre for Law, Technology and Society (CLTS) at the University of Ottawa (uOttawa). The Canadian hub of Open AIR mainly conducts research on the intersection of AI with the topics of gender and IP. These activities are driven by strong partnerships across Open AIR hubs and emerging projects with private sector .

A key area of research interest is the gendered perspective of IP and AI in Africa. One member of Open AIR's New and Emerging Researchers Group (NERG), Akkila Thirukesan, has been conducting preliminary research into the areas of AI, IP, and gender. This past year, she travelled to the IP Unit in Cape Town, South Africa, where she spent a month as a visiting student, engaging with professors, PhD, and LLM students, learning their insights on South Africa's IP system. Her preliminary research has concluded that more focus has to be placed on the integration of diverse perspectives, specifically of women, in order for AI to beneficially contribute to Africa's innovation and growth. The absence of such perspectives could lead to AI contributing to inequality, not reducing it. Akkila wrote a blog post for Open AIR about her initial understanding of this topic, as well as an upcoming post about several interviews she conducted while at UCT. Since then, she has been working cross-continentally with our partners in Cape Town, joining a gendered balance research team in the areas of AI, IP, and gender in Africa.

In addition, others at the uOttawa hub are exploring other IP issues around AI. PhD student Sarit Mizrahi, for example, is in the midst of writing a doctoral thesis on copyright in machine-authored works. Open AIR co-Principal Investigator, Jeremy de Beer and uOttawa JD student, Sarah Crothers, are working on issues around AI and IP policy, with a specific focus on the intersections amongst patenting and open innovation strategies. By learning from the research at other Open AIR hubs, de Beer and his team are finding lessons for Canadian AI policies. Further, in early 2020, uOttawa will host the renowned We Robot conference. This will be the first time this interdisciplinary gathering will take place outside of the United States. Open AIR network members plan to participate and hope to inject distinctly African perspectives into the global discussions on AI-related academic and policy issues.

> **Open AIR's Canadian hub conducts research on the intersection of AI with the topics of gender and IP**

**Thomas Mboa Nkoudou and Chris Armstrong participating in the Ontario Makers and Mentors Innovation Conference in Ottawa, Canada.** ▼

*There are five parts to Open AIR's strategy for mobilizing research insights into practical outcomes. In our first three years, we have had extraordinary success on all aspects of our strategy.*

# 3. Putting Research into Practice

**Leveraging our social capital and connections to key decision makers.** For example, through our now well-established reputation and networks, we have been able to connect with key decision makers from international organizations, national governments, and leading scholarly and activist associations.



**Engaging stakeholders early and often in the research process to ensure relevance**. We are working directly with the beneficiaries of our research through our participatory action techniques in, for instance, the areas of high tech hubs, makerspaces, and indigenous communities.



**Publishing open access, bilingual scholarship and practical policy materials.** We have created a new working paper series, translated key outputs from previous research into French, and are now "versioning" our materials into briefing notes, handbooks, toolkits, and scholarly articles.



**Amplifying our influence through social media and mainstream press communications**. Our website has become an increasingly key vehicle for disseminating Open AIR research results and our expanded social media presence continues to create interest around our work.



**Empowering new scholars to understand and share insights in their future endeavours**. Our "new and emerging researchers group" is thriving, with more than 90 current members and alumni. All of our hubs have teams of research assistants training to become future leaders.



*Scaling innovation inclusively*

# Active Engagement with Innovators and Policymakers

*Since 2016, Open AIR has intensively researched the work of maker communities in African countries and in Canada. Using grounded research techniques, these maker communities are not only research subjects but are also collaborators in our research.*

Open AIR is one of the pioneers in this research area in developing-world contexts. This is because we see the maker movement as a key manifestation of, and potential future driver for, open, collaborative innovation and livelihood development in Africa.

Between 2016 and 2018, Open AIR conducted studies of innovation, collaboration, knowledge governance, and enterprise-scaling by maker communities in South Africa, Kenya, Egypt, Tunisia, and Morocco. Additionally, our research into activities at the Suame Magazine informal-sector cluster in Ghana considered potential linkages to the maker movement. As a result of this research, in mid-2016, Open AIR convened a Canadian maker movement research meeting at the University of Ottawa and, in 2017, Open AIR jointly convened with

the SA Makers Collective the South African Maker Movement Workshop in Pretoria as well as presented at uOttawa's Ontario Makers and Mentors Innovation Conference (OMMIC).

Since then, this past year we deepened both our research and our level of engagement with maker communities. We collected interview data from maker communities in three additional African countries (Senegal, Burkina Faso, Cameroon), we broadened our South African research to include a focus on maker communities and "socio-economic inclusion", and we conducted interviews with participants in 16 Ontario maker communities.

Open AIR also helped fund, and participated in, two African continental gatherings of makers: the Africa Open Science and Hardware (AfricaOSH) summits in Kumasi, Ghana (2018), and Dar es Salaam, Tanzania (2019). At those summits, Open AIR broadened its networking with the African maker movement, forming links with additional maker communities across the continent. Valuable linkages were also forged at those summits with makers in Brazil, the US, the UK, France, and Germany, as well as with international networks such as the Gathering for Open Science Hardware (GOSH), MakerNet Alliance, and Global Innovation Gathering (GIG).

Moving forward, from 2019 to 2022, Open AIR will complete its analysis of the 2018-19 data collections in Senegal, Burkina Faso, Cameroon, South Africa, and Canada. We will also help fund and convene the next two AfricaOSH summits, in Yaoundé, Cameroon (2020), and Johannesburg, South Africa (2021). In addition, Open AIR will spearhead a continent-wide collaboration with African maker communities, networks, and researchers to develop a set of open access online resources under the theme of "Sustainability Guidelines and Best Practices for African Maker Communities".

**Open AIR is engaging with maker communities in many countries.**
▼

CANADA  UNITED KINGDOM
FRANCE GERMANY
UNITED STATES
MOROCCO TUNISIA
SENEGAL  EGYPT
BURKINA FASO
CAMEROON  KENYA
BRAZIL  GHANA TANZANIA
SOUTH AFRICA

# Scholarly Publications and Presentations

## New Books, Book Chapters, and Reports

*Three books were published by Open AIR researchers this year, two of which are by Steering Committee members. There were also a number of book chapters and a report that were authored or coauthored by Open AIR researchers.*
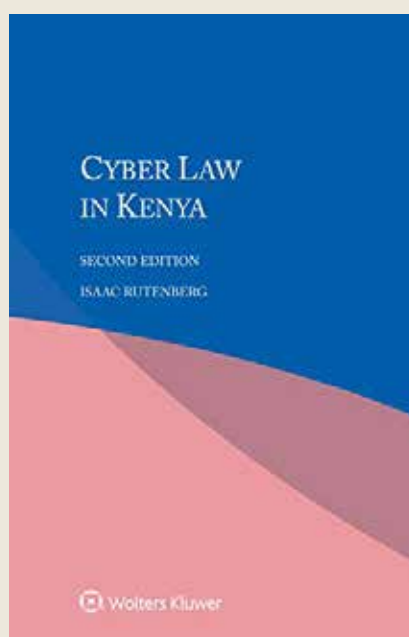


Isaac Rutenberg's publication co-authored with Michael Murungi, *Cyber Law in Kenya (2nd edition)*, was published in March 2019. This book is a practical guide to cyber law – the law affecting information and communication technology (ICT) – in Kenya and covers every aspect of the subject, ranging from IP to drafting and negotiating contracts to privacy and cybercrime issues.

In February of 2019, Chidi Oguamanam's edited volume, *Genetic Resources, Justice and Reconciliation: Canada and Global Access and Benefit Sharing* was published. This book is an important resource for scholars, corporations, indigenous peoples, policymakers, and concerned citizens on the implementation of Access and Benefit Sharing policies over genetic resources and
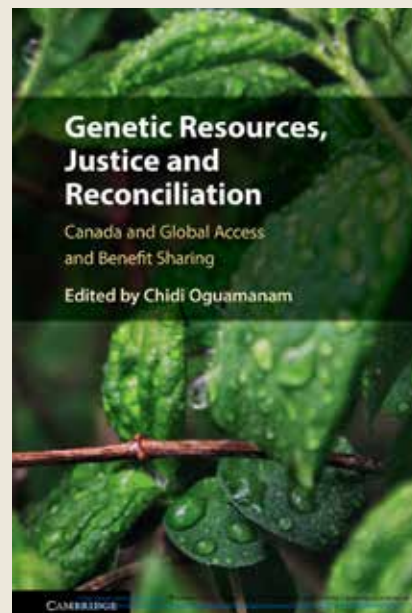


associated indigenous knowledge. While focused on Canada, this book provides international policy recommendations and numerous comparisons to other countries, such as Namibia. One chapter in this book is coauthored by Open AIR Steering Committee member, Jeremy de Beer, entitled, "Access and Benefit-Sharing in the Age of Digital Biology". In addition, another chapter was written by a former Open AIR NERG, Freedom-Kai Phillips, giving international comparisons for Canada – and the world – to learn from.
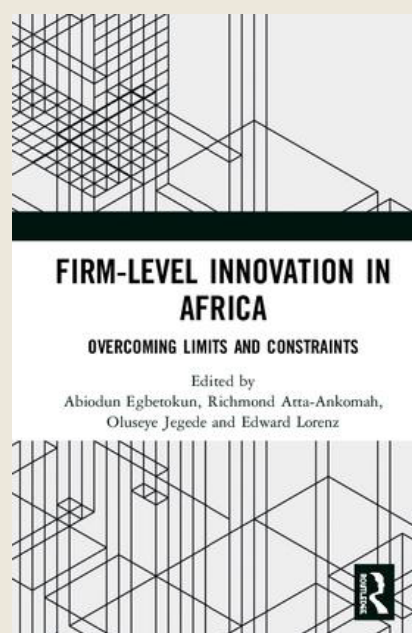


Third, an Open AIR case study researcher, Oluseye Jegede, published a coauthored work in August 2018 entitled, *Firm-Level Innovation In Africa: Overcoming Limits and Constraints*. This book

brings together some of the latest innovation research from across the African continent, such as what factors enhance or inhibit innovation in African firms, the policy options for facilitating firm-level innovation, the nature of brokers and intermediaries, the acquisition of technology in the innovation process, and more.

Centre for International
Governance Innovation

CIGI Papers No. 185 – August 2018

**Tiered or Differentiated Approach to Traditional Knowledge and Traditional Cultural Expressions**
The Evolution of a Concept

Chidi Oguamanam

Centre for International
Governance Innovation

CIGI Papers No. 235 – January 2020

**International Intellectual Property after the New NAFTA**

Jeremy de Beer

Also in August 2018, a report was published by the Centre for International Governance Innovation (CIGI) in Canada that was authored by Chidi Oguamanam. This was CIGI Paper No 185, "Tiered or Differentiated Approach to Traditional Knowledge and Traditional Cultural Expressions: The Evolution of a Concept". This report gives an overview and update of the World Intellectual Property Organization's expert committee, known as the Intergovernmental Committee on Intellectual Property

and Genetic Resources, Traditional Knowledge and Folklore (IGC), which has been ongoing for nearly two decades. As a delegate to these negotiations, Oguamanam has a unique insider's view on the topic, along with an academic's ability to bring a long-term perspective and evidence-based ideas.

**The Cambridge Handbook of PUBLIC-PRIVATE PARTNERSHIPS, INTELLECTUAL PROPERTY GOVERNANCE, AND SUSTAINABLE DEVELOPMENT**

EDITED BY
Margaret Chon
Pedro Roffe
Ahmed Abdel-Latif
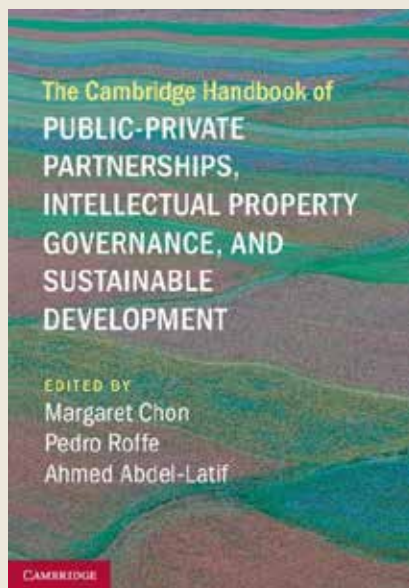
CAMBRIDGE

The Open AIR network itself has been something that many have asked us for reflections on before. In line with previous publications on this topic, in September 2018, Chidi Oguamanam and Jeremy de Beer coauthored a book chapter in the *Cambridge Handbook of Public-Private Partnerships, Intellectual Property Governance, and Sustainable Development*. The chapter situates the Open AIR network within the context of the Sustainable Development Goals, highlighting how partnership between public-sector and private-sector actors can contribute to development.
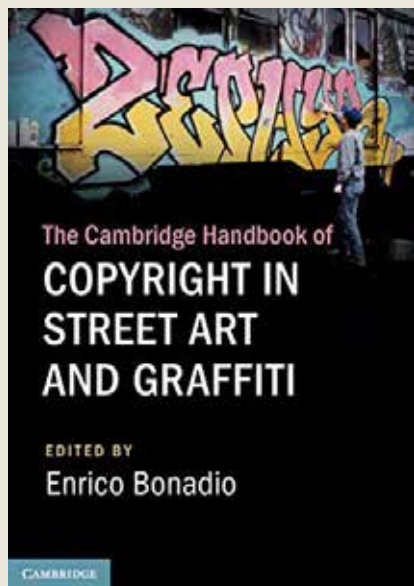
Just this past June, Open AIR Steering Committee member, Tobias Schonwetter, co-authored a chapter on "Africa, the Internet and Human Rights", in *Human Rights, Digital Society and the Law: A Research Companion*. This book explores the main fundamental issues and practical dimensions related to the safeguarding of human rights in the internet, which are at the focus of current academic debates. While taking a global perspective, Schonwetter's chapter is the only one dealing with Africa, bringing a completely different and very much

Routledge Research in Human Rights Law

**HUMAN RIGHTS, DIGITAL SOCIETY AND THE LAW**
A RESEARCH COMPANION

Edited by
Mart Susi
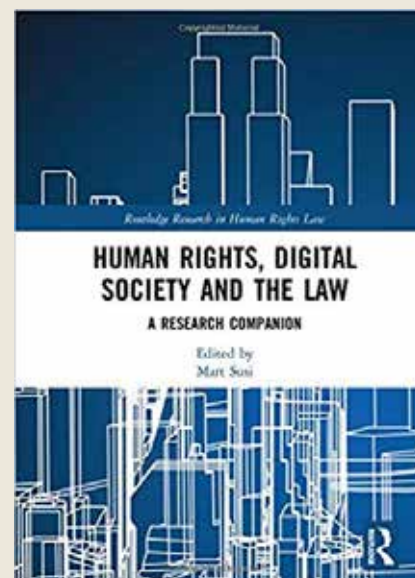
needed perspective to this global debate.

One of the book chapters published this year in *Inclusive Trade in Africa: The African Continental Free Trade Area in comparative perspective* was authored by four Open AIR Steering Committee members from two different hubs. This joint publication was a chapter on the new African Continental Free Trade Area, specifically how intellectual property and innovation could be dealt with in the agreement. This is the culmination of our previous work in the early negotiation phases of the agreement, spearheaded by Caroline Ncube. Being able to be leading advisors on the IP provisions in the agreement is one of our proudest achievements and proof of the need for African-based research in IP discussions.

The International Political Economy of New Regionalisms Series

**INCLUSIVE TRADE IN AFRICA**
THE AFRICAN CONTINENTAL FREE TRADE AREA IN COMPARATIVE PERSPECTIVE

Edited by
David Luke and Jamie MacLeod
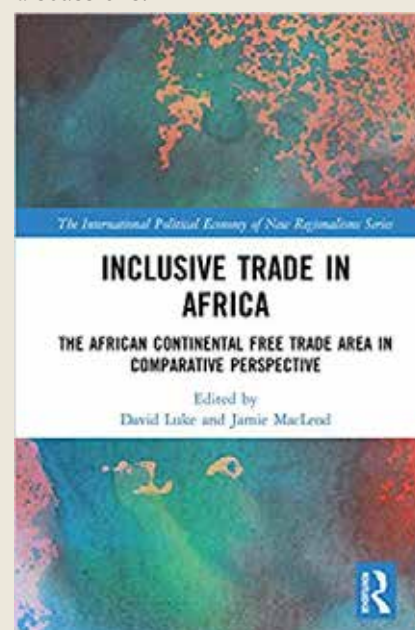
Tobias Schonwetter and Bram van Wiele contributed a chapter in *The Cambridge Handbook of Copyright in Street Art and Graffiti*, examining how South African copyright law deals with graffiti and other works of street art.



*Contextualizing Openness* , published by University of Ottawa Press and edited by Leslie Chan *et al*, offers a fascinating look at Open Science and the democratization of knowledge in international development and social transformation with a focus on the Global South. Tobias Schonwetter with Open AIR researchers, Cath Traynor and Dr Laura Foster, contributed a chapter on openness challenges when researching indigenous peoples.



## New Working Papers

*Open AIR published three new papers in its Working Paper series last year.*

### "The Maker Movement across North Africa"

Authored by Nagham ElHoussamy and Nagla Rizk of our Northern African Hub, the paper sets out findings from A2K4D's research exploring the growing maker movement across North Africa. This paper focuses primarily on Egypt but also highlights experiences from Morocco and Tunisia. Based on data gathered through interviews with 13 management-level individuals involved in 10 different makerspaces – seven in Egypt, two in Tunisia, and one in Morocco –ElHoussamy and Rizk present findings related to the operational dynamics of these makerspaces; linkages between innovation, learning and skills development; issues of innovation ownership, intellectual property (IP) appropriation, and collaboration; and the notion of innovation scalability.

### "3D Printing: Enabler of Social Entrepreneurship in Africa? The Roles of FabLabs and Low-Cost 3D Printers"

Authored by Tobias Schonwetter and Bram Van Wiele of our Southern African Hub, the paper outlines findings from research into the potential of 3D printing technology for facilitating locally relevant innovation and social entrepreneurship in Africa. Specifically, the focus of the research is on two approaches to increasing access by social entrepreneurs to 3D printing technology in South Africa and Kenya. Based on data collected during interviews conducted with key players at FabLabs in South Africa and Kenya, as well as with social entrepreneurs making use of low-cost 3D printers, the paper discusses the extent to which FabLabs and 3D printers aid the development and scaling up of social entrepreneurial business models. In particular, the paper focuses on the roles of collaborative problem-solving, follow-on innovation, knowledge-sharing and appropriation in the contexts from which interviewees were selected.

3D Printing: Enabler of Social Entrepreneurship in Africa?
The Roles of FabLabs and Low-Cost 3D Printers

Tobias Schonwetter and Bram Van Wiele

Working Paper 18
Published: 15 October 2018
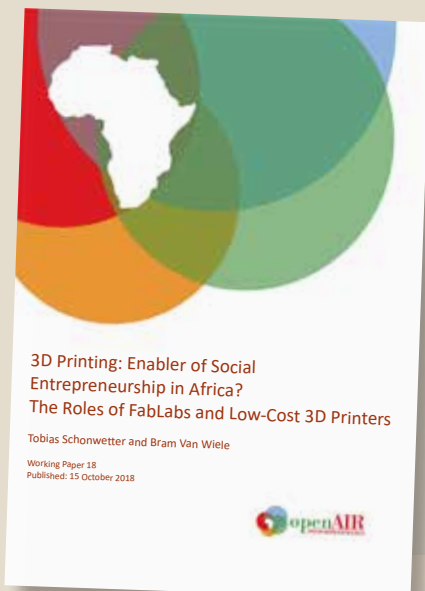
**Working Paper 19**

### "The Nollywood Phenomenon: Innovation, Openness and Technical Opportunism in the Modeling of Successful African Entrepreneurship"

Authored by Chidi Oguamanam of our Canadian Hub, the paper discusses findings from research into how the Nigerian movie industry – Nollywood – demonstrates: a collaborative model of innovation; a unique form of openness; an unexpected creative force in the world of entertainment; an evolutionary interface between technology and entrepreneurship; and a complex aggregation of culture, ethnicity, marketing and entrepreneurial ingenuity, liberal art infrastructure, and social capital. The study examines forms of openness in Nollywood, within and outside of existing paradigms, and how they factor into the industry's success. The author also discusses how Nollywood operates in a fluid borderline between formal and informal frameworks, via a pragmatic and evolving approach to intellectual property systems and openness that reflects aspects of a unique business model combining contextual sensitivity with transnationalisation. The study provides insights into Nollywood's grassroots Indigenous entrepreneurial cultural dynamics, its scalability potential, and its cross-sectoral ramifications for innovation and entrepreneurship on the African continent.

The Nollywood Phenomenon: Innovation, Openness and Technological Opportunism in the Modeling of Successful African Entrepreneurship

Chidi Oguamanam

Working Paper 9
Printed: 13 July 2017
(Pending publication And NOT for circulation)
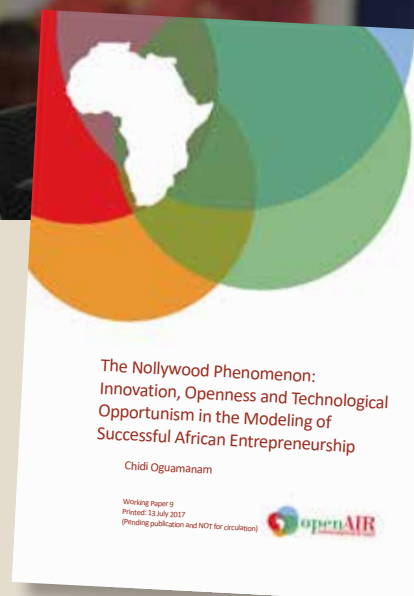
Our next papers, Working Papers 20 through 26, provide findings from research into the following:

- social innovation and social entrepreneurship by two Indigenous organisations in the Kruger to Canyon (K2C) Biosphere Region, South Africa
- innovation models in and among mobile tech startups in Nairobi
- innovation, power relations, scaling, and knowledge governance at tech hubs in Cairo
- knowledge governance and intellectual property approaches in the Yabacon Valley tech hubs cluster, Lagos
- scaling, networking and knowledge enablement modalities at tech hubs in Cape Town and Johannesburg
- innovation ecosystem challenges faced by tech startups and tech hubs in Addis Ababa
- innovation and social entrepreneurship by women beadworkers in KwaZulu-Natal, South Africa

## Articles, Conferences, and Presentations

*As in previous years, there were numerous articles published by our network as well as presentations at conferences and other speaking events.*



Open AIR participated in, and supported, the 2019 Africa Open Science and Hardware summit in Dar es Salaam, Tanzania. Open AIR delegates included Eashan Karnik Dr. Elliamani Laltaika, Profs Erika Kraemer-Mbula and Jeremy de Beer, and Thomas Nkoudou.

For a complete list of articles, conferences and presentations, please visit our website, openair. africa. Nevertheless, several stood out over the year and which require highlighting.

In November 2018, Steering Committee member Erika Kraemer-Mbula was published in the *International Journal of Gender and Entrepreneurship*. Her article, coauthored with Garba Tukur, was entitled, "Gender diversity and enterprise innovative capability: The mediating effect of women's years of education in Nigeria". The article examines whether female workers' years of education, mediate the influence of gender diversity on innovative capability of enterprises in Nigeria. The results of the inferential analysis indicate that female workers' years of education mediate fully and positively the effect of gender diversity on innovative capability of enterprises in Nigeria.

In December 2018, three articles by Open AIR researchers appeared in Issue 22 of *The African Journal of Information and Communication* (AJIC). AJIC is a peer-reviewed, open access journal, published by the University of the Witwatersrand LINK Centre in Johannesburg, whose Corresponding Editor and Publishing Editor are both Open AIR researchers. The three articles that featured in AJIC Issue 22 were: "Nigerian Copyright Reform and Implications for Access to Teaching and Learning Materials (TLMs) in the Digital Age", by NERG member Helen Chuma-Okoro from the Open AIR West Africa Hub at NIALS in Lagos; "Evolution of Africa's Intellectual Property Treaty Ratification Landscape" by Jeremy de Beer and Jeremiah Baarbé of the



Open AIR's Charlene Musiza, PhD student at the UCT IP unit, with Prof. Caroline Ncube and Dr Desmond Oriakhogba taking part in copyright discussions at WIPO.

Canada Hub, and Caroline Ncube of the University of Cape Town Hub; and "Patterns of Innovation and Knowledge in Two Ethiopian Informal-Sector Clusters: A Study of the Shiro Meda Handloom-Weavers and Merkato Shoemakers" by Wondwossen Belete of Open AIR Ethiopia. The latter two articles both drew on previously-published Open AIR Working Papers.

Open AIR research was also featured in AJIC Issue 23 of June 2019. Jeremiah Baarbé, Meghan Blom, and Jeremy de Beer of the Canada Hub at uOttawa contributed an article, drawing on an Open AIR Working Paper, entitled "A Proposed 'Agricultural Data Commons' in Support of Food Security"; and Chidi Oguamanam, also at the Canada Hub at uOttawa contributed "Towards a Tiered or Differentiated Approach to Protection of Traditional Knowledge (TK) and Traditional Cultural Expressions (TCEs) in Relation to the Intellectual Property System".

Nagla Rizk continues to exemplify the activities of our Steering Committee generally. For example, she was invited to give presentations and guest lectures at and for a number of illustrious places this past year. For example, this past June she gave a presentation on "Access to knowledge and technology transfer" to WIPO and the League of Arab States. In May, Rizk was invited to speak at Harvard Law School's Artificial Intelligence and Human Rights Workshop as well as at the Berkman Klein Center for Internet and Society. Further, in April 2019, Rizk spoke at the 10th World Economic Forum on the Middle East and North Africa. This is just one example of the caliber of events all our Steering Committee members are invited to on a regular basis.



▶

Chidi Oguamanam presenting in WIPO's ad hoc expert group on Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC)

# Amplifying Messages Via Media

*Open AIR continues to actively engage in social media, publish videos, and frequent blog posts on our website. Our online communications have been the most visibly successful aspect of communicating our findings and knowledge.*



Published on Open AIR's Youtube channel, a lecture by Prof. Chidi Oguamanam on "Untangling Traditional Knowledge at the United Nations" as part of the Distinguished Speaker Series.



Interviews collected at an Open AIR event on the South African maker Movement was packaged into a video "Youth and the Maker Movement".



Live broadcast on Facebook of Prof. Jeremy de Beer delivering a lecture during Africa Open Science and Hardware (Africa OSH) in 2019.



Live video conference from the Ontario Makers and Mentors Innovation Conference (OMMIC) in 2018.

This communication is an active part of making sure our research is:
- openly available to anyone,
- reaches policy makers,
- can be read by those we conduct research about and with, and
- to bring the talent of the many people in our network to the forefront of what we do.

For some of our researchers, especially our non-graduate students, blog posts are their primary publication and a way to let people outside of the network know what they are doing as well as what they are finding from their research. Our blog posts have become more and more popular both within the network and outside. Between April 2017 and July 2019, we published 30 blog posts. Our most popular have been those looking at gender, as well as our recent French language blog posts. Given that both are increasingly important themes for Open AIR, this shows that we are looking at topics that are of growing importance to people.

Open AIR's Facebook, Twitter, YouTube, and Vimeo pages have continued to grow both in the number of followers and in the number of shares, likes, retweets, etc. Facebook and Twitter are by far our most popular means of communication, with posts about our researchers' achievements garnering the most likes and comments. We are pleased that our followers are nearly 50-50 in terms of gender and that our posts about topics related to women garner significant interest. While most of our subscribers and followers are from academia/education and between 18 and 40, we are a network of researchers so this is to be expected. Happily, we have a number of policy-makers and especially youth (18 to 30) following us. The latter is especially good news since much of our work showcases new and

**Our most popular blogs are those looking at gender, as well as French-language blog posts**

## 50/50
### gender split
of social media followers

## 30
### new blogs
between April 2017
and July 2019



**Afrinnovation**

Prof. Erika Kraemer-Mbula from the University of Johannesburg gave a talk at the University of Ottawa, "Modalities of Innovation hubs and innovative entrepreneurs in Africa".



**YouTube**

THOMAS
co-fondateur d'OSH Africa
Kumasi, Ghana

Première version du documentaire étudiant sur les mouvements DIYBiology autour du globe.



OPENCON 2018

THOMAS HERVE MBOA NKOUDOU

Open AIR NERG fellow, Thomas Mboa Nkoudou delivering his "The Ujamaa approach of the maker movement in Africa" lecture during the OpenCon 2018 conference. The video is featured on OpenCon.com.



**TED**

Open AIR researcher Eliamani Laltaika raises the interesting question "Does culture have a price tag?" during a TED talk at TEDxMajengo 2018.

emerging researchers, who are within that age bracket, and because those between the ages of 18 and 35 are often those most interested in new, ground-breaking research.

Open AIR published four new videos this year, all featuring either our speaker events or two events that we had panels at: Ontario Makers and Mentors Innovation Conference (OMMIC) 2018 and Africa Open Science and Hardware (Africa OSH) 2019. These videos help to ensure that Open AIR's research is communicated to a wide audience and is available even to those who may not be in the same location as the events were held.

Open AIR researchers have also been featured in videos not produced by Open AIR.

Last year, we also launched a refreshed version of our website. This was to take advantage of the new formats available for websites, which are easier to access both through a web browser and on mobile phones. Given that our research is with and about Africa, it is important that our website be as accessible as possible to people on all devices, especially mobile phones. The new website was also an opportunity to streamline and update our look and feel, as well as update our research themes and categories in line with where our research has been going. This was a significant undertaking and one that we are still fine-tuning.

Finally, we have also had the opportunity to branch out into both radio and podcasts. For example, Open AIR researcher Yaw Adu-Gyamfi had a radio interview about his Open AIR case study into informal sector innovators in Kumasi's Swame Magazine industrial zone, Ghana. This was with a Ghanaian broadcaster and was a prime opportunity to communicate Open AIR's research to those who are most affected and those in local positions of power, who are often the ones who can most the impacts locally. Last, Open AIR is planning to start a podcast series in the next year, with several already designed and just awaiting final publication–yet another avenue in which to communicate our research.

**UnwantedWitness** @UnwantedWitness
Panellists @TomSamaki from @privacyint, @iruten from @StrathCiPIT and @dcmukasa give a brief background of ID systems used in East Africa

Strathmore Law CIPIT Retweeted
**UnwantedWitness** @UnwantedWitness · Oct 3, 2019
#Kenya: Assenting the Data Protection Bill into a #Law alone won't be enough. There's more to work on - @iruten representing @StrathCiPIT

#Privacy

Strathmore Law CIPIT Retweeted
**Emrys Schoemaker** @emrys_s · Oct 1, 2019
Pleased to share our report on Kenya Identification Ecosystem - a mapping of systems and a political economy analysis to support assessment of risk and vulnerability for women and girls.

#digitalID #Kenya #ecosystem

**CYRILLA** @CYRILLA · Sep 26, 2019
We're at #FIFAfrica19 @StrathCiPIT speaks to the digital rights community in Addis Ababa about the work we're doing on CYRILLA.
#InternetFreedomAfrica

Strathmore Law CIPIT

**Open AIR** @Afrinnovation · Dec 4, 2019
In case you missed it, Check out this article written by Business Forward that summarizes our work in partnership with our North Africa Hub @A2K4D on #AI and the Fourth Industrial Revolution.

Artificial intelligence and the Fourth Industrial Revolution: The prospec...
This is BusinessforwardAuc website.
businessforwardauc.com

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**Comments on the Kenyan Data Protection Bill, 2019**

Presented by the Defenders Coalition, CIPIT, KELIN, Privacy International

Strathmore Law CIPIT Retweeted
**Extractives Baraza** @ExtraBaraza · Sep 26, 2019
At the Crowne Plaza Hotel to commemorate the International Day for the Universal Access to Information courtesy of @article19eafric. The theme of today's dinner is "Promoting Access to Information as a Driver for Sustainable Development."

**Open AIR** @Afrinnovation
Congratulations to Open AIR's NERG Fellow @bramvanwiele on his Doctoral Graduation! @tobyschonwetter

5:00 AM · 22 Jul 2019

CDTS | CLTS uOttawa Retweeted
**Informed Opinions** @InformedOps · Nov 21, 2019
How do #copyright claims centred around #streetart work? @uOttawaTechLaw prof @TeresaScassa explains more. (via @channay @globeandmail) For #HerInformedOps, contact Scassa @ bit.ly/2zmBTdX

Ottawa real estate developers face lawsuit from Los Angeles street artist
Tristan Eaton takes companies to court after University of Ottawa residence development uses his artwork in an ad campaign
theglobeandmail.com

**CDTS | CLTS uOttawa** @uOttawaTechLaw · Oct 22, 2019
Today, we hosted the honourable Andrew Greenwood, from the Federal Court of Australia, for a conversation about Intellectual Property and Copyright in Canada and Australia with Prof @jdebeer at @uOttawaTechLaw.

**AYA EL SHARKAWY**
**"SPECULATIVE DATA FUTURES SERIES"**

**A2K For Development** @A2K4D · Jan 19
Check out Dr.@naglarzk's throwback post on facebook in light of A2K4D's 10th anniversary:"I fondly remember the wonderful lecture by our 1st international guest in 2011, Nobel Laureate Joseph Stiglitz who spoke at AUC Main Campus"check the link to see more facebook.com/a2k4d/



**A2K For Development** @A2K4D · Jan 22
Professor Hosam El Zembely tells us the story of the Egyptian Society for Science Fiction (ESSF); the first registered and founded society that specifically tackles literature on science fiction in Arabic. Click on the picture to read more! #GAINMENA #4IR #Data #A2K4D9 #AI



**HOSAM EL ZEMBELY**
**"ARTIFICIAL INTELLIGENCE IN THE WAKE OF THE FOURTH WAVE: THE EGYPTIAN SOCIETY FOR SCIENCE FICTION"**
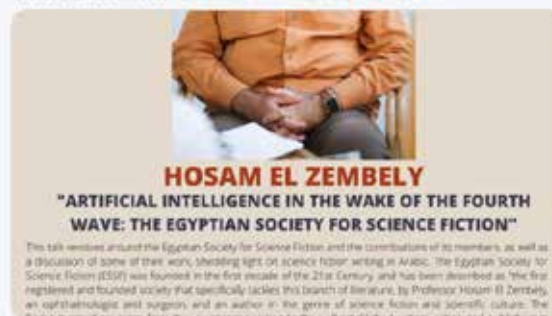
**A2K For Development** @A2K4D · Jan 27
Check out what this very interesting article we're reading this week about AI's biases. #AI #A2K4D



AI can be sexist and racist — it's time to make it fair
Computer scientists must identify sources of bias, de-bias training data and develop artificial-intelligence algorithms that are robust to skews i...
⊘ nature.com

**CDTS | CLTS uOttawa** @uOttawaTechLaw · Nov 24, 2019
🔴 AUJOURD'HUI | TODAY 🔴

Il ne reste que 10 heures pour postuler aux #technoships 2020!
▶ droittech.uottawa.ca/nouvelles/appe...

Only 10 hours left to apply for the 2020 #technoships!
▶ techlaw.uottawa.ca/news/call-appl...



Performing live at Madad's event tonight is the talented musician @mabozekry playing oud and singing.



⇄ A2K For Development Retweeted
**Florian Martin-Bariteau** @f_mb · Oct 14, 2019
Dana El Bashbishy, @Afrinnovation @SSHRC_CRSH Fellow at @AUC @A2K4D, shares her experience as a @Afrinnovation NERG and her work within the international network.

**A2K For Development** @A2K4D · Nov 2, 2019
Follow Dr. @naglarzk at @wef's Global Future Council on the New Economic Agenda!

**World Economic Forum** @wef · Nov 2, 2019
How to follow our #gfc19 meeting in Dubai wef.ch/365j9rl



⇄ CDTS | CLTS uOttawa Retweeted
**Dr. Chijioke Okorie** @chythepenguide · Oct 9, 2019
Twas a pleasure to present my research on gender equality & the regulation of collecting societies @uOttawaTechLaw. Grateful for the helpful feedback esp from @chidi_oguamanam.Thanks to @jdebeer for making the plantain & chicken happen 😋 @QEScholars @IPChairUCT @Afrinnovation
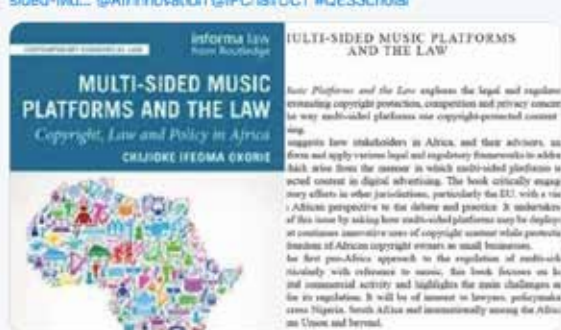


**A2K For Development** @A2K4D · Nov 1, 2019
معنا الليلة @Ziadbahaa يروي لنا قصة جمعية أصدقاء احمد بهاء الدين و دورها في دعم مهرجانات الصعيد للمسرح



**Open AIR** @Afrinnovation · Oct 22, 2019
Congratulations Dr. @Laltaika1 on the Launch of the @NM_AIST Artificial Intelligence (AI) community.

**MULTI-SIDED MUSIC PLATFORMS AND THE LAW**
*Copyright, Law and Policy in Africa*
CHIJIOKE IFEOMA OKORIE

MULTI-SIDED MUSIC PLATFORMS AND THE LAW

**CDTS | CLTS uOttawa** @uOttawaTechLaw · Jan 29
Concluding today's event @uottawa which marks the beginning of a AI + Society Initiative leading towards a better understanding and framing of the ethical, legal and societal implications of AI research and its uses.



**CDTS | CLTS uOttawa** @uOttawaTechLaw · 22h
Dans les médias | In the news

"Mission to build capacity in Africa has a French twist"
🎙 @Afrinnovation
📰 University World News (Nathan Greenfield)

Mission to build capacity in Africa has a French twist
Canada's University of Ottawa is helping to build capacity in African universities through a dozen ...
🔗 universityworldnews.com

🔁 UCT IP Unit Retweeted
**AfricanLII** @AfricanLII · Oct 21, 2019
Our Dean Prof @danwood_chirwa announces the establishment of the Centre for Law and Technology at @UctLaw : businesstech.co.za/news/technolog... . AfricanLII is proud to be part of this new initiative!



UCT wants to launch a new combined law and technology degree

**CDTS | CLTS uOttawa** @uOttawaTechLaw · Jan 28
Merci à Daniel Therrien, Commissaire à la protection de la vie privée du Canada (@priveeprivacy), pour avoir parlé à @uOttawa dans le cadre de la #JournéeDeLaProtectionDesDonnées



**Open AIR** @Afrinnovation · Dec 9, 2019
Open AIR's @chidi_oguamanam launched and presented his book in Lagos Nigeria entitled "Opeyemi Oke: A Benchmark on the Bench"



**Tobias Schonwetter** @tobyschonwetter · Nov 6, 2019
@WIPO @_ARIPO @OAPI_TWIT Conference on IP, Innovation & Value Addition for Business Competitiveness & Sustainable Dev in Africa is underway in Harare. Opening remarks from DG F dos Santos. @caro_ncube & I will speak later. @AfricanIP @IPChairUCT @Afrinnovation @UctLaw #IPAfricaConf



🔁 UCT IP Unit Retweeted
**Tobias Schonwetter** @tobyschonwetter · Nov 6, 2019
H.E. Mr B Msaka states at #IPAfricaConf that @WIPO statistics suggest Africa is less innovative. It's one of our goals @Afrinnovation to improve innovation metrics to fully reflect tremendous innovative activity of Africans,eg in the informal sector. @OAPI_TWIT @_ARIPO @AfricanIP



**CDTS | CLTS uOttawa** @uOttawaTechLaw · Jan 8
The wait is over. You can now registration for #WeRobot2020 on our website! The early bird rate will end on February 1st, 2020 (or when the first 50 tickets have been sold.)
➡ /techlaw.uottawa.ca/werobot/registration



WEROBOT
OTTAWA, ON
APRIL 2-4, 2020
ROBOTS.UOTECH.CA
Microsoft    CIFAR    uOttawa

**Nan Warner** @nanwarner · Oct 19, 2019
Copyright flexibility opens the door to decisive AI advantages
businesslive.co.za/bd/opinion/201... # via @BusinessLive @AfricanIP



Copyright flexibility opens the door to decisive AI advantages
The Copyright Amendment Act kick-starts the fourth industrial revolution in SA.

🔁 UCT IP Unit Retweeted
**Tobias Schonwetter** @tobyschonwetter · Oct 30, 2019
I really do appreciate opportunities to directly engage with IP lawmakers in SA and share our @Afrinnovation research findings with them- like today when I held an IP workshop at parliament for members of the Portfolio Committee on Trade & Industry. @AfricanIP @UctLaw @IDRC_CRDI

# Empowering the Next Generation: Our New and Emerging Researchers Group (NERG)



**Dr Elvis Avenyo** has been awarded his PhD degree from UNU-MERIT (Maastricht University) in the Netherlands. He worked as a Post-doctoral Fellow and QES recipient with Open AIR Steering Committee member Prof. Erika Kraemer-Mbula at the SARChI Industrial Development Unit, University of Johannesburg. He is now a researcher at the University of Oxford Technology & Management Centre for Development.

*A major component of Open AIR's strength and sustainability is our New and Emerging Researchers Group.*

Funded by Canada's SSHRC, members of the NERG – who have instituted calling themselves NERGs – come from all of our hubs as well as independent persons across the African continent and Canada. This membership is constantly changing, with 34 current members. We are proud to say that we have over 54 alumni who have gone on to work in the private sector, public sector, academia, and more.

The NERG continues to build the capacity of current and future young researchers in Africa. Fellows receive training and mentoring to help develop their talent, creating immediate jobs and long-term career opportunities by building lasting international and interdisciplinary relationships.

Prof. Caroline Ncube served as the NERG Mentor from 2015–2019. This year, Project Manager Nan Warner took over the role as the NERG Facilitator, with all academic mentoring being the responsibility of the academics at our hubs. The new oversight structure also warranted a revision of the NERG Strategy Document, which was approved by the Steering Committee. Another change was that after the call for nominations for the 2019–2020 NERG Lead, the number of highly qualified nominees led Open AIR to create a new position of Deputy Lead. This year, Dr Bram van Wiele of the UCT hub was elected as the NERG Lead. Esther Ekong, a member of both the NIALS and uOttawa hubs, was elected as the first Deputy NERG Lead. These changes reflect the evolving nature of the NERG, changing based on the experiences and feedback of current and previous NERG members.

Our NERGs have been engaged in a number of activities within the network, most notably research. Several have presented at international conferences, have published research, and travelled. They have had networking opportunities and some of them are in near-daily contact, across-hubs, as both colleagues and friends. These opportunities and lasting friendships are the intangible attributes that help to ensure later success, whether they remain a part of Open AIR directly or become alumni. Open AIR itself was founded on such relationships between scholars.

▲

NERGs Abdelhamid Benhmade, Bram van Wiele (2019-20 Lead), Dana Elbashbishy, and Mennatallah Badreldin.

**Dr Desmond Oriakhogba**, an Open AIR NERG and QES recipient, has been awarded his PhD degree from the University of Cape Town, South Africa. He was co-supervised by Open AIR Steering Committee members Prof. Caroline Ncube and A/Prof. Tobias Schonwetter. He is now a postdoctoral fellow with the Dean of Law, and postdoctoral researcher with the SARChI Research Chair in Intellectual Property, Innovation and Development awarded to Open AIR Steering Committee member Prof. Caroline Ncube (UCT).



**Dr Chijioke Okorie**, who was awarded a PhD degree from the University of Cape Town in 2018, commenced appointment in 2019 as a Post-doctoral Research Fellow and QES recipient with the SARChI Research Chair in Intellectual Property, Innovation and Development awarded to Prof. Caroline Ncube (UCT).

## Queen Elizabeth Scholarships (QES)

*A cohort of new scholars use mobility funding for research on Sustainable Development Goal #5: Achieve Gender Equality and Empower Women and Girls.*

We have also garnered funding from Universities Canada through their Queen Elizabeth Scholars – Advanced Scholars Fellowships program. This funding is for PhD students, postdoctoral researchers, and early career researchers to conduct research on one or several of our themes, from a gender perspective. It also enables exchanges between our hubs, as the funding must be used for scholars who travel outside of their home country. Further, there is an internship component to the QES program that has allowed our NERGs to expand both their networks and Open AIR's networks to new organizations such as NGOs and think tanks.

We are proud to say that we have now graduated our first QES cohort: Helen Chuma-Okoro, Desmond Oriakhogba, Elvis Avenyo, Chijioke Okorie, and Sileshi Hirko. These QEScholars have all been

**Open AIR has helped to train**

# 89

**new and emerging researchers**

conducting ground-breaking research into the intersection of gender and innovation, with various publications and presentations both in the course of and as a result of their research. For example, Desmond Oriakhogba's research will be featured in the next issue of Business Destinations magazine, Elvis Avenyo presented his research at the 2018 African Innovation Summit, and Chijioke Okorie will be giving a Brownbag workshop at the Centre for Law, Technology and Society in Ottawa.

We have already accepted a second, larger cohort of QEScholars and are soon going to have a third cohort. We look forward to seeing how all these promising scholars progress both as scholars and as representatives of the next generation of world-class researchers. This funding will continue for another year and we hope to continue to attract the best talent.

**Violet Elizabeth Dowdeswell, Ontario Governor General, with Open AIR NERG, Sileshe Hirko.**
▼

# Connecting Across Languages and in New Countries

## French

Open AIR continues to engage and interact more fully with Francophone Africa in order to better represent the various perspectives and realities of the continent as well as to facilitate greater knowledge within the continent between researchers and policymakers. In pursuit of this we are supporting research on the Maker movement in Francophone Sub-Saharan Africa. From July 2018 to March 2019, Open AIR supported research fieldwork, in three French-speaking African countries: Burkina Faso, Cameroon, and Senegal. Results and outcomes of this fieldwork will be published in an upcoming PhD thesis by one of our NERG Fellows, Thomas Hervé Mboa Nkoudou. Open AIR has also been slowly publishing more original content in French, primarily in the form of blog posts. We have found this format to be an excellent way of attracting other interested researchers, as well as a way in which to showcase the work of our NERG Fellows. We anticipate more publications, including grey literature, in the coming years.

In addition, Open AIR is continuing to build networks with other researchers and research institutions. From December 2018 to June 2019, a scoping exercise was completed to determine who on the African continent is already conducting similar research, whether they reach the same conclusions from their research or not. Several researchers and research centres were identified and a new engagement plan will be implemented next year. Further, one of our NERGs, Esther Sandrine Ngom, has been setting up her own research centre, Laboratoire de Recherche en Propriété Intellectuelle, Innovation, Numérique et Entrepreneuriat (The 3I-E Lab), at the Université Catholique d'Afrique Centrale in Cameroon. For one of their inaugural events, Open AIR is supporting a conference that will take place in November on the topic "Innovation, Ressources Biologique et Croissances Traditionnelles en Afrique de l'Ouest et Centrale" (Innovation, Biological Resources, and Traditional

Knowledge in West and Central Africa). We anticipate significant attention among both researchers and policymakers, with the Director General of the Organisation Africaine de la Propriété Intellectuelle (OAPI) having confirmed his attendance.

## Arabic

Open AIR has been more active in getting our research published into Arabic and forming partnerships with Arabic researchers. While our networks in Arabic-speaking Africa has always existed, especially in the North African / MENA region, Open AIR has begun being more explicit in our outreach with Arabic-speaking researchers.

Open AIR has so far translated one of our working papers in to Arabic; more translations are likely to follow. Our first Arabic working paper specifically concerned research into the Maker Movement in North Africa, thus appealing to not only researchers but also Makers. We have also translated the Open AIR Gender Briefing Note into Arabic. Further, our North African Hub always offers simultaneous translation between English and Arabic at all major events, ensuring wider audience engagement. As we are conducting grounded research, it is important that those we are conducting research with know what we are publishing about them, in addition to our findings. Even though our publications are open access, we acknowledge that language can also be a barrier to accessing our research.

# 4. Reports from our Research Hubs

## The American University in Cairo

*The Center's research on knowledge, technology, data and development has expanded to include open data, artificial intelligence and development in the Global South.*

**THE AMERICAN UNIVERSITY IN CAIRO**
SCHOOL OF BUSINESS **ACCESS TO KNOWLEDGE FOR DEVELOPMENT** **A2K4D**

We are also excited to announce that we have established a new Alternative Innovation Measurement (AIM) Lab at AUC, with support from the Associate Provost for Research, Innovation and Creativity. This will allow us to further develop our work on alternate innovation measures in the context of Egypt, as well as for further disseminating Open AIR's research. We also look forward to being able to expand opportunities for future research and collaborations through this centre.

On the outreach and dissemination front, A2K4D's founding director, Nagla Rizk, has shared preliminary results at several international and local events. In May 2018, she was a panelist at the "AI for Good" conference organized by the International Telecommunications Union (ITU) in Geneva. At the panel entitled "Data for Good", she shared our pilot results as part of bringing the perspective of the Global South to this international event.

In addition, the A2K4D team translated both Open AIR's Gender Briefing note and the case study on makerspaces across North Africa into Arabic. Both are openly available on the Open AIR website and we hope they will generate further partnerships both within the Arabic-speaking Africa and globally.

Through our various projects and partnerships, A2K4D continues to seek different knowledge mobilization techniques. Accordingly, we maintain close ties with other researchers, produce blog posts, give presentations, participate in workshops, and produce publications. A2K4D also continues to maintain strong ties with civil society and policy makers. For example, in February 2019, A2K4D's Nagla Rizk was invited by the Ministry of Planning to contribute to Egypt's 2030 vision with a position paper on the country's knowledge economy. This opportunity to directly speak with policymakers has allowed A2K4D to punch above our weight and provide practical knowledge to those who need it.

Most notably, in October 2018, we held our Eighth Annual Workshop, "Digital Technologies, Innovation, and Inclusive Growth: Alternative Narratives". The workshop had a session dedicated to our work on alternative metrics,

entitled "Towards an Alternative Assessment of Innovation in the Global South: Insights from Africa", and was moderated by Open AIR NERG Nadine Weheba. Panelists included A2K4D's Nagla Rizk; Walid Abdelnasser, Director, Regional Bureau for Arab Countries at WIPO; and Dr. Tyseer Aboul Nasr, Former Dean of Applied Science at the University of British Columbia. Rizk shared some of our key results from our collaborative research with the ASRT. Panelists shared their experiences on the importance of measuring innovation to better capture realities on the ground and their thoughts on innovation policy in the context of both Africa and the Arab region.

A2K4D team members continued to visit other hubs and engage in workshops and events, with increased NERG collaboration across hubs. In September 2018, A2K4D's Nagham ElHoussamy and Nancy Salem visited the University of Ottawa hub including attending the Distinguished Speaker Series Event featuring Open AIR researcher Erika Kramer-Mbula. ElHoussamy also remotely participated in the Ontario Makers and Mentors Innovation Conference 2018, presenting on Open AIR research into the Maker Movement in Africa. These exchanges allow for the identification of key links between Open AIR's research in other hubs as well as facilitating future comparative research.

In addition to our involvement in Open AIR, A2K4D is also a member of several other research networks, exploring developmental topics in the Middle East and North Africa

(MENA) region. In November 2018, A2K4D's ElHoussamy attended the Network of Internet and Society Centers' (NoC) Annual Meeting in Paris. Championed by Harvard University's Berkman Klein Center for Internet and Society, NoC is a collaborative initiative among academic institutions, with a focus on interdisciplinary research on the development, social impact, policy implications, and legal issues concerning the Internet.

A2K4D also continues to serve as the Open Data for Development (OD4D) node for the MENA region, in partnership with Birzeit University in Palestine. The OD4D program is a global network that looks to scale innovation, strengthen initiatives, and facilitate coordination between different actors and projects working in open data. The creation of a MENA node is essential to build a strategic and comprehensive open data network in the region. The node aims to both consolidate and accelerate context-specific and local open data work happening in the region, in addition to building stronger connections with international open data initiatives and partners. As the OD4D MENA node, A2K4D's Nancy Salem participated in the 5th Annual Open Data Conference in Buenos Aires, Argentina in September 2018 and the United Nations Data Forum in Dubai, United Arab Emirates in October 2018.

Further, together with Internet Masr and the local chapter of the Internet Corporation for Assigned Names and Numbers (ICANN), A2K4D is leading an initiative around the topic of Internet Governance: Egypt Dialogue on Internet Governance (EG-DIG). The objective of this initiative is to help to develop an Internet ecosystem in Egypt by creating a national platform for open and inclusive dialogue on Internet Governance issues, with the aim of encouraging collaboration and the exchange of knowledge across all relevant stakeholders. In the long run, the partners hope to establish a national Internet Governance Forum. Additional outreach initiatives, where we target policy makers on the one hand, and global innovation assessment institutions on the other, are also planned. We will continue to harness our existing collaborations with ASRT, WIPO and NEPAD, as well as new collaborations via our newly established AIM Lab. For example, we plan to hold a collaborative event with WIPO in the Fall of 2020 to share results on fieldwork and gather insights and recommendations on the way forward. We also continue to work on collaborating with other key organizations involved with the measurement of innovation in Africa and the Global South. Through participation in these events and networks, A2K4D is able to bring the voice of the region to global debates shaping open data, innovation, intellectual property policy, and more.

**Prof. Nagla Rizk and Nagham ElHoussamy of Open AIR's North African Hub.**
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# University of Cape Town

*The IP Unit continues to be both an administrative and research centre for Open AIR and significant time was thus spent in 2019 on concluding new contracts and financial planning as well as on managing and growing the network, organising Open AIR-related events, and supporting all Open AIR network members in their work as outlined in this report.*

UCT-based project manager Nan Warner also spearheads Open AIR's monitoring and evaluation efforts and facilitates, in collaboration with UCT-based NERG Lead Dr. Bram van Wiele and his uOttawa-based Deputy Esther Ekong, our growing network of new and emerging researchers. Project management is also responsible for ensuring that ethical clearance is obtained for all our case studies that involve human subjects.

Two UCT academic staff members are involved in Open AIR's leadership team: Prof. Caroline Ncube – South Africa's DST/NRF SARChI research chair for IP, Innovation and Development – and IP Unit Director A/Prof. Tobias Schonwetter. Together with uOttawa's Prof. Jeremy de Beer, Prof. Ncube and A/Prof. Schonwetter co-lead Open AIR's Laws and Policies theme and carry out research work under that theme, including a gendered discourse analysis on AI in Africa and on principles that ought to inform the negotiations concerning the AfCFTA IP Protocol.

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**Harvard Law Professor, Ruth Okediji, presented a seminar at the UCT Law Faculty on "#Why Decolonisation of IP Matters" to a live and virtual audience.**

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Lunch-time seminar presented by IP Unit student research assistants

**IP and Traditional Knowledge**

What is the status of TK internationally, on the continent and in South Africa? Who are the winners and losers? A case study on the *Hoodia gordonii* will also be presented.

**Wednesday 25 Sep • 1–2pm 5th Floor Smit Marine Kramer Law Building**

RSVP to nancy.warner@uct.ac.za for catering purposes. Snacks and juices will be provided.

**ip**unit
UNIVERSITY OF CAPE TOWN
INTELLECTUAL PROPERTY UNIT

During the last 12 months, Prof. Ncube and A/Prof. Schonwetter have intensified their efforts to provide expert advice – often based on Open AIR research findings – to national governments and lawmakers, such as South Africa's Department of Trade & Industry and the parliamentary portfolio committee on trade and industry during the ongoing domestic IP revisions, and intergovernmental organisations such as ARIPO (Harare, Zimbabwe) and WIPO (Geneva, Switzerland). Aligned with these efforts, A/Prof. Schonwetter now also serves on the Department of Science and Innovation's Open Science Advisory Board. Both Prof. Ncube and A/Prof. Schonwetter have co-authored working papers distributed by the network, and they have published several articles and book chapters in 2019 on issues directly or indirectly linked to Open AIR's work. More than ever, Prof. Ncube and A/Prof. Schonwetter have been invited to speak at numerous conferences

*The vision of the Intellectual Property Unit at the University of Cape Town (UCT) is to be a leading voice in realising a continent where there is an open exchange about African ideas, creativity and innovation, in pursuit of sustainable development. Open AIR's work not only aligns with that vision and mission statement but has indeed helped in shaping it.*

and workshops this year, often in connection with their involvement in Open AIR. And together, the SARChI research chair for IP, Innovation and Development and the IP Unit hosted in 2019 the annual conference of the South African Association of Intellectual Property Law and Information Technology Law Teachers and Researchers in Cape Town. In addition, the South African hub had the distinct honour of hosting, in August 2019, Harvard Law Professor Ruth Okediji for a seminar on "#Why Decolonisation of IP Matters".

Linked to and supporting their involvement in Open AIR is Prof. Ncube's and A/Prof. Schonwetter's participation in numerous other networks and research projects, such as the One Ocean Hub project, a 20 million GBP large-scale collaborative projects funded by the UK United Kingdom Research and Innovation's Global Challenges Research Fund. The five-year One Ocean Hub aims to bridge the disconnections between

law, science and policy in addressing global ocean challenges. It will do this through transdisciplinary and innovative research and by integrating governance frameworks to balance ocean uses with conservation. Furthermore, the IP Unit played a key role in re-establishing a new South African country team for Creative Commons in 2019.

Triggered by Open AIR's work over the years, the IP Unit at UCT is now increasingly focusing on the intersection between the law and emerging technologies, with research at the intersection of AI, intellectual property and gender and race. The IP Unit also plays a key role in establishing the University of Cape Town's LawTechLab. This lab aims to prepare law students for the 21st century legal profession and conducts theoretical and applied research on innovation as well as the legal, compliance, policy and technological issues affecting the legal sector – with the overarching objective of increasing access to justice in Africa. A new cyberlaw course convened by A/Prof. Schonwetter and co-taught by Dr. van Wiele and Mr. Douglas Gichuki saw law students at UCT for the first time having to program a smart contract on the blockchain.

Excellent PhD, masters and bachelor student researchers like Douglas Gichuki, Tanveer Jeeva, Clarence Lakpini, Tanya Magaisa, Bontle Monnya, Charlene Musiza,



Ghati Nyethita, Chijioke Okorie, Desmond Oriakhogba, Lenon Rwizi and Bram van Wiele remain one of the greatest assets of the Open AIR hub at UCT. Several of these students are employed under Open AIR's NERG programme funded by SSHRC and QES. These NERGs have become very involved over time and now play a crucial role in many aspects of Open AIR, including the finalisation of case studies, dissemination of preliminary research results, and especially in terms of promoting Open AIR's various social media tools. Two highlight in 2019 were the PhD graduations of Chijoke Okorie, Desmond Oriakhogba and Bram van Wiele as well as the self-organised and exceptionally well-attended student seminar on Traditional Knowledge and IP in honour of South Africa's Heritage Day. Student researchers also initiated

the formation of a new Creative Commons South Africa country team in 2019.

▰▲
**Prof. Tobias Schonwetter and Chairperson Duma Nkosi, at the IP Workshop for the South African Parliamentary Portfolio Committee for Trade and Industry.**

▲▲
**Programe manager, Nan Warner, presenting on network types and management.**

▲
**Bassem Awad and Prof. Caroline Ncube.**

# University of Ottawa

*The Canada hub had an active year with many welcome changes. It was also a year that involved significant reporting and evaluation since it was the year of our mid-term report to SSHRC. We are pleased to say that all our evaluations were successful and have helped to inform the way forward for the Open AIR network in general, as well as our hub specifically.*

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**Prof. Jeremy de Beer, Helen Chuma-Okoro, Nicole Tumaine, and A/Prof. Tobias Schonwetter actively engaging in discussions at RightsCon.**

▶▶◢
**Sileshi Hirko (left in picture), was awarded a QES fellowship this past year. His PhD thesis looks at open access to educational materials and copyright laws in Ethiopia. Here he is with Open AIR researcher Wondwossen Belete.**

One of the most welcome changes this year was the inauguration of our new offices and brand new lab at the Centre for Law, Technology and Society (CLTS). This new space is shared by other research projects as well as individual researchers; providing a spawning ground for new ideas and collaborations. A designated office was also created for visiting researchers such as our Queen Elizabeth Scholars (QES), as well as the various other Open AIR network members who come to visit. This new lab was cofunded by the University of Ottawa and is equipped with computer screens, a projector, desks, etc. This space has already been used for team meetings and brownbag seminars by visiting NERGs. The latter was by visiting QES, Desmond Oriakhogba, who presented on his in-progress QES research to a packed house. We already have planned more such seminars and guest lectures to be conducted in the space in the coming year.

The Ottawa hub hosted our annual Distinguished Speaker Series lecture, this year featuring Chidi Oguamanam and his first-hand perspective on the WIPO IGC negotiations. This was cohosted by the CLTS and well attended, including by local African Ambassadors and Canadian policymakers. We were also fortunate to host an additional talk by Open AIR Steering Committee member Erika Kramer-Mbula. This was cohosted by the CLTS as well as the Canadian International Council's (CIC) Africa Study Group (ASG). Kraemer-Mbula's presentation was a great opportunity to show to influential Canadians in Ottawa that the informal sector in Africa is rife with innovation and successful entrepreneurs.

The Ottawa hub was especially flattered to be asked to accompany the Canadian Governor General on her State Visits to West Africa. The Governor General is the official leader of Canada, as representative of the Queen, and has a prestigious and influential role within Canada. Open AIR Steering Committee member Chidi Oguamanam was personally invited to accompany the Governor General and had several opportunities to speak with her, including one-on-one. As part of this delegation, Oguamanam spoke



Université d'Ottawa | University of Ottawa

openAIR
AFRICAN INNOVATION RESEARCH

**Modalities of Innovation Hubs and Innovative Entrepreneurs in Africa**

Erika Kraemer-Mbula
Professeure agrégée | Associate Professor
University of Johannesburg

20 SEP. 2018 | 17:30 -19:00
Pavillon **Fauteux** Hall | Amphi. 147
57 Louis Pasteur | Ottawa (on) | K1N 6N5

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at two events in Lagos and Abuja. The first presentation was entitled, "Canada's Relationship with Africa: Innovative Pathways for Optimizing Exciting Business Opportunities and Advancing Human Capital for Mutually Sustainable Benefit", with the second being, "Youth Power, Human Capital, Civil Society and Innovation: A Strategic Partnership for Nigeria and Africa's Renaissance". Being invited to be a part of such a high-level delegation was one of the highlights of our year.

In addition to events, the Ottawa hub conducted significant research. Chidi Oguamanam's publication through the Centre for International Governance Innovation (CIGI), "Tiered or Differentiated Approach to Traditional Knowledge and Traditional Cultural Expressions" was featured in IP Watch and used at the WIPO IGC negotiations. Similarly, Jeremy de Beer – alongside Open AIR researcher Yaw Adu-Gyamfi – was cited by World Trademark Review in their April 2018 coverage. Sileshi Hirko and Jeremy de Beer recently co-authored a journal article on IP and knowledge transfer between Universities and industry in Botswana.

The Ottawa hub was honoured to host several Queen Elizabeth Scholars (QES), some for short stays and others for months. One such scholar was a long-time Open NERG, Helen Chuma-Okoro. Helen has been an Open AIR NERG for years and is located at Open AIR's west Africa hub, NIALS. She is also completing a PhD at Open AIR's southern African hub, UCT. As part of her QES fellowship, Helen came to Ottawa for a couple months to conduct her internship and to participate and be mentored at the Ottawa hub's Centre for Law, Technology and Society (CLTS). During her time with us, she made significant contributions including attending RightsCon in Toronto and conducting research at Osgoode Hall law school. Second, during the summer, we hosted Desmond Oriakhogba, who was conducting research under Open AIR's traditional and indigenous knowledge theme. While here, he gave our inaugural brownbag speaker series, where he spoke about his research in South Africa. He was also a panelist in the International Conference of the Commission on Legal Pluralism, hosted at uOttawa. Finally, one of our uOttawa PhD students, Sileshi Hirko, was awarded a QES fellowship this past year and has been conducting his internship component at an Ottawa NGO, CODE. CODE's mandate is to make local educational materials for schools in developing countries, especially Africa. Sileshi's PhD thesis looks at open access to educational materials and copyright laws in Ethiopia. In this way, the QES grant has been enabling us to expand opportunities for NERGs. In the coming months, we will be hosting at least two other QEScholars, Chijioke Okorie from the UCT hub and Mnena Abuku from the Strathmore hub. We look forward to hosting more and sending some Canadian students to Open AIR hubs in the coming years.

In addition to our QEScholars,

two of our PhDs are finally nearing graduation. Sileshi Hirko and Uchenna Ugwu have been with Open AIR as NERGs for nearly four years and have just recently handed in their theses. As mentioned, Sileshi has been conducting research into open access to educational materials. Uchenna has been conducting research into agriculture, trade, and intellectual property in West Africa. We have been happy to have them and are thrilled that their objectives of a PhD are coming to fruition, after long work. We will be sad to see them leave. We have, however, already welcomed two more PhD students, Esther Ekong and Dianah Ajuna Byaruhanga. The former is a long-standing NERG from NIALS, who was accepted to uOttawa this year for her PhD. Her research looks at informal sector female entrepreneurs in the cosmetics industry in Nigeria. Dianah is a Ugandan professor who is on leave to complete a PhD at uOttawa. Her research looks at international law on cybercrime and its suitability for the continent of Africa. Both Dianah and Esther were this year selected as Board Members of the Canadian Association of African Studies (CAAS). In previous years, there was only one student member on the Board. This year, because of the qualifications of the candidates, both Open AIR applicants and one other applicant were allowed to hold Board positions. Finally, while not supervising their thesis directly, we have welcomed PhD student

Abdelhamid Benhmade to the Open AIR family. Hamid comes to us from the Political Science school and his focus is on development and politics. We are honoured to continue to attract fabulous African students and look forward to reading their research outputs.

In addition to conducting their research, our students at the Ottawa hub have been busy presenting their research and producing various forms of grey literature. For example, Uchenna Ugwu was published through Afronomics Law in a blog entitled, "The Non-Interference Policy in China's IP Related FTAs: Implications for African Development". Uchenna also presented her work at the annual Canadian Association of African Studies Conference in Montreal. In partnership with the Faculty of Engineering, Open AIR again had a panel at the Ontario Makers and Mentors Innovation Conference (OMMIC), 2019. This panel featured both Ottawa researchers, Chris Armstrong and Thomas Mboa Nkoudou, as well as Nagham el Houssamy from the Cairo hub. Open AIR also helped feature voices from African Makers themselves at the panel. These were Sandra Juliet Ahiataku from Kumasi Hive (Ghana), Ousia Foli-Bebe from EcoTecLab Makerspace (Togo), and Omar El Safty from Fab Lab Egypt.

# Strathmore University



*The Eastern African hub had a fast-paced year, with the production and presentation of new publications and the beginning of new research. As the home of the theme leader on High Tech Hubs, Isaac Rutenberg, we have been playing an active role in Open AIR's expanding research into artificial intelligence for development (AI4D).*



▲
**Wanjiru Caroline Muchiri, a new member of the CIPIT group.**

**Isaac Rutenberg speaking at World Intellectual Property Day hosted by CIPIT.**
▼



This is in addition to our ongoing research into gender, intellectual property, maker spaces, and more. We have continued to support several NERGs and are also proud to announce that Strathmore will begin being able to issue PhD degrees, further enhancing our ability to support new and emerging researchers.

We are proud to announce that, in March of 2019, Isaac Rutenberg's book *Cyber Law in Kenya, Second Edition*, was published. Derived from the renowned multi-volume *International Encyclopaedia of Laws*, this practical guide to cyber law – the law affecting information and communication technology (ICT) – in Kenya covers every aspect of the subject, including intellectual property rights in the ICT sector, relevant competition rules, drafting and negotiating ICT-related contracts, electronic transactions, privacy issues, and computer crime. Its succinct yet scholarly nature, as well as the practical quality of the information it provides, make this book a valuable time-saving tool for business and legal professionals alike.

Over the past year, we have hosted and spoken at a number of events. In May 2018, CIPIT hosted a World Intellectual Property Day (WIPD) workshop that featured female high school students. The theme for the World Intellectual Property Day was 'Powering change: Women in innovation and creativity'. As stated by WIPO, "the campaign celebrated the brilliance, ingenuity, curiosity and courage of the women who are driving change in our world and shaping our common future." This was a great opportunity to engage in true knowledge mobilization with the people who our research matters to the most: the next generation of creatives and innovators.. In addition, Isaac Rutenberg presented at the breakout session, "Incubators and start-ups", of the Sustainable Blue Economy Conference. This conference was co-hosted by the governments of Kenya, Canada, and Japan and was the first-ever global conference on the sustainable blue economy aimed to help further the international community's support of the UN SDGs. Then, in November of 2018, Isaac Rutenberg spoke at the Annual GEIA Economic Summit

Strathmore Law CIPIT @StrathCIPIT · Sep 5, 2019
Andrew Ngurumi recently wrote on our blog on the inclusion of farmers in Kenya's agricultural policy. In light of the article, we received an interesting question from one of our readers, who asked, what is the role of policymakers? Read his reply here: blog.cipit.org/2019/09/05/rig...



Strathmore Law CIPIT @StrathCIPIT · Sep 3, 2019
Today on the blog, Michael Butera thoroughly analyses African Traditional Knowledge and Expressions of Folklore. Read here: blog.cipit.org/2019/09/03/afr...



Strathmore Law CIPIT @StrathCIPIT · Sep 24, 2019
We hope someone points out (in court) the million fingerprints stolen from a UK database of citizen biometrics. Tying healthcare to biometrics is a recipe for fraud, lost services, hardship for citizens. google.com/amp/s/www.forb... #HudumaNamba #NIIMS



New Data Breach Has Exposed Millions Of Fingerprint And Facial Reco...
And now it's happened—actual fingerprints and facial recognition records for millions of people, exposed in a huge data breach.

in the Canary Islands. The summit's theme that year was "Trade, FDI and Innovation for Sustainable Development", with Rutenberg speaking about "Trade, Technology and Open Innovation". This was well-attended by local policy makers and Open AIR had been specifically requested to participate by the organizers, who knew our research was highly relevant. Finally, in April 2019, CIPIT hosted "Toward a Network of Excellence in Artificial Intelligence for Development (AI4D) in sub-Saharan Africa". This was a three-day workshop organized by IDRC with the goal of building a network of AI and other Fourth

Industrial Revolution technology researchers. The event attracted approximately 60 researchers from across the continent.

CIPIT has also been complimented by having excellent new and emerging researchers over the past year. In November 2018, CIPIT hosted a NERG Fellow from the University of Ottawa, Eashan Karnik, who was able to attend the Sustainable Blue Economy Conference as well as learn how other hubs in the network operate. While only with us briefly, both Dorcas Chebet and Wanjiku Karanja joined CIPIT's Open AIR team as part of the NERG for several months in 2018. While with us, they were instrumental in being able to our run advisory training sessions for innovators and Wanjiku was able to assist with the course development of the proposed Business of IP program. Since then, we have been proud to welcome Caroline Wanjiru as NERG members at CIPIT. Caroline Wanjiru is working on a research paper regarding the evaluation of the innovation ecosystem in Kenya. The research's main objective is to establish how open collaborative innovations within the ecosystem, if any, are helping start-up businesses to scale up in the era of global knowledge economy. The research also focuses on establishing the level of inclusivity within the ecosystem, specifically of the youth and women within and by start-up businesses. This will assist in evaluating the inclusivity and sharing of the social and economic benefits of innovations. Further, we are currently hosting Mnena Abuku as a visiting Queen Elizabath Scholars – Advanced Scholar, whose research explores innovations by women indigenous entrepreneurs and if collaboration through the use of information communication technologies (ICT) would boost their businesses' success. This additional capacity has and will continue to allow us to conduct our research at the highest calibre and on the most relevant topics for our region.

Our outreach activities also did not slow down in 2018 and 2019. Our social media platforms continue to be busy and we have written 27 blog posts since July 2018.

▶▶
**Science conference on Entrepreneurship and Informal Innovation in Ashanti, Kenya.**

# University of Johannesburg

*The University of Johannesburg is Open AIR's newest hub and there was a lot of setting up to do in the past year. Many major research works and publications were also produced, while staff were found and hired. Our students have continued to progress rapidly and have loved seeing the practical outcomes of their timely and important research.*

**SARChI**
SARChI Chair:
Industrial Development

**UNIVERSITY OF JOHANNESBURG**

One of our main outcomes from the past year has been our supporting of masters and doctoral students as well as postdocs to travel and present their work at international conferences and workshops. In April 2018, Outlwile Maselwanyane was supported to present and participate in the African Open Hardware Society Conference in Ghana, where he was a panellist alongside Open AIR researchers Yaw Adu-Gyamfi, Vipal Jain, and Chris Armstrong. For more information about this and his experiences, Outlwile wrote a blog post on the Open AIR website here: https://openair.africa/2018/05/30/making-at-africaosh-summit-2018/. Also in April, two of our doctoral students, Nepeti Nicanor and Godfrey Mashamba, were supported to present their ongoing research in a workshop on "Economics of Innovation" in Oslo, Norway. In addition, we were honoured to have

one of our postdocs, Elvis Avenyo, participate in the African Innovation Summit in Kigali, Rwanda. This conference is one of the leading forums for policy-makers, academics, and the media to discuss and highlight the dynamism of the continent. All of these activities have had a major impact in increasing the exposure of our students to international communities of scholars in the field of innovation in inclusive development, as well as enhancing their presentation skills.

Further, over the past year, we have been providing postgraduate students, both masters and postdoctoral, with funding to support research. Outlwile Maselwanyane received two stipends for his contributions to ongoing research on makerspaces in South Africa. One postdoctoral student at UJ, Lorenza Monaco, was supported for four months to continue to



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**Chris Armstrong, Vipal Jain and Outlwile Maselwanye attending AfricaOSH in Kumasi, Ghana.**

**Second Open AIR Lead Researcher Awarded a National Research Foundation (NRF) Research Chair**

**Erika Kraemer-Mbula**, Open AIR Steering Committee member and Lead Researcher on the Informal Innovation research theme, was awarded a National Research Foundation (NRF) research chair in the South African Research Chairs Initiative (SARChI). This is in support of, and recognition for her research into Transformative Innovation, the 4th Industrial Revolution and Sustainable Development. This is a partnership between UJ, the University of Sussex, and the African Centre for Technology Studies in Kenya. This is the second member of the Open AIR network to be awarded a prestigious SARChI Chair. Caroline Ncube was awarded the SARChI Chair: Intellectual Property, Innovation and Development in 2018.

conduct her work looking at innovation and the informal economy. Another postdoctoral student also received two months of funding to support his work on innovation in makerspaces. Nepeti Nicanor, who is a PhD student developing her thesis under the supervision of Kraemer-Mbula, has been conducting research on Innovation and Inclusive Industrialisation, with a specific focus on informal enterprises. Finally, UJ helped to co-fund one postdoc Queen Elizabath Scholars – Advanced Scholar, Elvis Avenyo, for a year. This has resulted in a number of achievements including publications, presentations, and, most importantly, personal and professional growth.

In addition to her ongoing research, Steering Committee member Erika Kraemer-Mbula participated in several international conferences. This has included the Africa Open Hardware Society conference in Tanzania, the African Economic Research Consortium's 48th Biannual Research Workshop, the African Innovation Summit in

Kigali, and the 2018 Annual GEIA Economic Summit in the Canary Islands. Kraemer-Mbula also presented at the IISD's 3rd Annual Multi-stakeholder Forum on Science, Technology and Innovation for the Sustainable Development Goals Transformation Towards Sustainable and Resilient Societies at the UN Headquarters in New York. In addition, in September 2018, Erika Kraemer-Mbula visited the Open AIR hub at the University of Ottawa, where she gave a well-attended talk, in partnership with the Centre for Law, Technology and Society (CLTS) and the Africa Study Group, entitled "Modalities of Innovation Hubs and Innovative Entrepreneurs in Africa". The video of this is available both on the website of the CLTS and Open AIR's Youtube channel.

Finally, there have been several publications as a result of the research from our hub. In November 2018, Erika Kraemer-Mbula coauthored an article in International Journal of Gender and Entrepreneurship entitled, "Gender diversity and enterprise innovative capability: The mediating effect

of women's years of education in Nigeria". In the January 2019 edition of International Journal of Technological Learning, Innovation and Development, Erika Kraemer-Mbula and Open AIR researcher Oluseye Jegede coauthored an article on African micro-and small enterprises and their relationship between work organisation, capability development, and innovation. Just this past June, Open AIR NERG, Elvis Avenyo, coauthored an article in Research Policy, entitled "The employment impact of product innovations in sub-Saharan Africa: Firm-level evidence".

This past year has been one of continuing achievements and milestones. As our hub slowly grows both in knowledge and personnel, we anticipate our outputs and achievements to increase over the next several years. Our research is gaining increasing traction and we have been able to attract top-calibre students from across the continent, each adding their own viewpoints and experiences, enriching both our research and our on a personal level.

# Nigerian Institute of Advanced Legal Studies

*The Nigerian Institute of Advanced Legal Studies (NIALS) has continued to be a leader in Nigeria on all things Intellectual Property-related, with Open AIR being one of our most valued partnerships. We have been able to facilitate the movement of our scholars to other Open AIR hubs, as well as continuing our research, publications, courses, and ever-expanding partnerships.*



Nigerian Institute of Advanced Legal Studies



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Esther Ekong of NIALS was accepted to do her PhD in Law at the University of Ottawa. She was voted to be Deputy Lead of the NERG group for 2019-2020.

From April to July, 2018, our Senior Research Fellow and Open AIR NERG, Helen Chuma-Okoro was selected as a Queen Elizabath Scholars – Advanced Scholar. As part of this Fellowship, Chuma-Okoro visited the Open AIR hub at the University of Ottawa as well as being a Visiting Research Fellow at the Nathanson Centre on Transnational Human Rights, Crime and Security at York University. This opportunity allowed her to build relationships with both other academics and other NERGs, both within Open AIR and outside of Open AIR. While in Canada, Helen Chuma-Okoro attended the Creative Commons 2018 Global Summit and presented at RightsCon. For more information on this Fellowship and conferences, please see the Open AIR two-part blog post entitled, "Reconciling Copyright with Creativity: New Insights from 2018 Conferences". In addition, one of our Research Fellows, Esther Ekong, was accepted to do her PhD in Law at the University of Ottawa, where she is being supervised by Open AIR Steering Committee members, Chidi Oguamanam and Jeremy de Beer. This furthering of ties between Open AIR hubs has facilitated increasing opportunities for our researchers and has enabled them to conduct in-depth research, which will be discussed later.

In terms of research, NIALS Research Fellow, Esther Ekong, is conducting her PhD research on the role of intellectual property rights as a development tool for women entrepreneurs in developing countries, specifically the cosmetics sector in Nigeria. Esther has completed her first year of course work and is currently preparing for her comprehensive examinations in the fall. She is working closely with other Open AIR researchers and was recently appointed as the deputy NERG Ombudsperson for the entire Open AIR network. She has also been selected as a Member-at Large, Graduate Student Representative, of the Canadian Association of African Studies (CAAS). Further, just this past Summer, her paper, "Gender implications of Geographical Indications for Ghanaian shea butter", was accepted as one of the top eight policy briefs to be published by the Africa Portal. This is a joint initiative of the South African Institute of International Affairs (SAIIA) and the Centre for International Governance Innovation (CIGI), in its thematic series entitled Women, Power and Policymaking. Her paper, entitled "The role of trademarks in empowering rural women through their traditional knowledge: The case of Nigeria", was presented at the 4th AfricaLics Conference, which took place in Tanzania in October 2019.

Our Senior Research Fellow, Helen Chuma-Okoro's research has been garnering attention. She was published in the December 2018 edition of the African Journal of

Information and Communication (AJIC), with her article entitled, "Nigerian Copyright Reform and Implications for Access to Teaching and Learning Materials (TLMs) in the Digital Age". Ms. Chuma-Okoro is currently working on a new collaboration with Ana Enriquez, Scholarly Communications Outreach Librarian at Pennsylvania State University Libraries to produce something similar to the Copyright on Limitations and Exceptions for Educational and Research Activities: Typology and Analysis.

Finally, over the past year, NIALS has also been active outside of Open AIR-related activities. One of our major outputs has been conducting the Harvard CopyrightX course. This has so far led to the graduation of over 300 participants. In May 2019, some of these participants were invited to Harvard for the CopyrightX Annual Summit, where they met with the faculty and other members of the CopyrightX global community. This represents a significant boost and recognition of the role that NIALS is playing in developing the expertise of IP in Nigeria.



▲
Helen Chuma-Okoro, Senior Research Fellow, NIALS on a visit toe the Osgoode Hall Law School at York University in Toronto, Canada.

▲▲
Esther Ekong's paper "The role of trademarks in empowering rural women through their traditional knowledge: The case of Nigeria", was presented at the 4th AfricaLics Conference, which took place in Tanzania in October 2019.

# Closing Word

## Network Sustainability Strategies

*The sustainability of a dispersed network such as Open AIR is a challenge but one that we have been navigating successfully. Using what we consider as a list of key elements that must be considered and implemented for sustainability we continue to adapt on an ongoing basis.*

The network is rooted in six institutional hubs, with more than 100 individual researchers and many NERGs either located in our hubs or across the African continent. We continue our efforts to build individual relationships in Francophone Africa and continue to attract new researchers thanks to our Queen Elizabeth Scholars – Advanced Scholars Fellowships. This investment in organizations/institutions is crucial to the sustainability of the network, because the institutions will remain even when individuals leave. This is also part of our capacity building mandate, strengthening institutions to carry on even if we disappear.

Responsibilities of the hub leaders include:
- building hub capacity: partly via our research and the NERGs
- carrying out world-class research
- interacting with other Open AIR researchers
- mentoring students

Further, our Steering Committee membership comprises the core investigators, hub leaders, theme leaders, a NERG representative, and the managers. This interaction is key to the development of trust, shared research, and mutual learning that makes us unique and keep hierarchies to a minimum. Face-to-face meetings between members are common and we have at least one face-to-face meeting of the entire Steering Committee each year.

> **Our interaction is key to the development of trust, shared research, and mutual learning**

Finally, as many other can attest, having funding makes getting more funding easier. We have been and will continue to use parallel funding from several funders to both continue and expand the network. We also involve our members in the process of applying for funding, so as to help them gain these skills when they are not already present. Further, we often review members' funding proposals across the network, helping members to gain strategies and, in the very least, have another set of eyes that can be trusted to give good feedback. Indeed, simply being part of the network is frequently beneficial in terms of accessing resources, outreach, leveraging credibility, and more.
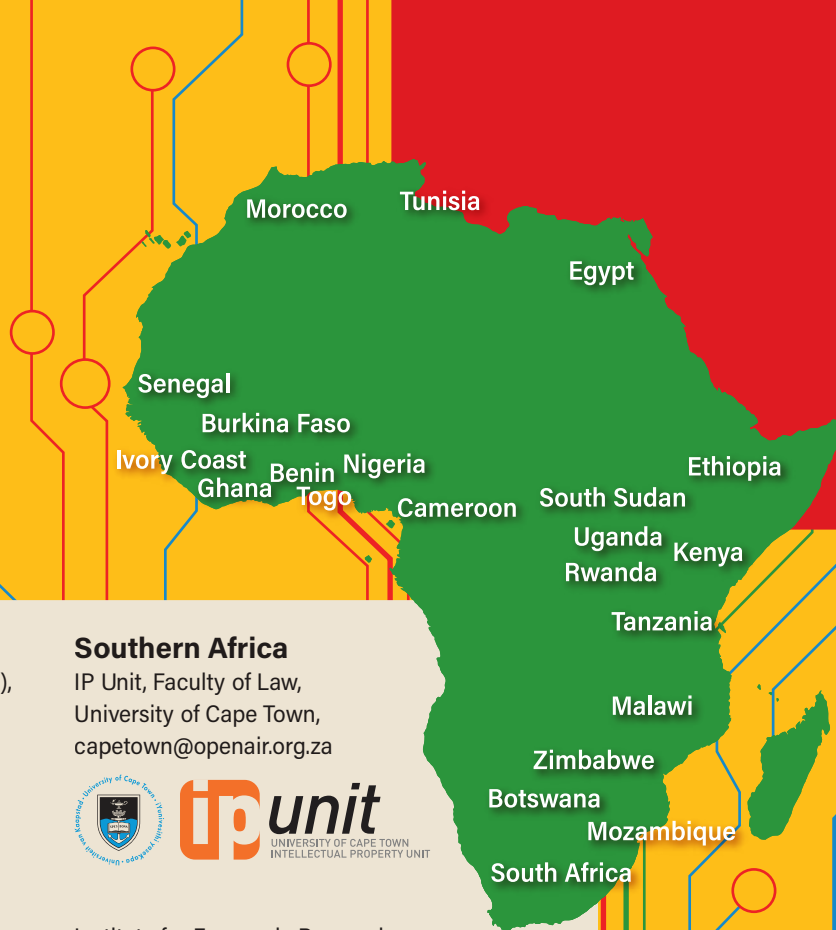
### Ongoing Improvements to Monitoring and Evaluation

A workshop held in 2018 and including all members of the network considered information garnered from an online questionnaire that was completed in advance of the meeting and used to structure the workshop. Key, overarching issues arising from these discussions were, and continue to be, monitored and updated where appropriate.

- Approaches on how to get our recommendations into the policy realm in order to create an environment that facilitates innovation. This will be ongoing since laws and policies are a process.
- Monitoring any increased recognition of the Open AIR network by government, policymakers, etc. in Africa, and evidence of increased uptake of Open AIR's research impacting on laws, policies and/or practices related to our research.
- Working on the formulation of appropriate models to share with the international community. The top-down lens of metrics used in global scholarship, misses a lot of innovation from Africa.
- Cross-cutting analysis of our research studies to create a conceptual foundation for deeper analysis.
- Engagement with the management and systems requirements underpinning a fully-fledged network.

# openAIR
## AFRICAN INNOVATION RESEARCH

**Morocco** **Tunisia**
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**Burkina Faso**
**Ivory Coast** **Benin** **Nigeria** **Ethiopia**
**Ghana** **Togo** **South Sudan**
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**Rwanda**
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**Malawi**
**Zimbabwe**
**Botswana**
**Mozambique**
**South Africa**

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SCHOOL OF BUSINESS **ACCESS TO KNOWLEDGE FOR DEVELOPMENT** **A2K4D**

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